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November 29, 2012

Ms. Amy Baker  
Project Manager  
California Public Utilities Commission  
505 Van Ness Avenue, 4<sup>th</sup> Floor  
San Francisco, CA 94102

**Re: Notice to Proceed (NTP) Request #1 to Conduct Abatement Activities at the Boulevard Substation Rebuild Site**

Dear Ms. Baker:

On June 21, 2012, the California Public Utilities Commission (CPUC) selected the East County (ECO) Substation Alternative Site combined with the ECO Partial Underground 138 kilovolt (kV) Transmission Route Alternative (Decision A.09-08-003) as the approved ECO Substation Project (Project). The decision grants San Diego Gas & Electric Company (SDG&E) a Permit to Construct and conditionally authorizes construction of the Project with the implementation of pre-construction mitigation measures. A Notice of Determination was submitted to the State Clearinghouse on June 21, 2012, indicating the CPUC's approval of the Project.

**Purpose**

SDG&E is formally requesting authorization from the CPUC to begin limited activities at the Boulevard Substation rebuild site in order to complete the required abatement of environmental hazards present in the existing buildings and structures prior to the start of construction. The Boulevard Substation rebuild site is depicted in Attachment A: Overview Map. In accordance with mitigation measure (MM) HAZ-1d of the Final Environmental Impact Report/Environmental Impact Statement (EIR/EIS), SDG&E has performed a hazard assessment at eight existing buildings and structures located on the SDG&E-owned Boulevard Substation rebuild site to identify any environmental hazards that could be encountered by Project personnel during construction. Sampling of these structures demonstrated the presence of asbestos-containing material (ACM), as well as paint and ceramic tiles containing lead. A survey report entitled *Hazardous Building Materials Survey – SDG&E's Schoepfer Property*—which presents the findings, conclusions, and recommendations for the surveying and testing of ACM and paint coatings/ceramic tiles at the Boulevard Substation rebuild site (also referred to as the Schoepfer Property)—was submitted to the CPUC on September 14, 2012.

As specified by MM HAZ-1d, abatement and disposal of all regulated materials will be performed prior to or during the demolition process if ACM or lead-containing paint/ceramic tiles are identified on the rebuild site. Therefore, abatement is necessary to mitigate potential health hazards prior to initiating demolition and construction activities, which are scheduled to begin in December of 2012. Accordingly, SDG&E is requesting an NTP to perform the removal, transportation, and disposal of ACM, as well as the removal, transportation, and disposal or stabilization of building components coated with lead-containing paint and lead-containing ceramic tiles. Some limited removal of construction debris may occur during the abatement work, but the buildings and structures will not be demolished or removed from the site until authorization has been received under a separate NTP. The abatement activities were described in the Final EIR/EIS and are briefly summarized in this NTP request.

## **Pre-Construction Mitigation Measures**

All of the pre-construction mitigation measures applicable to the abatement activities have been completed or will be implemented immediately prior to beginning the work. A list of all of the pre-construction measures that apply to the abatement activities and their status is included in Attachment B: Pre-Construction Status Report to this NTP request.

## **Activity Summary**

Abatement activities will occur within eight unoccupied buildings and structures, consisting of one residential home, one barn, one garage, and five smaller structures, which are located on the Boulevard Substation rebuild site. As previously discussed, all of the structures are scheduled to be demolished and removed prior to constructing the substation. The Boulevard Substation rebuild site, as shown in Attachment A: Overview Map, is located at 40749 Old Highway 80 in the community of Boulevard. The site is currently owned by SDG&E and bordered by Old Highway 80 to the north, the existing Boulevard Substation to the west, and open space to the east and south.

Abatement activities are described in Attachment C: Work Plan and will include the removal of ACM and removal or stabilization of building components coated with deteriorated lead-containing paint and lead-containing ceramic tiles. All work performed will occur aboveground within and on the surface of the eight existing buildings and structures and will not require earth-disturbing activities or the removal of vegetation. The abatement activities are anticipated to take approximately two weeks to complete and will not require the use of heavy equipment.

The removal, transportation, and disposal of hazardous or non-hazardous material will occur at an approved facility in accordance with regulatory requirements of National Emissions Standards for Hazardous Air Pollutants and applicable state and local guidelines and regulations, including those from the California State Department of Health Services, Toxic Substances Control Division. Specific procedures will be conducted in accordance with the waste classification of ACM, paint coatings, and ceramic tiles, which will be determined by the abatement contractor and an industrial hygienist that will be present on site during all abatement activities to monitor and provide oversight support to SDG&E.

All work will be supervised by persons experienced in asbestos and lead abatement and have appropriate certifications or registrations necessary to perform the work, including certification by the California Department of Public Health as a Certified Lead Supervisor as specified in California Code of Regulations (CCR) Title 17, Section 35008, as well as current training as an Asbestos Hazard Emergency Response Act Asbestos Contractor/Supervisor/Competent Person as specified in Code of Federal Regulations 763, Subpart E, Appendix C. Work will be performed by personnel currently certified by the California Department of Public Health as a Certified Lead Worker as specified in CCR Title 17, Section 35009 and trained as asbestos workers in accordance with the aforementioned regulation. The abatement contractor will implement a Health and Safety Program and Work Plan throughout abatement activities, which satisfy the requirements specified in MM HAZ-1b and MM HAZ-4a, respectively. The Health and Safety Program and Work Plan include federal and state occupational safety standards, potential safety hazards, procedures for notifying the appropriate authorities, measures regarding site access and security, emergency procedures, safe work practices, and a training program. The Health and Safety Program and Work Plan have been included as Attachment D: Health and Safety Program and Attachment C: Work Plan, respectively.

Access to the work area will be limited to authorized, trained, and properly equipped personnel, including the contractor, industrial hygienist, SDG&E employees and representatives, and regulatory agency inspectors. Access to the asbestos- and lead-abatement area will be through a worker-decontamination unit adjacent to the entrance to the work area(s). All other means of access will be locked or blocked by the erection of barriers so as to deter entry to or exit from the work area, except for emergency exits.

## **Summary of Resource Impacts**

### *Visual Resources*

Abatement activities will not degrade the quality of the site or its surroundings because all work will be conducted within and on the surface of existing buildings. Therefore, impacts to visual resources will be minor and not discernible from outside of the property.

### *Air Quality*

No ground-disturbing activities will be performed during abatement work at the site; therefore, no dust will be generated and no dust control measures will be required. No off-road equipment or heavy equipment will be used during abatement activities. Abatement activities will not increase traffic beyond the numbers analyzed in the Final EIR/EIS. As a result, fugitive dust and emissions rates will not increase beyond what was analyzed in the Final EIR/EIS.

### *Biological Resources*

Abatement activities will not impact any sensitive wildlife species or critical habitat, as the site is currently a disturbed residential area and all work performed will occur aboveground within and on the surface of the eight existing buildings and structures. Literature and database searches, as well as general biological surveys, were conducted for the Project in 2008 to support the preparation of the Proponent's Environmental Assessment (PEA). Additional rare plant surveys were conducted for the Project in 2009, 2010, 2011, and 2012. Three rare plant species were observed within the survey area in 2012. However, no rare plant species will be impacted during the abatement activities because no earth-disturbing activities or removal of vegetation will be required.

### *Cultural Resources*

A cultural resources study was conducted for the Project in August 2009, and no cultural resources were identified at or in the vicinity of the Boulevard Substation rebuild site. A copy of the cultural resources report was submitted to the CPUC as part of the PEA on August 10, 2009.

### *Geology, Mineral Resources, and Soils*

No ground disturbance will occur during the abatement activities; therefore, no impacts related to geology, mineral resources, or soils will occur.

### *Hazards and Hazardous Materials*

A comprehensive hazardous materials records search of the Boulevard Substation rebuild site was performed in 2008. In addition, a limited Phase I Environmental Site Assessment (ESA) in was performed in 2008. Although the limited Phase I ESA was performed for the 138 kV transmission line route, the results are also pertinent for the Boulevard Substation rebuild site as the site is located within the survey radius of the assessment. The Phase I ESA was submitted to the CPUC as an attachment to the PEA on August 10, 2009. The Boulevard Substation rebuild site is not located on any known hazardous materials sites. No contaminated soils or groundwater will be encountered during the abatement activities as no ground disturbance will occur.

### *Fire and Fuels Management*

No fire-related hazards will occur as a result of abatement activities as no heavy equipment will be utilized and no vegetation removal, tree trimming, or grading will be conducted. All vehicle travel and parking will be confined to previously disturbed areas that are free of vegetation.

### *Water Resources*

No ground disturbance will occur and all work will be confined to the existing buildings. In addition, except for the water needed for the wet methods described in Attachment C: Work Plan (which will require two 55-

gallon drums equipped with Hudson-type sprayers), no water will not be needed to perform the abatement activities. No work will occur within drainages; therefore, no impacts to hydrological resources will occur as a result of the abatement activities.

#### *Land Use and Planning*

No change in the current land use of the Boulevard Substation rebuild site will occur as the work will involve abatement within and on the surface of the existing buildings on the SDG&E-owned property.

#### *Noise*

Abatement activities will not require the use of heavy equipment nor increase the number of construction vehicles beyond what was analyzed in the Final EIR/EIS. Therefore, no significant noise impacts will occur beyond what was previously analyzed.

#### *Public Services and Utilities*

Abatement activities will be conducted entirely within the boundaries of the Boulevard Substation rebuild site and will not increase the number of construction vehicles beyond what was analyzed in the Final EIR/EIS. In addition, abatement activities will be short in duration, lasting approximately two weeks. Therefore, no impacts to emergency response services, school facilities, or recreational facilities will occur beyond what was analyzed in the Final EIR/EIS. In addition, no ground disturbance will occur during abatement work; therefore, no utilities will be impacted.

#### *Wilderness and Recreation*

There are no recreational resources located within or near the Boulevard Substation rebuild site; therefore, the abatement activities will not result in any impacts to recreation.

#### *Transportation and Traffic*

Abatement activities will not require the use of heavy equipment. No new roads will be constructed and no lane closures will be required because all activities will be conducted within the existing parcel boundaries. In addition, activities will be short in duration, lasting approximately two weeks; therefore, no impacts to traffic or public transit in the area will occur.

We respectfully request authorization of this NTP request by November 30, 2012, in order to meet the construction schedule and ensure that abatement activities are complete prior to mobilizing construction crews for the Boulevard Substation rebuild. Should you have any questions or need additional information, please do not hesitate to contact me at (858) 503-5006.

Sincerely,



Don Houston  
Environmental Project Manager  
San Diego Gas & Electric Company

Attachment A: Overview Map  
Attachment B: Pre-Construction Status Report  
Attachment C: Work Plan  
Attachment D: Health and Safety Program  
cc: Anne Marie McGraw, Insignia Environmental  
Jeffrey Coward, Insignia Environmental

Kirstie Reynolds, San Diego Gas & Electric Company  
David Hochart, Dudek



**ATTACHMENT A: OVERVIEW MAP**





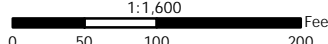







## Attachment A: Overview Map

## East County Substation Project

-  Approximate Boulevard Abatement Work Limits
-  Abatement Structure





1:1,600





**ATTACHMENT B: PRE-CONSTRUCTION STATUS REPORT**



**Attachment B: Pre-Construction Status Report**

 To Be Implemented During Construction  
 Pending OR To Be Implemented Immediately Prior to Construction

 Complete  
 Not Applicable

Mitigation Measure Number	Measure Text	Comments	Status
BIO-01b	Prior to construction, all developer, contractor, and subcontractor personnel shall receive training regarding the appropriate work practices necessary to implement the mitigation measures and comply with environmental regulations, including plant and wildlife species avoidance, impact minimization, and best management practices. Sign-in sheets and hard hat decals shall be provided that document contractor training has been completed for construction personnel.	A tailgate training will be presented to the crew immediately prior to commencing the abatement activities and will include biological resource and hazardous materials management requirements. In addition, the abatement contractor will already have received specialty training prior to the commencement of abatement activities.	To be Implemented Immediately Prior to Construction
ECO-BIO-08	Prior to construction, all SDG&E, contractor, and subcontractor Project personnel will receive training regarding the appropriate work practices necessary to effectively implement the APMs and to comply with the applicable environmental laws and regulations, including appropriate wildlife avoidance; impact minimization procedures; the importance of these resources, and the purpose and necessity of protecting them; and methods for protecting sensitive ecological resources. The training will include BMPs to reduce the potential for erosion and sedimentation during construction of the Project.	A tailgate training will be presented to the crew immediately prior to commencing the abatement activities and will include biological resource and hazardous materials management requirements. In addition, the abatement contractor will already have received specialty training prior to the commencement of abatement activities. No best management practices will be necessary as no ground disturbance will occur during the abatement activities; therefore, no erosion or sedimentation will occur.	To be Implemented Immediately Prior to Construction

Mitigation Measure Number	Measure Text	Comments	Status
LU-01a	<p>Forty-five days prior to construction, SDG&amp;E shall prepare and submit a Construction Notification Plan to the BLM and CPUC for approval. The Plan shall identify the procedures that will be used to inform property owners of the location and duration of construction, identify approvals that are needed prior to posting or publication of construction notices, and include text of proposed public notices and advertisements. The Plan shall address at a minimum two of the following components:</p> <ul style="list-style-type: none"> <li>Public notice mailer. A public notice mailer shall be prepared and mailed no less than 15 days prior to construction. The notice shall identify construction activities that would restrict, block, remove parking, or require a detour to access existing residential properties. The notice shall state the type of construction activities that will be conducted and the location and duration of construction, including all helicopter activities. SDG&amp;E shall mail the notice to all residents or property owners within 1,000 feet of project components. If construction delays of more than 7 days occur, an additional notice shall be prepared and distributed.</li> <li>Newspaper advertisements. Fifteen days prior to construction within a route segment, notices shall be placed in local newspapers and bulletins, including Spanish language newspapers and bulletins. The notice shall state when and where construction will occur and provide information about the public liaison person and hotline. If construction is delayed for more than 7 days, an additional round of newspaper notices shall be placed to discuss the status and schedule of construction.</li> <li>Public venue notices. Thirty days prior to construction, notice of construction shall be posted at public venues such as libraries, community notification boards, post offices, rest stops, community centers, and other public venues to inform affected residents of the purpose and schedule of construction activities.</li> <li>Public liaison person and toll-free information hotline. SDG&amp;E shall identify and provide a public liaison person before and during construction to respond to concerns of neighboring property owners about noise, dust, and other construction disturbances. Procedures for reaching the public liaison officer via telephone or in person shall be included in notices distributed to the public. SDG&amp;E shall also establish a toll-free telephone number for receiving questions or complaints during construction and shall develop procedures for responding to callers. Procedures for handling and responding to calls shall be addressed in the Construction Notification Plan.</li> </ul>	<p>The Construction Notification Plan was approved by the California Public Utilities Commission (CPUC) on October 31, 2012. The Bureau of Land Management (BLM) indicated on August 29, 2012 that the BLM will not need to review the Construction Notification Plan.</p> <p>A copy of the public notice mailer—which will be mailed no less than 15 days prior to construction to all residents or property owners within 1,000 feet of the abatement activities—was approved by the CPUC on November 8, 2012. The notifications were mailed on November 13, 2012.</p>	Complete
ECO-NOI-02	<p>SDG&amp;E will provide notice of the construction plans to all property owners within 300 feet of the Project by mail at least one week prior to the start of construction activities. The announcement will state the construction start date, anticipated completion date, and hours of operation, and well as provide a telephone contact number for receiving questions or complaints during construction.</p>	<p>The Construction Notification Plan was approved by the CPUC on October 31, 2012. The Bureau of Land Management (BLM) indicated on August 29, 2012 that the BLM will not need to review the Construction Notification Plan.</p> <p>A copy of the public notice mailer—which will be mailed no less than 15 days prior to construction to all residents or property owners within 1,000 feet of the abatement activities—was approved by the CPUC on November 8, 2012. The notifications were mailed on November 13, 2012.</p>	Complete

Mitigation Measure Number	Measure Text	Comments	Status
HAZ-01a, Task 1	<p>Prior to approval of final construction plans, SDG&amp;E shall prepare an HMMP for the construction phase of the project, which shall be reviewed and approved by the appropriate agency, and shall include the following components:</p> <ul style="list-style-type: none"> <li>The plan shall identify all hazardous materials that will be present on any portion of the construction site, including, but not limited to, fuels, solvents, and petroleum products. The plan shall address storage, use, transportation, and disposal of each hazardous material anticipated to be used at the site. The plan shall establish inspection procedures, storage requirements, storage quantity limits, inventory control, nonhazardous product substitutes, and disposition of excess materials.</li> <li>The plan shall identify secondary containment and spill prevention countermeasures, as well as a contingency plan to identify potential spill hazards, how to prevent their occurrence, and responses for different quantities of spills that may occur. Secondary containment and countermeasures shall be in place throughout construction so that if any leaks or spills occur, responses will be made immediately.</li> <li>The plan shall identify materials (and their locations) that will be on site and readily accessible to clean up small spills (i.e., spill kit, absorbent pads, and shovels). Such emergency spill supplies and equipment shall be clearly marked and located adjacent to all areas of work and in construction staging areas. The plan shall identify the spill-response materials that must be maintained in vehicles and substation sites during construction and procedures for notification to the appropriate authorities.</li> <li>The plan shall identify adequate safety and fire suppression devices for construction-related activities involving toxic, flammable, or explosive materials (including refueling construction vehicles and equipment). Such devices shall be readily accessible on the project site, as specified by the County's Fire Department and per the Uniform Building Code and Uniform Fire Code. The plan shall be included as part of all contractor specifications and final construction plans to the satisfaction of the appropriate agency. The plan shall also identify requirements for notices to federal and local emergency response authorities and shall include emergency response plans. The plan shall be submitted to BLM and CPUC at least 30 days prior to construction.</li> </ul>	<p>The Hazardous Materials Management Plan (HMMP) and Waste Management Plan have been combined to produce the Hazardous Materials and Waste Management Plan. The Hazardous Materials and Waste Management Plan was approved by the CPUC on October 31, 2012. The BLM indicated on August 29, 2012 that the BLM would not need to review the plan.</p>	Complete
HAZ-01a, Task 2	<p>Prior to construction, all contractor and subcontractor personnel shall receive training regarding the components of the HMMP, as well as applicable environmental laws and regulations related to hazardous materials handling, storage, and spill prevention and response measures.</p>	<p>A tailgate training will be presented to the crew immediately prior to commencing the abatement activities and will include biological resource and hazardous materials management requirements. In addition, the abatement contractor will already have received specialty training prior to the commencement of abatement activities. All work will be performed by personnel currently certified by the California Department of Public Health as Certified Lead Workers and trained as asbestos workers. Pacific EH&amp;S Services, Inc., an industrial hygienist certified by the California Department of Public Health as a Certified Lead Supervisor and trained as an Asbestos Hazard Emergency Response Act Asbestos Contractor/ Supervisor/Competent Person, will also be present during work at the site.</p>	To be Implemented Immediately Prior to Construction

Mitigation Measure Number	Measure Text	Comments	Status
HAZ-01a, Task 3	SDG&E shall designate an environmental field representative who shall be on site to observe, enforce, and document adherence to the plan for all construction activities.	San Diego Gas & Electric Company (SDG&E) has designated Pacific EH&S Services, Inc., the industrial hygienist, as the environmental field representative for the abatement activities. The environmental field representative will be on site during all phases of the abatement activities. In addition, all work will be performed by personnel currently certified by the California Department of Public Health as Certified Lead Workers and trained as asbestos workers. The abatement contractor and industrial hygienist will implement the requirements of the Hazardous Materials and Waste Management Plan during the abatement activities, which will fulfill the intent of this measure.	To be Implemented During Construction
HAZ-01b, Task 1	Prior to approval of final construction plans, SDG&E shall prepare a Health and Safety Program for each applicable phase of the project (i.e., construction, operation, and decommissioning). The program shall be developed to protect both workers and the general public during all phases of the project. The program shall be implemented to educate construction workers about the hazards associated with the particular project site and the safety measures that must be taken to prevent injury.	The abatement contractor hired will implement a Health and Safety Program and Work Plan throughout the abatement activities, which will fulfill the intent of this measure. The Health and Safety Program is included as Attachment D: Health and Safety Program to this Notice to Proceed (NTP) request and the Work Plan is included as Attachment C: Work Plan. All abatement personnel will be trained regarding the requirements of Health and Safety Program and Work Plan prior to the abatement activities.	To be Implemented During Construction
HAZ-01b, Task 1 continued	The program shall include standards regarding occupational safety, safe work practices for each task, hazard training requirements for workers, and mechanisms for documentation and reporting.	Occupational Safety and Health Administration (OSHA) and Code of Federal Regulations (CFR) standards are included in the Health and Safety Program on page 1 of Safety Directive No. 1.3, page 1 of Safety Directive No. 1.4, and page 2 of Safety Directive No. 1.5. Safe work practices are addressed in Safety Directive No. 3.1, Safety Directive No. 4.4, and Safety Directive No. 4.5 of the Health and Safety Program. Hazard training requirements are discussed in Safety Directive No. 1.3 of the Health and Safety Program. Documentation and reporting mechanisms are discussed in Safety Directive No. 1.9 of the Health and Safety Program.	Complete
	Regarding occupational health and safety, the program should identify all applicable federal and state occupational safety standards;	All applicable OSHA and CFR standards are included in the Health and Safety Program on page 1 of Safety Directive No. 1.3, page 1 of Safety Directive No. 1.4, and page 2 of Safety Directive No. 1.5.	Complete



Mitigation Measure Number	Measure Text	Comments	Status
	establish safe work practices for each task (e.g., requirements for personal protective equipment and safety harnesses; OSHA standard practices for safe use of explosives and blasting agents; and measures for reducing occupational EMF exposures);	Examples of safe work practices for each task can be found in Safety Directive No. 3.1, Safety Directive No. 4.4, and Safety Directive No. 4.5 of the Health and Safety Program.	Complete
	establish fire safety evacuation procedures;	Fire safety evacuation procedures are discussed in Safety Directive No. 2.1 of the Health and Safety Program.	Complete
	and define safety performance standards (e.g., electrical system standards and lightning protection standards).	Safety performance standards can be found in Safety Directive No. 3.3, Safety Directive No. 5.2, and Safety Directive No. 8.2 of the Health and Safety Program.	Complete
	The program should include a training program to identify hazard training requirements for workers for each task and establish procedures for providing required training to all workers.	Hazard training requirements and procedures are discussed in Safety Directive No. 1.3 of the Health and Safety Program.	Complete
HAZ-01b, Task 1 continued	The program should include worker training regarding how to identify potentially contaminated soils and/or groundwater.	No ground disturbance will occur during the abatement activities; therefore, this requirement is not applicable.	Not Applicable (N/A)
	Documentation of training and a mechanism for reporting serious accidents to appropriate agencies shall be established.	Documentation of training is discussed in Safety Directive No. 1.3 of the Health and Safety Program. Mechanisms for reporting accidents to appropriate agencies are discussed in Safety Directive No. 1.9 of the Health and Safety Program.	Complete
	The program should identify requirements for temporary fencing around staging areas, storage yards, and excavation areas during construction or decommissioning activities. Such fencing should be designed to restrict transient traffic, off-highway vehicle (OHV) use, and the general public from accessing areas under construction and should be removed once construction or decommissioning activities are complete.	No temporary fencing will be required as all abatement activities will occur within or on the exterior of the existing buildings. In addition, no excavation activities will occur. In order to ensure site security, access to the asbestos- and lead-abatement area will be through a worker-decontamination unit adjacent to the entrance to the work area(s). All other means of access will be locked or blocked by the erection of barriers so as to deter entry to or exit from the work area, except for emergency exits.	N/A
	The program should also identify appropriate measures to be taken during operation of the project to limit public access to hazardous facilities (e.g., permanent fencing, locked access).	Site security is addressed on page 2 of the Work Plan.	Complete
	In order to inform workers and the general public of the dangers of abandoned mines, pamphlets with the "Stay Out-Stay Alive" information used by federal and state governments should be distributed as part of the program.	No abandoned mines are present at the Boulevard Substation rebuild site; therefore, this requirement is not applicable.	N/A

Mitigation Measure Number	Measure Text	Comments	Status
	The program shall be submitted to BLM and CPUC at least 30 days prior to construction.	The abatement contractor's Health and Safety Program is included as Attachment D: Health and Safety Program to this NTP request and the Work Plan is included as Attachment C: Work Plan. The BLM indicated on August 29, 2012 that the BLM would not need to review the Health and Safety Program or Work Plan.	Complete
HAZ-01b, Task 2	SDG&E shall designate an environmental field representative who shall be on site to observe, enforce, and document adherence to the program for all construction activities.	SDG&E has designated Pacific EH&S Services, Inc., the industrial hygienist, as the environmental field representative for the abatement activities. The environmental field representative will be on site during all phases of the abatement activities. In addition, all work will be performed by personnel currently certified by the California Department of Public Health as Certified Lead Workers and trained as asbestos workers. The abatement contractor and industrial hygienist will implement the requirements of the Hazardous Materials and Waste Management Plan during the abatement activities, which will fulfill the intent of this measure.	To be Implemented During Construction
HAZ-01c, Task 1	Prior to approval of final construction plans, SDG&E shall prepare a Waste Management Plan, which shall determine waste procedures, waste storage locations, waste-specific management and disposal requirements, inspection procedures, and waste minimization procedures. The plan shall be submitted to CPUC and BLM at least 30 days prior to construction.	The HMMP and Waste Management Plan have been combined to produce the Hazardous Materials and Waste Management Plan. The Hazardous Materials and Waste Management Plan was approved by the CPUC on October 31, 2012. The BLM indicated on August 29, 2012 that the BLM would not need to review the plan	Complete
HAZ-01c, Task 2	SDG&E shall designate an environmental field representative who shall be on site to observe, enforce, and document adherence to the plan for all construction activities.	SDG&E has designated Pacific EH&S Services, Inc., the industrial hygienist, as the environmental field representative for the abatement activities. The environmental field representative will be on site during all phases of the abatement activities. In addition, all work will be performed by personnel currently certified by the California Department of Public Health as Certified Lead Workers and trained as asbestos workers. The abatement contractor and industrial hygienist will implement the requirements of the Hazardous Materials and Waste Management Plan during abatement activities, which will fulfill the intent of this measure.	To be Implemented During Construction

Mitigation Measure Number	Measure Text	Comments	Status
HAZ-04a	Prior to commencing construction activities, SDG&E shall conduct a safety assessment to describe potential safety issues associated with the project,	The safety assessment has been conducted and potential safety issues are described in Attachment C: Work Plan. In addition, the abatement contractor hired will implement a Health and Safety Program throughout the abatement activities. Implementation of the Work Plan and Health and Safety Program will fulfill the intent of this measure.	Complete
	how safety prevention measures would be implemented,	Safety prevention measures are described on pages 2 and 3 of the Work Plan.	Complete
	where medical aid kits would be located,	The location of medical aid kits is addressed on page 2 of the Work Plan.	Complete
	the appropriate response action for each safety hazard,	Appropriate response actions for each safety hazard are included on page 2 of the Work Plan.	Complete
	and procedures for notifying the appropriate authorities.	Procedures for notifying appropriate authorities are discussed in Safety Directive No. 1.9 of the Health and Safety Program.	Complete
	The assessment shall address issues such as site access,	Site access is addressed on page 2 of the Work Plan.	Complete
	construction hazards,	Construction hazards are described on page 1 of the Work Plan.	Complete
	safe work practices,	Safe work practices are described on pages 2 and 3 of the Work Plan.	Complete
	security,	Site security is addressed on page 2 of the Work Plan.	Complete
	heavy equipment transportation,	No heavy equipment will be utilized during the abatement activities; therefore, this requirement is not applicable.	N/A
	traffic management,	Abatement activities will not require the use of heavy equipment. No new roads will be constructed and no lane closures will be required as all activities will be conducted within the existing parcel boundaries. Therefore, no traffic management measures will be necessary and this requirement is not applicable.	N/A
	emergency procedures, and fire control.	Emergency procedures and fire control are addressed on page 2 of the Work Plan.	Complete



**ATTACHMENT C: WORK PLAN**





2340 E. Artesia Blvd. ~ Long Beach, CA 90805 ~ TEL.: (562) 422-7370 ~ FAX: (562) 422-8703 ~ License #934189

## **ABATEMENT WORK PLAN FOR** **40749 OLD HIGHWAY 80, BOULEVARD CA**

### **OVERVIEW**

The purpose of this project is to demolish all the structures on the subject property. Prior to demolition there is a number of asbestos materials that will need to be removed and areas of lead paint that will need to be stabilized as well as lead containing ceramic tile to be removed.

Asbestos removal will consist of exterior roof sheeting and areas of asbestos mastic at penetrations and patches. Additionally asbestos is present and shall be removed from the interior of the secondary house.

Lead paint has been identified on the exterior of many of the structures and will be properly stabilized and sealed as part of the project. Lead ceramic tile has been identified inside the main house and will be removed.

Asbestos, lead and other heavy metals are hazardous materials. The following work plan has been designed to protect the workers, the environment and any visitors to the job site. All work at the site will be done in strict compliance with all federal, state and local regulations regarding these materials.

### **SCOPE OF WORK**

- Stabilize all loose and flaking paint that has been identified with title 22 metals listed above acceptable thresholds
- Remove all ceramic tile identified above acceptable thresholds
- Remove gray mastic from corrugated metal roof of wood shed
- Remove grey mastic from exterior roof of the well pump house
- Remove rolled roof from water house
- Remove floor tile and associated mastic from multiple areas inside of the Secondary house
- Remove white insulation from the rest room of the secondary house
- Remove skylight mastic from the roof of the main house

### **SEQUENCE**

- Argus to mobilize personnel and equipment to the job site
- Materials shall be stored inside the garage of the main house
- Argus will provide generator power for the daily work
- Argus personnel to begin exterior roof removal and interior asbestos abatement
- After all materials have been removed, the areas will be encapsulated, cleared and released
- Following completion of all asbestos work Argus will begin interior lead removal and exterior paint stabilization
- Interior work areas shall be isolated from exterior areas
- Lead stabilization will begin with a systematic approach completing one area at a time

## **CONTAINMENT CONSTRUCTION AND ISOLATION CONTROLS**

### **EXTERIOR ASBESTOS**

- Barrier tape shall be placed around the structures to demarcate the work area
- Critical Barriers over all roof vents and equipment using 6-mil fire retardant poly.
- Proper Asbestos/Lead hazard signage shall be posted as required
- Manual wet removal methods will be used.
- Decontamination area shall be established.

### **EXTERIOR LEAD**

- Proper Asbestos/Lead hazard signage shall be posted as required
- Barrier tape shall be placed around the side of the building being worked on to demarcate the work area
- Proper Asbestos/Lead hazard signage shall be posted as required
- Critical Barriers over all doors, operable windows and vents consisting of 6-mil fire retardant poly.
- Six mil fire retardant poly shall be placed on the ground within the designated work area
- Manual wet removal methods will be used.
- Proper wash station and change area shall be established.

### **INTERIOR ASBESTOS**

- Critical Barriers over all operable windows and doors using 6-mil fire retardant poly.
- Negative Filtration affixed to the abatement area to achieve 4-air changes/hour, ventilating to exterior of building or away from habitable places.
- Manual wet removal methods will be used.
- 2 Stage Decontamination and Bag out Unit shall be established.

### **SAFETY / GENERAL PREPERATION:**

- Appropriate Danger signs shall be posted at each work area as required
- A OSHA approved First Aid kit shall be kept on site with the OSHA postings and materials in the garage of the main house.
- Emergency Egress Route to be marked on all walls, at 3' level where appropriate within contained spaces.
- Permitted Fire Extinguishers to be placed in a sufficient amount, at strategic locations throughout the interior work area, as well at the main entrances to the work area.
- Daily Safety Meetings will include Emergency Egress Procedures and outdoor issues such as snakes, insects etc..
- Supervisors on site are CPR / First Aid Trained.
- Emergency Phone Numbers to be posted in a conspicuous location.
- Cell phone communications to be utilized on site
- MSDS for all chemicals introduced to site will be on site, and available for inspection upon request.
- Fall protection shall be established for any roof work taking place
- All materials and equipment shall be properly secured and locked at the end of each shift. There will be no armed or 24 hour security assigned to the site



### **METHOD OF REMOVAL:**

All materials involved in this scope of work will be removed with wet methods and hand tools within the designated areas of containment.

### **PERSONNEL PROTECTION:**

#### **EXTERIOR WORK**

- All workers will be provided with half-face negative pressure respirators and (2 each) Tyvek full body disposable suits and disposable gloves. All workers will be required to don the previously mentioned personnel protective equipment prior to entering the work area.
- Upon exiting the work areas, workers will be required to wash exposed skin at the wash station and HEPA vacuum and damp wipe the suit and their respirator. HEPA filters on respirators will either be discarded or sealed.

#### **INTERIOR WORK**

- All workers will be provided with half-face negative pressure respirators and or PAPR's, (2 each) Tyvek full body disposable suits, rubber boots and disposable gloves. All workers will be required to don the previously mentioned personnel protective equipment prior to entering the work area.
- Workers will be required to remove the outer Tyvek suit in the work area then proceed to the first airlock where they will HEPA-Vac and remove their inner suit and respirator filters. Workers will then proceed to the clean room where they will don their street clothes.

### **AREA / CLEARANCE AIR MONITORING:**

- To be performed by the consultant assigned to the project.

### **PERSONNEL AIR MONITORING:**

- All personnel air monitoring will be conducted by Argus personnel. All samples will be analyzed by a certified laboratory and the results will be provided to the Argus employees, per regulations.

### **TRANSPORTER / LANDFILL / DISPOSAL:**

- All bagged waste shall be sealed and placed in an additional 6-mil plastic bag donning the appropriate waste labels.
- The bagged, sealed, labeled waste will then be manifested and hauled to a certified hazardous waste landfill by a licensed, certified hazardous waste hauler.
- Lead waste will be placed in labeled, sealed 55 gallon drums and profiled prior to manifesting and transportation to the appropriate landfill.
- All hazardous waste receptacles and transportation to be provided by SDG&E.
- All non hazardous waste receptacles and transportation to be provided by Argus Contracting.

### **WORK SCHEDULE:**

- Work will be completed Monday through Friday between the hours of 7a.m. and 3:30p.m.

**OCCUPANTS/VISITOR/CONTRACTOR PROTECTION STATEMENT:**

- Argus Contracting has engineered the abatement procedures to afford the visitors and other contractor personnel the utmost in protection against exposure to hazardous materials. Argus Contracting will continue to communicate with these groups throughout the project, to insure that they are kept informed throughout the abatement process.

**WORKER CERTIFICATIONS:**

- All workers who are involved in the abatement process will be required to have participated in the required training and medical programs. Certifications of participants in these programs will be made available to the OSHA Consultant for his review. Copies of same will be on-site during the abatement process.

**BUILDING/FURNISHING PROTECTION STATEMENT:**

- As directed, Argus Contracting will properly protect any items remaining on the property throughout the abatement process.

**SEQUENCING INFORMATION / INTERFACING STATEMENT:**

- Argus Contracting will coordinate with all crafts and personnel, to insure that proper information is relayed regarding the sequencing of the various stages of abatement.

**END OF SECTION**

**ATTACHMENT D: HEALTH AND SAFETY PROGRAM**



# **SAFETY & HEALTH**



## **MANUAL**



## SAFETY AND HEALTH PRINCIPLES

Irex is committed to the safety of its people, customers, and surrounding communities. Through continuous safety improvement, Irex will maintain the highest standards of safety excellence. The following principles are the foundation of Irex's Safety and Health programs:

- All injuries and occupational illnesses can be prevented.
- Management is directly responsible for preventing workplace injuries and occupational illnesses.
- Safe work practice is a condition of employment.
- Training is an essential element for safe work places.
- Deficiencies must be corrected promptly.
- It is essential to investigate all accidents and injuries, and to take corrective actions to prevent reoccurrence.
- Safety audits must be conducted on a regular basis.
- Safety off the job is important.
- It is good business to prevent illnesses and injuries.
- People are the most important element in the success of a Safety and Health program.

W. Kirk Liddell  
President and CEO

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<u>No.</u>	<u>TITLE OF SAFETY DIRECTIVE</u>	<u>Issue Date</u>
<b>ADMINISTRATIVE PROCEDURES</b>		
1.1	General Safety	May 2011
1.2	Job Briefing/Project Safety Plan	Dec 2009
1.3	Training - Safety and Health	Nov 2006
1.4	Safety Meetings - Tool Box Topics	Dec 2006
1.5	Hazard Communication	April 2010
1.6	Occupational Health Hazards	Dec 2006
1.7	Drug and Alcohol - Free Workplace Program	Sept 2009
1.8	Safety Inspections	Oct 2006
1.9	Incident Reporting, Investigation and Follow-up	June 2011
1.10	Regulatory Inspections	Dec 2006
1.11	Safety Conformance – Discipline	May 2007
1.12	Subcontractors	Oct 2008
1.13	Workplace Violence	June 2009
<b>FIRST AID AND EMERGENCY RESPONSE</b>		
2.1	Fire Protection & Emergency Response Procedures	June 2009
2.2	Bloodborne Pathogen - Exposure Control Plan	April 2010
2.3	Heat Illness Prevention	May 2011
<b>PERSONAL PROTECTIVE EQUIPMENT</b>		
3.1	Personal Protective Equipment	July 2009
3.2	Hearing Conservation Program	May 2009
3.3	Respiratory Protection - Program	Mar 2010
<b>MATERIAL HANDLING AND POWERED EQUIPMENT</b>		
4.1	Material Handling, Storage, Use and Disposal	May 2011
4.2	Fork Trucks	July 2010
4.3	Aerial Platforms	Jan 2008
4.4	Handling Stainless Steel	Oct 2006
4.5	Cranes	April 2011

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<b>ELEVATED WORK AREAS</b>		
5.1	Ladders	May 2009
5.2	Fall Protection	Dec 2007
5.3	Scaffolds	July 2008
5.4	Floors and Wall Openings, and Stairways	Dec 2006
5.5	Personnel Lifting Basket	Dec 2006
<b>TOOLS AND EQUIPMENT</b>		
6.1	Tools - Hand And Power	May 2009
<b>ELECTRICAL</b>		
7.1	Electrical Hazards	June 2009
7.2	Lock-out Tag-out	May 2007
<b>TOXIC AND HAZARDOUS SUBSTANCES</b>		
8.1	Asbestos Abatement	Mar 2010
8.2	Lead Abatement	Feb 2011
8.3	Fiberglass and Mineral Wool	Dec 2006
8.4	Refractory Ceramic Fiber	Dec 2006
8.5	Mold Abatement	Dec 2006
8.6	Arsenic	Dec 2006
8.7	Hydrogen Sulfide	Sept 2006
8.8	Benzene	June 2010
8.9	Gas Hazards	July 2010
<b>WORK AREAS</b>		
9.1	Work Area Protection - Signs, Signals & Barricades	Dec 2006
9.2	Confined Space Entry	June 2009
9.3	Process Safety Management	May 2007
9.4	Welding, Cutting, Burning and Grinding	July 2008
9.5	Excavation, Trenching and Shoring	Dec 2006
9.6	In Plant Rail Safety	July 2010



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## **STATE PROGRAM REQUIREMENTS AND BEST MANAGEMENT PRACTICES**

10.0 Injury and Illness Prevention Program  
(Mandatory for all California Operations)

June 2009

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1 **PURPOSE AND SCOPE**

To identify basic rules that have been developed over the years for safe work methods and practices and are intended to preserve and protect the lives, health and safety of the employees, community and property.

2 **REFERENCES**

2.1 The Employee Handbook

3 **DEFINITIONS**

None

4 **RESPONSIBILITIES**

- 4.1 Each employee shall take an active part in accident prevention by abiding by the safety rules as provided in this procedure and applying it in their every day work.
- 4.2 Supervisors shall be responsible for implementing and enforcing all safety rules and requirements within their respective areas/locations.
- 4.3 Management is responsible to ensure that workers and supervisors are competent to safely and effectively perform their assigned tasks by ensuring proper employee assignments are given, employee training and experience is appropriate to the work assignments, and that all work is completed under experienced and trained supervision.
- 4.4 All levels of the work force are responsible for inspecting all tools, equipment, personal protective equipment, machinery and the work area for safety hazards and initiating actions to control all identified hazards.
- 4.5 All equipment is to be properly selected for the tasks to be completed and equipment is to be maintained according to the manufacturer's instructions. Maintenance is to be documented and the specific procedures defined within each respective Safety Directive for tagging and removing deficient equipment and tools from service are to be followed until the equipment is serviced, repaired to a safe condition, and reintroduced into the work environment.
- 4.6 All employees are required to adhere to the company policy prohibiting inspection, disassembly, repair, or reassembly of tire and tire and wheel sets for any wheeled equipment or vehicle larger than a standard 5 passenger company vehicle.

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## 5.0 **PROCEDURE**

### 5.1 **Rules of Conduct**

- 5.1.1 Every employee is expected to be alert and business-like in his/her work and courteous and considerate in all his/her work associations.
- 5.1.2 Use or possession of intoxicating liquor or incapacitating drugs while on the job is prohibited. No employee shall report for work while under the influence of, or in possession of alcohol, or incapacitating drugs. No supervisor shall knowingly permit an employee to work who is under the influence of, or in possession of alcohol or incapacitating drugs.
- 5.1.3 Horse-play, practical joking and other similar distractions while on the job are prohibited.
- 5.1.4 Employees are not permitted to run through facility areas, or to fight on Company/Customer property. Smoking is permitted only in designated locations.
- 5.1.5 Employees are not permitted to possess or to discharge guns, fireworks or other explosive or incendiary devices on the premises, and they are forbidden to bring such devices onto Company/Customer property.
- 5.1.6 Employees are not permitted to work alone. Working alone means an employee is at a work site and assistance is not readily available in the event of a health or injury issue or an emergency.
- 5.1.7 For Canadian operations, vehicular travel alone in the course of employment is considered “working alone”. In all such cases, hazard assessments have or shall be completed to document existing and potential safety hazards. Additionally, the company shall identify and implement safety measures to reduce the recognized risks to workers and shall ensure all such workers have an effective means of communicating with their supervisor or other designated person in the case of an emergency situation. Training shall be provided to ensure all workers working alone are educated to perform these tasks safely and to ensure effective communication is available and used. All Altair ULC employees who drive alone in the course of employment shall be equipped with cellular telephones or shall be provided with and trained in an alternate effective means of communication.
- 5.1.8 Employees have both a right and an obligation to adhere to safe work practices and applicable safety legislation and regulation. When an imminent danger exists as a result of a worksite condition, procedure, tool, equipment, or operation, workers may refuse to work without fear of discipline or dismissal. In accordance with

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Section 35 of the Alberta Occupational Health and Safety (OHS) Act, Canadian Operations employees shall notify their supervisors of the refusal to work and to state their reasons for refusal by identifying the conditions of imminent danger. Supervisors shall document the notification of imminent danger conditions and inform the worksite managers of the condition. An investigation of the imminent danger condition(s) shall be undertaken and documented, and actions to eliminate the danger shall be implemented and documented. A copy of the investigation and the Corrective Actions taken shall be provided to the employee who made the notification, and a safety briefing shall be given to all employees whose work is affected by the condition to explain the nature of the condition and the Corrective Actions taken. In Canada, employees who feel the imminent danger conditions still remain following the company investigation and Corrective Actions may make notifications to the Canadian Occupational Safety and Health Officers and Council and receive a written response with their findings.

## 5.2 Project Safety Plan/Task Safety Analysis TSA

A project safety plan shall be completed prior to the start of all jobs involving three or more employees. Task Safety Analysis shall be completed each shift for all projects. Refer to Section 1.2 of this manual for additional information. The supervisor shall instruct each employee in the recognition and avoidance of unsafe conditions and the regulations applicable to his work environment to control or eliminate any hazards or other exposure to illness or injury.

## 5.3 Housekeeping

### 5.3.1 General

- a) Employees should maintain work areas in a clean and orderly condition.
- b) Nails in boards, such as those removed from scaffolds, forms and packing boxes, should be removed. The boards should be carefully stacked or stored.
- c) Puddles of oil, water or any liquid on floors should be cleaned up promptly.
- d) Tools and materials should not be placed where they may cause tripping or stumbling hazards, or where they may fall and strike personnel working below.
- e) When a machine, tool, material or equipment is not in compliance, it 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.

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### 5.3.2 Illumination

- a) All construction areas, ramps, runways, corridors, offices, shops, and storage areas shall be lighted to not less than the minimum illumination intensities listed in Table D-3 while any work is in progress:

<b>TABLE D-3 - MINIMUM ILLUMINATION INTENSITIES IN FOOT-CANDLES</b>	
Foot Candles	Area of Operation
5	General construction area lighting.
3	General construction areas, concrete placement, excavation and waste areas, access ways, active storage areas, loading platforms, refueling, and field maintenance areas.
5	Indoors: warehouses, corridors, hallways, and exitways.
5	Tunnels, shafts, and general underground work areas: (Exception: minimum of 10-foot candles is required at tunnel and shaft heading during drilling, mucking, and scaling. Bureau of Mines approved cap lights shall be acceptable for use in the tunnel heading.
10	General construction plant and shops (e.g., batch plants, screening plants, mechanical and electrical equipment rooms, carpenter shops, rigging lofts and active store rooms, mess halls, and indoor toilets and workrooms.
30	First aid stations, infirmaries, and offices.

- b) Other areas. For areas or operations not covered above, refer to the American National Standard A11.1-1965, R1970, Practice for Industrial Lighting, for recommended values of illumination.

### 5.3.3 Fire Prevention

- a) Good housekeeping can be the most effective means of eliminating fire potential. Prompt disposal of debris, safe containment of used waste and wiping rags, and preventing oil or other combustible or flammable materials from soaking into thermal insulation and other coverings, etc. are required steps to minimize fire hazards.
- b) Work areas shall be cleaned up as soon as the job is completed and, as necessary, while the work is in progress.

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- c) Work areas for maintenance activities that are on-going 24 hours a day shall be kept clear of combustible and flammable materials.
- d) For non-continuous activities, combustible and flammable materials shall be cleaned up at the end of the shift or activity, whichever is sooner.
- e) Low-hazard combustible materials shall be removed at the end of the activity.
- f) Prior to commencing work activities, each work area shall be inspected for housekeeping and fire hazards and corrective actions to mitigate identified and potential hazards shall be undertaken.

#### 5.3.4 Walkways Aisles and Stairways

- a) Walks, aisles, stairways, fire escapes and all other passageways shall be kept clear of all obstructions.
- b) Adequate lighting shall be installed and maintained. Temporary lighting shall be used as needed to ensure adequate lighting is maintained.
- c) Where wet conditions are an inherent part of the operation, sufficient drainage shall be maintained. False floors, platforms, mats, or other dry standing/walking surfaces should be installed where practical.
- d) Floors, walkways, and stairs shall be kept free from protruding nails, splinters, holes, or loose boards/treads.
- e) Walkways, stairs and aisles shall be kept clear of materials, tools, equipment, and accumulated snow and ice, with appropriate de-icer/non-slip material used as necessary.

#### 5.3.5 Waste Management

- a) All work sites and work areas shall be maintained in a clean and orderly condition at all times to minimize the common hazards associated with unclean work areas. Company personnel shall not work in unclean or cluttered work areas regardless of who generated the waste in the work area. Workers shall clean the area or contact the party responsible for cleaning the area and get them to clean the area prior to starting our work.

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- b) Prior to the start of a project, the operational management team shall estimate the types and quantities of waste and scrap materials that will be generated so that the proper number and types of containers can be procured and staged to facilitate waste disposal and recycling during the course of the project. Segregating waste materials for reuse or recycling is encouraged.
- c) Waste materials shall be properly handled and stored to maintain a clean work site and to minimize the potential for a spill or other uncontrolled release to the environment. All outdoor work shall have waste and scrap receptacles that have an integrated cover or which are capable of having temporary covers installed to prevent dispersion of waste materials to the environment in storm water and to minimize the potential for contaminated storm water run-off.
- d) Where the scope of the project is such that ongoing waste stream generation will take place, and when scrap and waste containers are provided to segregate multiple waste streams, all workers shall be informed of the proper means to dispose of waste materials or to place excess materials in the proper containers for recycle. If any of the waste materials are classified as regulated or hazardous waste items, all employees shall be trained in the proper handling and disposal requirements for the materials.
- e) Scrap material or items designated for salvage shall be properly stored until disposed of and shall not be allowed to accumulate in a manner that poses slip, trip, or fall hazards. These materials shall also be stored in a manner that does not disrupt or impede vehicular traffic or equipment travel routes.
- f) Trash receptacles shall be emptied on a regular schedule. Other accumulated scrap/debris shall also be collected and removed on a regular schedule.
- g) For lead, asbestos, arsenic, mold and other regulated waste materials, refer to section 8 of the Safety Manual for proper handling, transportation and disposal requirements.
- h) All spills involving hazardous material shall be immediately reported to the Supervisor and Regional Safety Manager for proper clean-up and disposal by qualified personnel.

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#### 5.4 Safeguarding Workers and the Public

- 5.4.1 Diligent efforts shall be made to protect workers and the public at all times when Company work is in progress by the use of signs, barricades or personal warning.
- 5.4.2 Pedestrian and vehicular traffic shall be warned by signs and flags or flashing lights by day, and lights, flares or flasher signal by night when working around roadways and railways. When necessary, a person shall also be provided to signal traffic.
- 5.4.3 During the night and in all dark locations, lights shall be in place at any obstruction, excavation or opening which is likely to cause injury to workers or to the customer employees.
- 5.4.4 When working on customers' premises or public property, every effort shall be made to prevent injury or unnecessary property damage.
- 5.4.5 All tools, equipment and excess material shall be removed from the site when the job is completed.
- 5.4.6 No employee shall smoke or use matches or open flames on customer's premises unless it is positively known that such action does not conflict with the customer's rules or wishes.

#### 5.5 Inspections

Frequent and regular inspections of job sites, materials and equipment shall be made by a competent person (supervisor/foreman, Construction Superintendent, Project Manager) as specified in Safety Directive 1.8.

### 6 RECORDS

None

### 7 ATTACHMENTS

None



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## 1 **PURPOSE AND SCOPE**

The Project Safety Planning process is a key element of the Company's Safety Program. It identifies specific safety planning and execution requirements for our work. The Project Safety Plan must clearly define safety responsibilities for the company's employees and employees of any the company's subcontractors and include Emergency Action Plan information identifying employee roles, responsibilities and training requirements for actions to be taken in the event of an emergency (including immediate evacuation of all non-essential or non-trained personnel).

A Task Safety Analysis (TSA) or Pre Job Hazard Analysis (PJHA) is a hazard analysis and hazard control tool to be used daily by every employee to familiarize themselves with the hazards that exist or may exist in the employees work area and to take measures to control or eliminate these hazards. When hazards cannot be eliminated, they are to be controlled with administrative controls (e.g. training, employee rotation), engineering controls (e.g. equipment, process modifications) or the use of personal protective equipment (PPE) as a last option step.

Hazard recognition and assessment is a critical function in safety planning. Existing and potential hazards to workers identified as part of pre-job and/or pre-task safety planning must be eliminated when reasonable and feasible. If elimination is not reasonably practicable, then the hazards shall be controlled or mitigated. When reasonably practicable, we will eliminate or control identified hazards with engineering controls. If a hazard cannot be eliminated or adequately controlled using engineering controls, we will use administrative controls that control the hazard to a level as low as reasonably achievable. If the hazard cannot be adequately controlled using engineering and/or administrative controls, we will ensure that the appropriate personal protective equipment (PPE) is used by workers affected by the hazard. A combination of engineering controls, administrative controls, and personal protective equipment is appropriate when a greater level of worker safety is achieved because the combination is used.

In the event of an emergency situation, only the minimum number of properly trained and equipped personnel shall remain to control and correct the emergency condition. Follow the project Emergency Action/Emergency Response Plan and refer to Safety Directive 1.2, Fire Protection and Emergency Response.

## 2 **REFERENCES**

2.1 Company Safety Manual 2009

## 3 **DEFINITIONS**

None

## 4 **RESPONSIBILITIES**

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- 4.1 Project supervisors/foreman shall ensure that a Project Specific Safety Plan is prepared, approved and reviewed with all workers prior to the commencement of the work or project.
- 4.2 Project supervisors/foreman shall ensure that the TSAs/PJHAs are completed daily or more frequently and as tasks or task hazards change. The TSA/PJHA forms shall be periodically audited by the supervisors/foreman to improve the quality of identifying and correcting hazards.
- 4.3 The Project / Construction Manager shall ensure subcontractors are completing TSAs/PJHAs.
- 4.4 All employees shall be trained in hazard identification and control and the proper methods of completing TSAs/PJHAs to identify all hazards and their corresponding control/corrective measures. All employees, foreman and supervisory personnel shall review each task where corrective action measures are implemented to ensure no new or increased hazards are created by the corrective measures implemented.
- 4.5 The Safety Department, Project / Construction Manager, and Superintendents are responsible for reviewing TSAs/PJHAs and auditing the hazard identification and mitigation process. Employee education shall be conducted at the time of the review to improve the process. The review shall include any corrective measures used to reduce identified hazards to ensure no new or increased hazards are created by the corrective measure process.

## 5. **PROCEDURE**

- 5.1 The project safety plan must be completed by the project supervisor/foreman prior to work on site. Also a copy of the safety plan must be available on the job site.
- 5.2 Enter the appropriate information under each heading in the plan. See Attachment 7.1 of this safety directive. If an item does not pertain to the project, state in the plan that it does not apply, e.g. *Does Not Apply or N/A*. Customers may require additional information for customer specific plans.
- 5.3 Each project must have an approved Project Safety Plan completed in advance of the project start. Projects that do not involve “high risk” types of work (defined below) that are two days or less in duration and that require no more than two employees, may use Task Safety Analysis (TSA) or Pre-Job Hazard Analysis (PJHA) safety planning forms for this purpose so long as emergency information is included on the form.

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For the purpose of the safety planning exception for short term projects, high risk activities are defined to include:

- work 15 feet or higher above the lower working level or at any height where an impalement or related additional hazard exists in the event a fall occurs;
- work that involves potential exposure to electrical current or high temperature thermal hazards;
- work that involves potential exposure to toxic or chemical substances;
- work that involves lift operations above a 15 foot working height or ladder use above a 10 foot working height;
- work where emergency medical services are not available within a 15 minute response window or where an employee is not present who possesses current first aid and CPR training certification and supplies; and
- all work where there is a recognizable hazard that could result in serious injury or illness.

- 5.4 Project Safety Plans may be approved by properly trained (minimum OSHA 10 Hour Construction course) and experienced supervisory personnel such as the General Superintendent, Construction Manager, Project Manager, Branch Manager, Site Superintendent, etc. Each office is required to work with their Regional Safety Manager to develop an effective approval process for Project Safety Plans that is written, communicated and followed.

Project Safety Plans can take many forms, including the template provided in Attachment 7.1 to Safety Directive 1.2 Project Safety Plan / Task Safety Analysis, Job Hazard Analysis (JHA), and customer formats approved by the Regional Safety Manager. The important point to recognize and implement is that the level of pre job safety planning needs to be appropriate to the level of risk presented by the planned work, and that an effective means of communicating the hazards, planned mitigation activities and emergency procedures is followed by the work force.

- 5.5 Safety planning templates may be developed in conjunction with the Regional Safety Managers and used for work activities that are low risk and that involve repetitive tasks so long as the current hazard information is applied to the template format along with relevant hazard mitigation and emergency action information. All such templates shall be forwarded to the Corporate Safety Director for addition to the Corporate Safety and Health Manual so that others may benefit from them.
- 5.6 Please note that several situations exist where additional, specific safety planning is both required and appropriate whether specifically stated or not. Most contaminant abatement activities fall within this category, as does most work in permit-required confined spaces and many fall protection scenarios

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where typical fall protection systems are not feasible or when special rescue conditions exist. Appropriate risk recognition and mitigation through proper planning and execution is our intent and objective. The Regional Safety Manager is available for input if you have any questions on planning requirements or if/when a particular type of safety plan is required.

- 5.7 Certain types of scaffold use and scaffold erection and dismantling activities are a specific example of when additional, specific planning is required. Work on certain types of scaffolds and self-performed scaffold erection and dismantling activities for scaffolds that exceed specific parameters also require a specific safety plan relative to the scaffold activities. Refer to Safety Directive 5.3 in the written or electronic format or Section D-503 in the Reference Library for complete information regarding scaffolding requirements. In summary, the scaffold scenarios where specific scaffold-related safety plans are required to be developed in conjunction with the Regional Safety Manager include:

Scaffolding - Safety Plan Required for Any Use

- All work on any type of suspended scaffold system or any supported scaffolds installed over open shafts, adjacent to or over a leading edge, or adjacent to or over impalement or related types of hazards that are predictable in the event of a fall;
- All scaffolds erected adjacent to or over water, or erected within 15 feet of any power transmission line or other non-sealed, electrical current source transmitting 480Y/277 or greater nominal voltage;
- All scaffolds that are yellow tagged for fall protection hazards due to missing platforms, rails, or other integral scaffold components that affect fall protection. At a minimum, these types of scaffolds require a written Fall Protection Plan in addition to the Project Safety Plan, and
- All scaffolds that are yellow tagged for electrical or thermal exposure hazards.

Scaffolding - Safety Plan Required for Self-Performed Erection/Dismantling

- All scaffolds where the maximum platform height is 20 feet or greater or where the height to width ratio exceeds 4 to 1;
- All scaffolds where the base is not constructed on a single level of uniform height, except when using a maximum height, two-tier Biljax or Baker type scaffold system in a stairway;
- Scaffolds that exceed three (3) bays in length or two (2) bays in width; and
- Scaffolds that intermix different scaffold systems (e.g. frame, tube and coupler, system).

<b>Project Safety Plan / Task Safety Analysis</b>	Issue Date: June 2001
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5.8 **A Task Safety Analysis/Pre Job Hazard Analysis (TSA/PJHA) form must be completed DAILY regardless of the project duration or number of employees.** Refer to Attachment 7.2.

5.8.1 TSAs/PJHAs are to be completed as a condition of employment.

5.8.2 Every employee shall fill out, or jointly participate in developing, a TSA/PJHA every day before the start of the shift and/or if the task or work conditions require.

5.8.3 It is preferable for each employee to fill out their own TSA/PJHA, but workers on the same crew, with the same foreman, working the same task may complete one TSA/PJHA form as long as the hazards and conditions are the same for each member of the crew. If not, separate TSA/PJHA forms must be completed for each crew member.

5.8.4 Identified hazards are to be classified and ranked in accordance with the IREX/Company Task Hazard Risk Assignment Matrix provided as Attachment 7.3.

5.8.5 Employees are to turn in the completed TSA/PJHA to the foreman by the end of the workday. All TSAs/PJHAs are to be legible.

5.9 Review this Project Safety Plan and TSA/PJHA with all workers. Any changes in scope, schedule, chemicals, or equipment require a revision to the safety plan and TSA/PJHA by the project supervisor/foreman.

## 6 **RECORDKEEPING**

6.1 The Project Safety Plan must be kept with all project documentation. TSAs/PJHAs shall be kept for at least three months to allow adequate time for review and auditing.

## 7. **ATTACHMENTS**

7.1 Project Safety Plan

7.2 Task Safety Analysis

7.3 Task Hazard Risk Assignment Matrix

## Project Safety Plan

**Instructions:** This project safety plan must be completed by the project manager/supervisor prior to the beginning of all projects. Please answer all questions. Review the project safety plan with all workers prior to beginning work. A copy of the safety plan must be available at the job site and filed with other paperwork at the end of the project.

Prepared by Company Foreman/Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

Project Name \_\_\_\_\_ Contract No. \_\_\_\_\_

Location \_\_\_\_\_

Description \_\_\_\_\_

Start Date \_\_\_\_\_ Estimated Completion Date \_\_\_\_\_

### Emergency Procedures

Fire: Telephone # \_\_\_\_\_

Injury/Illness: Location of Medical Facility \_\_\_\_\_  
Telephone # \_\_\_\_\_

Customer Contact: Name \_\_\_\_\_ Telephone # \_\_\_\_\_

Regional Safety Manager: Telephone # \_\_\_\_\_ Pager # \_\_\_\_\_

Worker's Comp. Administrator: Telephone 1-800-696-8547 or 717-399-5253

Corporate Safety and Health: 717-399-5217

1A. Where are the MSDS's located? \_\_\_\_\_

1B. Have you reviewed the MSDS's with the employees?  Yes  No

2. Where are you posting applicable safety regulatory compliance posters? i.e., OSHA Federal/State?  Trailer  Gang Box  Other \_\_\_\_\_

3. Is a First Aid Kit with an eyewash readily available?  Yes  No  
Location: \_\_\_\_\_

4A. Identify PPE Requirements

Respirators  Goggles  Hearing Protection  
 Gloves  Tyvek  Other \_\_\_\_\_

**Std. PPE (hard hat, safety glasses, gloves and work boots)**

4B. Are there customer specific safety requirements for the project?  Yes  No

4C. If yes, have they been reviewed with all project personnel?  Yes   
No

- 5A. Will scaffolding be used for the project?  Yes  No
- 5B. If yes, has a Competent Person been identified for project  Yes  No  
Name of Competent Person \_\_\_\_\_
- 5C. Have all employees received scaffold user training.  Yes  No
- 6A. Is fall protection required on the project? (working on elevations > 6 ft)  
 Yes  No
- 6B. If yes, have employees been trained on the required equipment?  
 Safety Harness  Lanyard  Lifeline  Tie-off  Other \_\_\_\_\_
7. Have all project workers completed the Company's Safety Orientation and Training Program?  Yes  No
- 8A. Will power vehicles be used?  Yes  No
- 8B. If yes, identify:  
 Forklifts  Scissor Lift  Boom Lift (JLG)  Other \_\_\_\_\_
- 8C. Has operator training been verified on applicable equipment?  Yes  No
- 8D. Will any employee be operating a motor vehicle (autos/truck)?  Yes  No  
If yes, Complete Vehicle Project Authorization Form See Section 1.13
- 9A. Will ladders be used on the project by the company workers?  Yes  No
- 9B. If yes, have workers been trained on ladder safety ?  Yes  No
- 10A. Are there non-routine tasks required?  Yes  No  
Identify specific tasks  
 Confined Space Entry  Burning/Welding  Excavation  
 Electrical Lockout  Process Safety Mgmt  Other \_\_\_\_\_
- 10B. If yes, have workers been trained in the tasks identified above (10A)?  
 Yes  No Date: \_\_\_\_\_
- 10C. Do you have Task Safety Analysis cards readily available?  Yes  No
11. Special Safety, Health and Environmental Considerations:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Safety is Our #1 Priority**

**Tasks / Potential Hazards**

- 1. \_\_\_\_\_
- \_\_\_\_\_
- 2. \_\_\_\_\_
- \_\_\_\_\_
- 3. \_\_\_\_\_
- \_\_\_\_\_
- 4. \_\_\_\_\_
- \_\_\_\_\_
- 5. \_\_\_\_\_
- \_\_\_\_\_

**Control Measures**

- 1. \_\_\_\_\_
- \_\_\_\_\_
- 2. \_\_\_\_\_
- \_\_\_\_\_
- 3. \_\_\_\_\_
- \_\_\_\_\_
- 4. \_\_\_\_\_
- \_\_\_\_\_
- 5. \_\_\_\_\_
- \_\_\_\_\_

**Crew Signatures**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**PPE**

- Hard Hat
- Safety Glasses with Side Shields
- Gloves \_\_\_\_\_
- Sturdy Work Boots     Steel Toe Required
- Safety Harness/Lanyard
- Hearing Protection
- Flame Resistant Coveralls
- Kevlar Gloves     Kevlar Sleeves
- Shin Guards/Chaps
- Toe Guards
- Face Shield     Goggles
- Tyvek Coveralls
- Chemical Suits     Chemical Gloves
- Rain Suits
- Full Face Respirator     ½ Mask Respirator
- Proper Cartridge
- Air-line Respirator
- Other (list) \_\_\_\_\_



**T. S. A Task Safety Analysis**

Project Name/No \_\_\_\_\_

Foreman \_\_\_\_\_

Date \_\_\_\_\_

Task Description \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Surrounding Conditions**

Weather \_\_\_\_\_

Area Conditions \_\_\_\_\_

**Other Crafts in Area** (please circle)

Electricians    Architectural    Masons

Startup

Carpenters    Mechanical

Ironworkers

**Training Required for Task** (please circle)

Harness    Lift    Rigging

Barricade    Equipment    Fire Watch

Confined Space    Tool Inspection

**Tools and Equipment Required**

Hand Tools

Power Tools

Other \_\_\_\_\_



**REVIEWED CHECKLIST WITH  
EMPLOYEES (please circle) YES or NO**

**General Safety**

- First Aid
- Evacuation
- Haz Com / MSDS
- Nearest Eyewash/Shower \_\_\_\_\_
- Access / Egress
- Material Storage
- Equipment Inspection
- Signs, Barricades
- Weather
- Nearest Fire Exit

**Welding - Burning**

- Systems Drained
- Water Hose
- Flash Back Arrestor
- Fire Watch
- Welding Screens
- Welding Leads Good

**Ladder - Scaffold**

- Correct Ladder and Inspected
- Proper Footing
- Tie Off Rope  4-1 Rule Extension
- Hoist Rope
- Handrails
- Midrail
- Toeboards
- Scaffold Tags
- Scaffold Inspection-Daily

**Permits**

- Ready to Work
- Hot / Work / Flame
- Confined Space

- Safe Work
- Excavation
- Vehicle Entry
- Basin Entry
- Pressurized Work
- Hot Tap
- Energized Work

**Excavation**

- Competent Person
- Daily Inspection
- Entry Permit
- Shored / Stepped
- Access / Egress

**Man Lifts**

- Inspection
- Training
- Footing
- Fall Protection
- Overhead Hazards
- Permits
- Weather Conditions

**Electrical**

- Daily Inspection
- Lockout / Tagout
- GFCI Required and  Tested
- Color Coding
- Try Start / Stop Switch
- Properly Grounded

**Material Handling**

- Proper Body Position
- Proper Lifting Method
- Lifting Devices
- Adequate Personnel

- Forklift
- Cherry Picker
- Load Chart
- Position
- Angle
- Crane
- Chainfall
- Proper Rigging
- Condition of Equipment

**Tools**

- Proper Tool Being Used
- Tools in Good Condition

**Fire Protection**

- Combustibles Removed
- Spark Container
- Fire Extinguisher
- Trained Fire Watch
- Fire Blanket

**Hazards Identified**

- Chemical / Thermal Burns
- Radiation Sources
- Insects / Animals
- Particles in Eye
- Heat Stress
- Cold Temperatures
- Elevated Work
- Slip / Trip / Falls
- Overhead Work
- Inhalation Hazard  Absorption
- Substances / Chemicals
- Noise
- Lighting
- Electrocution
- Spills
- Abrasions / Cuts / Pinchpoints

**IREX TASK HAZARD RISK ASSIGNMENT MATRIX**

**Instructions:** Use the Risk Assignment Matrix provided below to categorize and rank the task hazards identified in the Task or Job Safety Hazard Analysis process. Increasing control measures to mitigate the assigned risk are required for increasing severity and probability. Operations within Categories 1A through 4A, 1B through 4B, 1C through 3C, and 1D through 2D are not to be undertaken without consulting the safety department to ensure all required hazard controls are properly planned and executed.

Potential Consequence Severity		Hazard Probability/ Likelihood of Occurrence			
		Frequent (A)	Probable (B)	Occasional (C)	Improbable (D)
Catastrophic	1	1A	1B	1C	1D
Critical	2	2A	2B	2C	2D
Serious	3	3A	3B	3C	3D
Moderate	4	4A	4B	4C	4D
Minor	5	5A	5B	5C	5D
Negligible / Acceptable	6	6A	6B	6C	6D

Consequence Severity Key:

1. Catastrophic = Permanent total disability, fatality; property damage in excess of \$1,000,000.
2. Critical = Permanent partial disability or temporary total disability in excess of 6 months; property damage in excess of \$250,000.
3. Serious = Temporary total disability up to 6 months, temporary partial disability with impairment above 50%, injury that requires overnight hospitalization; property damage from \$50,000 to \$250,000.
4. Moderate = Medical Treatment injury with lost work time, compensable injury or illness, injuries to more than one person in same accident, restricted duty cases with more than 3 days of restricted duty; property damage from \$500 to \$49,999.
5. Minor = First Aid injury or illness with no lost work time, restricted duty Medical Treatment cases with up to 3 days of work restrictions; property damage up to \$499.
6. Negligible/Acceptable = No injury or illness is expected to occur if proper procedures are followed; no damage to property reasonably anticipated.

Hazard Probability

- A. Frequent = Outcome is highly likely to occur or does occur often, regular/ongoing exposure to hazard(s), aggressive and monitored controls required
- B. Probable = Outcome is likely to occur or does occur often, repetitive exposure to hazard(s)
- C. Occasional = Outcome may reasonably occur or does occur sometimes, sporadic exposure to hazard(s)
- D. Improbable = Outcome is not likely to occur or rarely occurs, very rare exposure to hazard(s)

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## 1. **PURPOSE**

To identify specific procedures for an effective safety orientation and training program. An orientation and training program is designed to promote awareness of safe work practices and occupational safety requirements and procedures. The program is also designed to provide workers with knowledge and materials that will assist with effective solution of safety problems and promote continuous improvement.

Each employee will be indoctrinated with responsibilities for accident prevention. By making each employee aware of specific hazards of each job and ways to avoid injury, we will promote individual participation in the Safety Program. The safety orientation and training courses offered further our commitment to safety by ensuring that all current employees and new hires work safe and work toward our goal of ZERO accidents.

## 2. **REFERENCES**

2.1 OSHA 29 CFR 1926.21 - Safety Training and Education

## 3. **DEFINITIONS**

None

## 4. **RESPONSIBILITIES**

4.1 Construction Managers and Supervisors will ensure that mandatory training is provided and that all workers have received the necessary training to perform their job safely.

4.2 Each Branch Manager will ensure that all orientation and training documentation is maintained.

4.3 The Regional Safety and Health Managers will routinely evaluate and update orientation and training programs.

## 5. **PROCEDURE**

### 5.1 Orientation

5.1.1 All new workers will receive mandatory safety orientation training regarding facility and company safety policies and procedures and OSHA regulations **prior to** conducting on-site activities.

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5.1.2 The mandatory safety orientation training will include project specific requirements such as: scaffolding, fall protection, hazardous materials, emergency evacuation, injury reporting and applicable customer safety requirements. A Company Safety Handbook will be given to each employee. Each employee will complete the “Acknowledgement Form,” page 36, of the handbook and return it to the individual giving the orientation.

5.1.3 Use the Training Record Form, Attachment 7.1, to document the training at the end of the training session. All safety, health and environmental training must be documented. Each employee shall complete the Safety Orientation Proficiency Exam (minimum 70% pass score) at the conclusion of safety orientation. Refer to Attachment 7.2.

## 5.2 Refresher Safety Training

5.2.1 Refresher training will be provided to review safety procedures and meet all applicable regulatory requirements. If necessary, training will be provided at more frequent intervals.

5.2.2 Training covering safety topics, such as motor vehicle, fire, or water safety, will be offered periodically to workers. This training will promote safety issues and provide workers with the tools to prevent, minimize, or control potential accidents at all times.

## 5.3 Safety Management Training

Continuing safety management training is important for personnel responsible for implementing safety procedures. All supervisors/foreman must complete the Company Supervisor Safety Training Course. Construction managers and supervisors will receive additional safety instruction at least once per year. This training may consist of workshops, videos, or outside training courses.

## 5.4 Documentation

Documentation of all orientation and training programs, including the date, location, content, employee names, and instructors will be recorded on the Safety Training Record (See Attachment 7.1). Original forms will be maintained in the local branch office.

## 5.5 Training Program Evaluation and Revision

5.5.1 Training programs will be evaluated at least annually. The following factors will be used to determine if training program content is adequate:

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- New or revised Corporate Occupational Safety Requirements.
- Analysis of inspection report findings.
- Incident analysis.
- Review of operating procedures.
- New regulations, codes, and standards, or changes made to existing ones.
- Training evaluation reports.
- Observations of job tasks.

- 5.5.2 When revisions are made to safety procedures, workers will be furnished with information regarding modifications through one of the following means:
- Written correspondence or other means of communications
  - General staff meeting conducted by supervisors who will discuss the changes.
  - Formalized training to review the changes.

5.6 Training Plan

- 5.6.1 A training matrix will be used to identify required training for supervisors and workers. The matrix will identify the training topics, time frames, and personnel required to attend.
- 5.6.2 The company’s work force will be informed of the plan and their specific training requirements.

6 **RECORDS**

- 6.1 Training record forms must be kept for all employees who complete safety orientation and all training courses. The forms must be kept on file at the local branch office.

7 **ATTACHMENTS**

- 7.1 Safety Training Record Form
- 7.2 Proficiency Exam Safety Orientation

## Safety Training Record

**Course:** \_\_\_\_\_ **Date / Time:** \_\_\_\_\_

**Presenter:** \_\_\_\_\_ **Office/Location:** \_\_\_\_\_

### Topics Covered

- |  |  |
|--|--|
| <input type="checkbox"/> New Employee Safety Orientation<br><input type="checkbox"/> Specific Safety Directives Reviewed<br><input type="checkbox"/> Site Specific Procedures Reviewed<br><input type="checkbox"/> Asbestos Awareness<br><input type="checkbox"/> Lead Based Paint Awareness<br><input type="checkbox"/> Refractory Ceramic Fiber (RCF) Awareness<br><input type="checkbox"/> PPE<br><input type="checkbox"/> Respirators<br><input type="checkbox"/> Scaffolds<br><input type="checkbox"/> Fall Protection<br><input type="checkbox"/> Ladders & Stairways (slip, trips, falls)<br><input type="checkbox"/> Task Safety Analysis (TSAs) | <input type="checkbox"/> Site Specific Work Rules / General Safety<br><input type="checkbox"/> Incident Reporting Reviewed<br><input type="checkbox"/> First Aid/Bloodborne Pathogens<br><input type="checkbox"/> Lock Out/Tag Out<br><input type="checkbox"/> Confined Space Entry<br><input type="checkbox"/> Material Storage & Handling<br><input type="checkbox"/> Electrical Safety<br><input type="checkbox"/> Hazard Communication<br><input type="checkbox"/> Fire Prevention/Protection<br><input type="checkbox"/> Safety Handbook – Reviewed / Signed<br><input type="checkbox"/> OSHA Supv _____<br><input type="checkbox"/> Other: _____ |
|--|--|

	Name - PRINT	SS Last 4#	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			

# NEW EMPLOYEE SAFETY TRAINING - PROFICIENCY TEST

Employee Name:	Date:	Time:
Company:	Employee #:	
Office:	Office Phone Number:	
Results: Pass <input type="checkbox"/> Fail <input type="checkbox"/> 70% for Passing	Supervisor Notified of Results: Yes <input type="checkbox"/> No <input type="checkbox"/>	

	TEST QUESTIONS			TRUE	FALSE
1	All injuries must be reported to your supervisor immediately, no exceptions.	<input type="checkbox"/>	<input type="checkbox"/>		
2	Completion of the Incident Investigation Report is required within 24 hours of any accident.	<input type="checkbox"/>	<input type="checkbox"/>		
3	Falls are the second leading cause of fatalities in the Construction Industry.	<input type="checkbox"/>	<input type="checkbox"/>		
4	Hand injuries are our number 1 injury in the company.	<input type="checkbox"/>	<input type="checkbox"/>		
5	Personal Protective Equipment (P.P.E.) is the last control method in the prevention of hazards/injuries.	<input type="checkbox"/>	<input type="checkbox"/>		
6	Fall protection is needed any time you are working above five feet.	<input type="checkbox"/>	<input type="checkbox"/>		
7	Most ladder accidents are caused by improper use or choice of ladders.	<input type="checkbox"/>	<input type="checkbox"/>		
8	When working with power tools Ground Fault Circuit Interrupter (G.F.C.I.) is not needed if it is not raining at the jobsite.	<input type="checkbox"/>	<input type="checkbox"/>		
9	It is acceptable to store materials in front of exit aisle ways and electrical circuit panels when there are no other areas for storage left at the jobsite.	<input type="checkbox"/>	<input type="checkbox"/>		
10	Falls account for 20% of all disabling work related injuries in the construction industry.	<input type="checkbox"/>	<input type="checkbox"/>		
11	Safety is the responsibility of the employer and supervisor only.	<input type="checkbox"/>	<input type="checkbox"/>		
12	A scaffold must be inspected, tagged and signed by a competent person each shift before you use it.	<input type="checkbox"/>	<input type="checkbox"/>		
13	You must complete company training before operating an aerial lift.	<input type="checkbox"/>	<input type="checkbox"/>		
14	100,000 injuries occur due to unsafe lifting procedures and deficient employee training.	<input type="checkbox"/>	<input type="checkbox"/>		
15	Employee training is not required if you have prior work experience with using material handling equipment.	<input type="checkbox"/>	<input type="checkbox"/>		
16	Hazard warning labels are not required for secondary use containers.	<input type="checkbox"/>	<input type="checkbox"/>		
17	Material Safety Data Sheets (M.S.D.S.) are not required on a jobsite if you already have a written hazard communication program.	<input type="checkbox"/>	<input type="checkbox"/>		
18	A lockout/tagout program is needed when de-energizing and/or restoring equipment at the worksite.	<input type="checkbox"/>	<input type="checkbox"/>		
19	Employee training is not required for permit required confined space entry.	<input type="checkbox"/>	<input type="checkbox"/>		
20	Horseplay is acceptable at the jobsite if nobody gets injured.	<input type="checkbox"/>	<input type="checkbox"/>		
21	Current CPR/First Aid training is required for at least one supervisor at each jobsite.	<input type="checkbox"/>	<input type="checkbox"/>		
22	Zero tolerance is required for a Drug Free Workplace.	<input type="checkbox"/>	<input type="checkbox"/>		
23	A Task Safety Analysis is required to be completed on all worksites for each new job task.	<input type="checkbox"/>	<input type="checkbox"/>		
24	Respiratory Protection employee training is not required when working with lead or asbestos.	<input type="checkbox"/>	<input type="checkbox"/>		
25	Zero Accidents is our company goal for all worksites.	<input type="checkbox"/>	<input type="checkbox"/>		

<b>Safety Meetings</b>	Issue Date: January 2001 Revised: December 2006 Issued By: Safety Dept.
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## **1 PURPOSE AND SCOPE**

Weekly safety meetings provide a resource to express a company's commitment to safety and information to employees which is necessary in order for them to work safely. This procedure is applicable to all employees working on site including subcontractors.

## **2 REFERENCES**

2.1 *Department of Labor 29 CFR 1926.21 – Safety Training and Education*

## **3 DEFINITIONS**

None

## **4 RESPONSIBILITIES**

4.1 The Construction Manager/Project Manager/Job Superintendent is responsible for conducting safety meetings with supervisors. This can be accomplished as a part of established production meetings. It is the responsibility of the Construction Manager/Project Manager/Job Superintendent to see that weekly safety meetings are completed and documented.

4.2 Supervisors are responsible for weekly safety meetings with all of their employees.

## **5 PROCEDURE**

5.1 All supervisors must schedule weekly meetings with all employees.

5.1.1 All employees must attend

5.1.2 Records must be kept and the information provided to any absent employee when they return.

5.2 Guidelines for safety meetings are as follows:

5.2.1 Safety is the only purpose of the meeting and nothing else is covered.

5.2.2 Safety meetings are normally the short duration "standup" or "on the job" type. Ten to fifteen minutes is suggested as maximum. They should be held at least once each week.



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- 5.2.3 The supervisor should ask for comments or suggestions from the employees. Supervisors shall get the employees engaged in the process of continuous safety improvements.
- 5.2.4 Comments and suggestions should be recorded for discussion at the next meeting with the supervisors, unless they can be satisfactorily handled on the spot.
- 5.2.5 Administration matters not contributing to safety are not appropriate topics.
- 5.2.6 A record shall be kept of the subjects presented or discussed and the attendees. The Construction Safety Meeting Report, Attachment 7.1 can be used for documentation.

5.3 Subjects for the safety meetings may come from the following sources:

- a) Corporate Risk /Safety Management Department, e.g. Safety Alerts, Additional Tool Box Safety Topics (180 topics)
- b) Insurance carrier
- c) The customer
- d) Local /National Safety Council
- e) Association of General Contractors
- f) Fire Department
- g) OSHA regulations
- h) Recent incidents
- i) Employees.

## 6 **RECORDKEEPING**

6.1 The weekly Safety Meeting Reports shall be kept at the job site and filed with the project file upon completion.

## 7 **ATTACHMENTS**

7.1 Construction Safety Meeting Report

# CONSTRUCTION SAFETY MEETING REPORT

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

Project Name: \_\_\_\_\_ Job No: \_\_\_\_\_

Type Meeting: \_\_\_\_\_ Date of Meeting: \_\_\_\_\_

*Management*

Number of Employees Attending: \_\_\_\_\_

*Supervisor's*

Total Employees on Job: \_\_\_\_\_

*Foremen's*

*Tool Box*

*Tailgate*

*Safety*

*Other*

TOPICS DISCUSSED: \_\_\_\_\_

\_\_\_\_\_

SUGGESTIONS OFFERED: \_\_\_\_\_

\_\_\_\_\_

ACTION TAKEN: \_\_\_\_\_

\_\_\_\_\_

ACCIDENTS REVIEWED: \_\_\_\_\_

\_\_\_\_\_

NEAR MISS: \_\_\_\_\_

\_\_\_\_\_

SUPERINTENDENT'S REMARKS: \_\_\_\_\_

\_\_\_\_\_

## SIGNATURES OF EMPLOYEES ATTENDING

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

<b>Hazard Communication</b>	Issue Date: January 2001 Revised: April 2010 Issued By: Safety Dept.poh
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## 1 **PURPOSE AND SCOPE**

The purpose of this Directive is to establish uniform requirements to ensure that the hazards of all chemicals used within the work place are identified and evaluated, and that the hazard information is effectively communicated to affected employees. In the United States, the supporting regulatory structure for this Directive is established by the Hazard Communication regulations and in Canada the supporting regulatory framework is the Workplace Hazardous Materials Information System (WHMIS). Both systems work similarly and focus on chemical hazard identification, communication, and mitigation.

Worker exposures may occur in any operation using hazardous chemical constituent products, in work areas adjacent to other contractors using hazardous materials, or in the event of an upset condition or emergency resulting in the release of hazardous chemicals. Worker exposures must be identified as a part of the Hazard Assessment and Project Safety Planning process (refer to Safety Directives 1.2 and 1.6). Exposures to any substance listed in Schedule 1, Table 2 shall be kept as low as reasonably achievable, and we shall ensure that a worker's exposure to any substance does not exceed its occupational exposure limits listed in Schedule 1, Table 2 or applicable federal OSHA Excursion Limits (ELs) or Permissible Exposure Limits (PELs). Atmospheric testing results should be evaluated and mitigated prior to any worker being exposed.

Our insulation work typically involves the use of adhesives and sealants used to bond insulating materials to another surface and sealing of the associated joints. Exposures to the insulation materials, the adhesives and the sealants can occur as a result of forming, shaping and applying the materials. Exposure to all regulated substances in our work environment is to be maintained below established governmental ceiling and weighted average concentration values (permissible exposure limits, ceiling concentration values, Canadian Schedule 1, Table 2,).

In the event of an over exposure, all affected workers will use emergency eye wash and emergency showers to effect decontamination and be promptly taken to an onsite or off site occupational clinic or other medical provider for evaluation and treatment.

This Directive also identifies and communicates potential biological exposure risks related to our work environments. Potential biological hazards exist in the form of molds, fungi, insects (spiders, etc.), rodents (and associated droppings), reptiles (snakes), toxic plant forms (poisonous ivy, etc), and domestic and wild animals (bears, dogs, coyotes, etc.).

Although hazardous wastes are not subject to the Hazard Communication and WHMIS regulations, we are still required to ensure that they are safely stored and handled at the work site and that workers are appropriately trained. Acceptable methods of identifying the waste include placards, coded labels or work site labels as long as they clearly identify the contents of the product containers in accordance with all applicable regulations. All waste materials are to be accumulated in compatible containers, protected from accidental release, and managed in a manner that minimizes exposure to fire hazards.

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## 2 **REFERENCES**

- 2.1 OSHA 1926.59 (Identical requirements of 1910.1200) and other state and local regulations pertaining to Hazard Communication.
- 2.2 Canadian Workplace Hazardous Materials Information System

## 3 **DEFINITIONS**

None

## 4 **RESPONSIBILITIES**

- 4.1 Supervisors will ensure that the written Hazard Communication (U.S. HazCom) or Workplace Hazardous Materials Information System (Canadian WHMIS) program is available at each job site. The primary elements include availability of the written program, a current chemical material list or inventory, corresponding Material Safety Data Sheets (MSDS's), container labels and warning statements, proper storage areas, communication of hazards present on the work site, and employee training.
- 4.2 Site Superintendents will ensure that all hazardous materials and controlled products brought onto and stored at the project site are clearly identified, labeled, used and stored in a manner so as to ensure they pose no hazard to workers or the site and are compliant with EPA, OSHA, state, local, and in Canada, AB OHS regulations and conforming to WHMIS requirements. The Site Superintendents will also ensure that any hazardous wastes generated by our operations are handled strictly by trained personnel equipped with the proper personal protective equipment, and that all such wastes are accumulated in properly labeled compatible containers that are protected against recognizable fire hazards.
- 4.3 Branch Manager will retain and update the MSDS's and chemical inventory list. Review State or Province specific Hazard Communication and WHMIS regulations.
- 4.4 Director of HSE has the responsibility for the overall administration of the Hazard Communication and WHMIS Programs and training.

## 5 **PROCEDURE**

### 5.1 **General**

5.1.1 The major elements of the Hazard Communication Program are:

- a) Hazardous chemical list
- b) Material safety data sheets
- c) Labels

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d) Employee training

5.1.2 Preparation and distribution of labels and material safety data sheets to the contractor is the responsibility of the manufacturer or distributors of the product. But it is up to the individual contractor to obtain MSDS for each hazardous chemical in the work place (the MSDS sheets will be collected at the home office for distribution on an ongoing basis), and to assure that containers of hazardous substances are properly labeled. The hazardous chemical list and training, is entirely the responsibility of the contractor (See paragraphs 5.2 and 5.5). Subcontractors must provide hazardous chemical list and copies of MSDS to the company representative prior to receiving any material on-site.

## 5.2 Hazardous Chemical List

Every project site that uses hazardous chemicals or chemical mixtures will maintain a hazardous chemical list covering all of the known hazardous chemicals used or stored at the work place in the job site trailer, gang box or other area where it is accessible to all workers and whose location is communicated. The hazardous chemical list must be available at each work site for the employees and also be available to other employer's at each work site.

5.2.1 The general contractor and/or construction manager may designate a common location where all employers on the site shall leave their list before beginning work. If a location is not designated, the list must be kept in our gang box or office trailer. If this is not practical, the list must be carried on to the job site daily by the foreman or other designated person.

5.2.2 A comprehensive hazardous chemical list for our business is available from the Corporate Office. This list is arranged alphabetically by common name. The list includes basic information concerning hazardous ingredients, health, fire and explosion hazards, first aid, special precautions. If additional information is needed the relevant MSDS should be consulted.

## 5.3 Material Safety Data Sheets (MSDS)

5.3.1 The original standard requires contractors to have material safety data sheets for all of the hazardous or toxic substances used or stored at any job site. MSDS's shall be readily available.

5.3.2 Please note that not all MSDS sheets will use the same format to communicate the required information about a substance. But each MSDS must address nine information classifications pertaining to the product. These categories are:

1. Product Identification
  - a) Product Number

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- b) Product Name
  - c) Product Class
2. Hazardous Ingredients/ Identity Information
    - a) Ingredient
    - b) Percent
    - c) Occupational Exposure Limits
    - d) Threshold Limit Value
    - e) Permissible Exposure Limit
    - f) Vapor Pressure
  3. Physical/Chemical Characteristics
    - a) Boiling Point
    - b) Vapor Density
    - c) Evaporation Rate
    - d) % Volatile Volume
    - e) Weight/Gallon
  4. Fire and Explosion Hazard Data
    - a) Flammability Classification
    - b) Extinguishing Media
    - c) Unusual Fire and Explosion Hazard
    - d) Special Fire Fighting Procedures
  5. Reactivity Data
    - a) Stability
    - b) Hazardous Polymerization
    - c) Hazardous Decomposition Products
    - d) Conditions To Avoid
    - e) Incompatibility
  6. Health Hazard Data
    - a) Effects Of Overexposure
    - b) Medical Conditions Prone To Aggravation By Exposure
    - c) Primary Route(s) Of Entry
    - d) Emergency And First Aid Procedures
  7. Precautions For Safe Handling and Use
    - a) Respiratory Protection
    - b) Ventilation
    - c) Protective Gloves
    - d) Eye Protection
    - e) Other Protective Equipment
    - f) Hygiene Practices

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8. Control Measures
  - a) Steps To Be Taken In Case Material Is Released Or Spilled
  - b) Waste Disposal
  
9. Special Precautions
  - a) Precautions To Be Taken In Handling And Storing
  - b) Other Precautions

#### 5.4 Labels

- 5.4.1 ALL USERS OF ANY PRODUCT AT THE JOB SITE MUST READ AND BE FAMILIAR WITH ALL CONTAINER LABELS. The regulations require container labels to provide basic information about the product's hazards. Necessarily, labels are not comprehensive, but provide a quick source of reference. If a container does not have a label, consult the hazardous chemical list or MSDS for appropriate information.
  
- 5.4.2 All hazardous and toxic substances must be labeled by the manufacturer or distributor before entering the work place. Employers however, have the responsibility of seeing that all containers at the work place are labeled, including in-house containers. If a substance is transferred into a portable or in-house container which will be used by more than one person, or on more than one shift, the container must be labeled at time of transfer.
  
- 5.4.3 Containers of hazardous chemicals should be labeled to provide the following information:
  - a) Identity of the hazardous chemical(s) in the container:
  - b) Appropriate hazard warnings.
  - c) Name and address of manufacturer, importer or other responsible party.
  
- 5.4.4 Many labels also provide details about a chemical in words, pictures, numbers or symbols. In order for these labels to be effective, the employees must know what each word, picture, number or symbol mean. Each label should be self-explanatory. If a label is not self-explanatory, the hazardous chemical list or relevant MSDS should be consulted. If a label is required on a portable or in-house container, the label should be copied exactly from the label provided by the manufacturer or distributor.
  
- 5.4.5 Container labels should contain the following information: identity of hazardous chemicals, appropriate hazard warnings and name and address of the chemical manufacturer, importer or other responsible party. Employer and employees shall not remove or deface labels on incoming containers of hazardous chemicals.

#### 5.5 Training

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- 5.5.1 The training requirement of the standard is the most important tool for getting the required information to employees. The purpose of the training is to reduce the occurrence of injuries and illnesses resulting from the inappropriate use of chemicals and products.
- 5.5.2 Each branch must complete Hazard Communication and/or WHMIS training for all employees. Initial training is completed during new hire safety orientation and foremen training and when new hazardous products are introduced into the workplace.
- 5.5.3 Each branch shall require the foreman on each project to ensure that the hazards and precautions relating to products used on that specific job site are communicated and understood. This training shall cover the information provided on labels and the hazardous chemical list. Review of commonly used products on every project is not required, but the foreman shall confirm that the entire crew is familiar with the hazards and necessary precautions for all chemical products, processes, materials and wastes present in the workplace. Training shall be provided to non-English speaking workers in their native language.
- 5.5.4 Transferred employees who have already been through new employee training will be expected to be trained on any specific hazard that has already been covered in a previous "tool box" meeting prior to assignment of work by the foreman.
- 5.5.5 The specific points to be covered in training are:
- a) An overview of the regulations, including the purpose of and information available on the hazardous chemical list, MSDS and labels for products. See paragraphs 5.2, 5.3 and 5.4.
  - b) The need for each employee to be familiar with the nature of the hazards in the work place. Employees should be advised to take a quick inventory of the products that are present at each job site and to confirm their understanding of hazards and precautions relating to these products.
  - c) The requirement that the hazardous chemical list be present at all work sites. This information can be held by the general contractor, construction manager, owner, mechanical contractor, sheet metal contractor, etc. (at a designated place). If a place is not designated for this information, it must be kept in our gang box or office trailer. If any of these places are not practical the information must be carried onto the job site daily by the foreman or other designated individual.
  - d) Basic information about the types of hazardous substances found on our construction sites. In addition to the information provided in the Hazardous



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Chemical List, the home office will supply supplemental training materials for common products.

- e) Employees are to be encouraged to ask questions during the introduction program and "tool box" meetings when they are uncertain about what is being covered. Questions by employees will point out areas of confusion where additional information is required. Questions that cannot be answered at the branch should be referred to the Corporate Safety Department.
- f) Records of all training will be kept at each branch. The new employee orientation program will be recorded on the training form supplied by the branch office. "Tool Box Weekly Safety Meeting" records will be kept on the form 9982 Job Site Safety Conference Report.

#### 5.6 Informing Contractors

5.6.1 It is the responsibility of the on-site Foreman to provide contractors with employees with the following information:

- a) Toxic and hazardous substances to which they may be exposed while on the job site,
- b) Precautions the employees may take to lessen the possibility of exposure by usage of appropriate protective measures.

5.6.2 The Foreman will be responsible for contacting each contractor before work is started to gather and disseminate any information concerning chemical hazards that each contractor is bring to the workplace.

#### 5.7 Hazardous Non-Routine Tasks

5.7.1 Periodically, employees are required to perform hazardous non-routine tasks. Prior to starting work on such projects, each affected employee will be given information by the Construction Superintendent/Project Manager or the foreman about hazardous chemicals to which they may be exposed during such activities. This information will include the following:

- a) Specific hazards,
- b) Protective/safety measures the employee can take,
- c) Measures the company has taken to lessen the hazard including ventilation, respirators, presence of another employee (buddy system), and emergency procedures.

Examples of non-routine task possibly performed by the employees of this company:

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<b>Task</b>	<b>Hazardous Substances</b>
Painting	Paint Solvents Thinners
Welding	Oxygen Acetylene Welding Rods with various heavy metals
<b>Task</b>	<b>Hazardous Substance</b>
Masonry Work	Mortars Castables Cements

If you have any questions on non-routine tasks or the Hazardous Communication Program, please contact the Branch Manager or Safety Department.

## 6 **RECORDKEEPING**

The Branch office will maintain the MSDS's, chemical list and employee training for all projects. MSDS's must be kept for 30 + years.

## 7 **ATTACHMENTS**

None

<b>Occupational Health Hazards</b>	Issue Date: January 2002 Revised: December 2006 Issued By: Safety Dept.
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## 1 **PURPOSE AND SCOPE**

To establish guidelines for recognizing, evaluating, and controlling occupational health hazards and stressors arising in and from the work place.

## 2 **REFERENCES**

2.1 OSHA 1926.50 - .57 Subpart D - Occupational Health and Environmental Controls

## 3 **DEFINITIONS**

None

## 4 **RESPONSIBILITIES**

4.1 Employee - The recognition of hazards in the workplace is the responsibility of all employees.

4.2 Supervisor - Prior to the beginning of any project, a Project Safety Plan (PSP) must be initiated by the Supervisor to identify any potential health and/or safety hazards associated with the project and determine respective corrective measures to ensure a safe work environment. Supervisors shall ensure occupational clinics information is established and posted at the job site.

## 5 **PROCEDURE**

5.1 Hazard Recognition - As stated above, the recognition of hazards is the responsibility of all employees.

5.2 Hazard Evaluation

When a hazardous task, operation or material has been identified, this material, process or task must be evaluated to determine the degree of hazard that exists. If it is determined the hazard is an unacceptable, personnel, property or environmental risk, an alternative material, engineering control, procedural change and/or personal protective equipment shall be implemented to reduce the hazard to a safe level. The following procedures will be used to evaluate potential and/or existing occupational health hazards.

5.2.1 Research of available pertinent literature including OSHA Standards, National Institute of Occupational Safety and Health (NIOSH), American Conference of Government Industrial Hygienists (ACGIH) and/or any other pertinent credible Safety and Health regulations, policies and guidelines.

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- 5.2.2 Industrial hygiene exposure monitoring will be performed as determined by acceptable industrial hygiene practices. Monitoring may include biological sampling, area sampling, or personal sampling (i.e. asbestos and lead). Airborne monitoring will be conducted to determine if employee exposure levels are within permissible exposure levels (PEL).
- 5.2.3 Industrial Hygiene monitoring will be performed by a qualified industrial hygienist or technician, in accordance with OSHA and/or American Conference of Industrial Hygiene Association (ACGIH) guidelines, practices and regulations.
- 5.2.4 Industrial Hygiene sampling analysis will be performed by an accredited industrial hygiene laboratory.
- 5.2.5 Employee monitoring results will be sent to the employee's immediate supervisor, project manager and employee in accordance with chemical specific reporting requirements. A copy of the monitoring results will be kept on file as part of the project documentation.

### 5.3 Hazard Control

The type and extent of control methods will depend upon the physical, chemical, and toxic properties of the particular health hazard being evaluated. Control methods to be considered may include one or more of the following:

- a) Substitution of a less harmful material for one that is considered hazardous.
- b) Minimizing direct contact with the material.
- c) Isolation or enclosure of operation (i.e. lead and asbestos abatement)
- d) Wet methods to reduce generation of dusts, fibers and/or particulates at point of operation.
- e) Local exhaust, general or dilution ventilation in areas where contaminants are dispersed into the air.
- f) Personal protective equipment for eyes, skin, ears, head, and respiratory tract.
- g) Medical Surveillance to verify engineering controls and/or personal protective equipment is adequately protecting the employee. (i.e. Accessing blood lead levels in lead abatement workers)

NOTE: When feasible, engineering and administrative controls will be implemented first to reduce employee exposure to hazardous materials before the use of PPE such as respirators. A combination of both may be required.

### 5.4 Occupational Hazards

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The following classes of health hazards will be recognized, evaluated, and effectively controlled in the work place.

#### 5.4.1 Chemical Hazards

- a) Inhalation: Hazards that arise from respiratory exposure to airborne concentration of mists, fume, dusts, vapors, gases, or particulates.
- b) Skin Absorption: Hazards that arise from exposure to liquids, mists, vapor, gases and/or solids that are toxic by absorption through the skin.
- c) Skin and Eye Irritants: Materials that cause skin and eye irritation by direct and/or indirect exposure.

#### 5.4.2 Physical Hazards

- a) Noise: Hazards that arise from exposure to levels of noise above OSHA permissible exposure limits.(i.e. above 90dB 8 hour TWA.) see OSHA PEL table for occupational noise exposure.
- b) Electromagnetic Non-ionizing and Ionizing Radiation: Hazards that arise from exposure to electromagnetic non-ionizing and ionizing radiation exceeding NRC and/or OSHA exposure standards.
- c) Vibration: Hazards that arise from over exposure to vibration.
- d) Pressure: Hazards that arise from over exposure to pressure. (i.e. explosion over pressures)
- e) Temperature: Hazards that arise from over exposure to temperatures hot or cold. See OSHA Temperature tables for permissible exposure limits.
- f) Ergonomic: Hazards associated with improper designed tools, equipment and/or work areas, improper lifting techniques, improper lighting, awkward positioning of employee job tasks, and/or stress or over exertion due to work assignments.

### 5.5 Medical Surveillance

5.5.1 A comprehensive medical surveillance program has been established to ensure:

- a) Employees are placed in job tasks they can effectively perform without endangering the health and safety of themselves and co-workers.
- b) Ensure employee job assignments are consistent with their medical evaluations.
- c) Ensure adequate medical care and rehabilitation of employees who become ill or injured during the course of their employment.
- d) Provide proactive medical surveillance to monitor and document the employee's health profile during their course of employment.

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5.5.2 Employees subject to potential health hazards (i.e. Asbestos and Lead) in performance of their duties will be required to have annual physical examinations. Job specific medical surveillance for employees working with non routine hazardous substances may require additional medical evaluations. Additional medical surveillance requirements will be determined by:

- a) Industrial Hygiene exposure monitoring.
- b) Physician request.
- c) The health hazard characteristics of the substance.
- d) As deemed prudent by the location management an/or mandated by Federal, State, Local, Customer or Corporate requirements.

5.5.3 All medical records shall be maintained by the medical provider (as part of the employees confidential medical file) for a minimum of 30 years after termination of employment. Upon written request to the Corporate Director of Health and Safety, employees shall have access to their personnel medical surveillance files. Employees will be required to sign a release with the medical provider to have their medical files forwarded to a third party.

5.6 Occupational Clinics

5.6.1 An occupational clinic shall be designated for each job site and posted. The occupational clinic will assist in the coordination of return to work and job restrictions.

5.6.2 Disciplinary action will be performed by the Supervisor for failure to comply with the occupational medical requirements.

5.6.3 Employee's medical restrictions will be communicated to the branch and project site management.

6 **RECORDKEEPING**

Employee Medical and Exposure Records will be maintained by the Medical Provider for a minimum of 30 years after termination of employment.

7 **ATTACHMENTS**

None

<b>DRUG AND ALCOHOL-FREE WORKPLACE PROGRAM</b>	Issue Date 11/1/96 Issue Date: January 2001 Revised: December 2009 Issued By: Safety Department
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1. PURPOSE

This Company Drug and Alcohol-Free Workplace Program (Program) has been developed to ensure a drug and alcohol free workplace. Where an Owner, Customer or governmental regulations require a more stringent program, this Program shall be deemed to include the more stringent provisions. This Program shall be conducted in compliance with the Regulations, and all other applicable, federal, state or local governmental regulations.

2. APPLICABILITY

The Program is applicable to all employees of Company ("Employees").

3. RESPONSIBILITY

The Company President shall be the Administrator for the Program. In the absence of the Company President, or at the Company President's direction, the Corporate Safety Director, any Regional Safety Manager, the General Counsel, and the Director of Human Resources may each act as an Administrator. .

4. PROGRAM SCOPE

The company has adopted this Program to ensure:

- A. A safe and healthy work environment for all Company Employees and others who come in contact with the Company employees;
- B. The safety, reliability, and quality of the Company's work and services;
- C. Full compliance with Owner and Customer requirements and applicable laws and regulations;
- D. Protection of the property of the Company, Customers, Owners, and others affected by the Company's work; and
- E. Confidentiality of test results.

5. DEFINITIONS

Accident - Either: 1) Any incident during the Workday because of which any person must leave his or her work station to receive medical attention or which results in damage to property in excess of \$1,500.00, or 2) any incident involving a company vehicle, whether owned or leased, because of which any person must receive medical attention or where one or more motor vehicles incur disabling damage as a result of the accident and require that vehicle to be transported away from the scene by a tow truck or other vehicle. When an Accident occurs, the Employee(s) involved in such Accident must report the Accident to the Administrator so that such Administrator has the opportunity to immediately send the Employee(s) for a Drug test or the Employee(s) can go directly to the Certified Laboratory.

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Failure to do so will be a violation of this Program and subject the Employee to disciplinary action.

Administrator - The person who is responsible for the administration of the Program for the Employee or Applicant tested under this Program as set forth under Section 3 above. Any Administrator may delegate paperwork or other administrative functions to his or her secretary or other office worker or Supervisor. The types of functions which such person may do include, but are not limited to, setting up Drug test appointments, keeping the Drug testing records, handling the payroll changes that may occur as a result of Drug test results, and informing an Applicant or Employee of Drug test results or the requirement to take a Drug test. However, Drug test results shall be disseminated to such persons only on a "need to know" basis. An Administrator may not delegate decision-making duties such as whether an Employee shall be terminated or suspended under this Program, whether to give approval to drink alcohol as more fully described under the definition of "Workday" in this section, and the decision as to whom to test under the post-accident or reasonable cause sections of the Program or any test required by an Owner's, Customer's, or government program. The only exception shall be in emergency situations. Supervisors may make the decision to test when no Administrator is available, there is substantial evidence of Drug use, and the Supervisor fears that if testing is delayed, the evidence of the use of Drugs will be no longer available. In such cases, the Supervisor will carefully document the decision to test and report such decision as soon as possible to an Administrator. When an Administrator has delegated the authority to a secretary, other office worker, or Supervisor to receive Drug test results, the Administrator must inform the Medical Review Officer of such decision so that the MRO will know that he or she can tell such person the results of the test. The Administrator will be responsible to ensure that all persons to whom his or her responsibilities have been delegated will properly and confidentially carry out all duties delegated to him or her.

Applicant - A person applying for employment with the Company. This includes any person who was a worker in the field who is being hired as an office worker.

Certified Laboratory - Concentra Medical Centers or any subsequent SAMSHA approved Laboratory hired by the Company; also referred to as "Laboratory".

Customer - Any entity for which the Company contracts or agrees to perform construction services.

Drug - As used in this Program, alcohol, methaqualone (Quaaludes), marijuana, cocaine, opiates, amphetamines, phencyclidine (includes PCP), benzodiazepine (includes Valium), and barbiturates.

Employee - Any person employed by the Company in any capacity.



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Employee Assistance Program - ENI 1-800-EAP-CALL (www.eniweb.com) or any subsequent EAP hired by the Company; also referred to as "EAP".

Hourly Per Project Employee- Any employee who is paid on an hourly basis and who is hired for and assigned to particular projects to perform installation, abatement or other craft labor, or to supervise workers performing such labor. These employees include foremen, general foremen and lead men, but do not include field superintendents.

Manager – Company President or his or her designee.

Medical Review Officer - Concentra Medical Center or any subsequent MRO hired by the Company; also referred to as "MRO".

Owner - The entity which owns the site where the Company performs work.

Paraphernalia - Drug-related items which are prohibited by applicable state law.

Probationary Period - A two-year period following release by EAP during which period an Employee can be subject to Drug testing at anytime and, if the result is positive, the Employee will be terminated from employment.

Regulations - Department of Health and Human Services Mandatory Guidelines for Federal Workplace Drug Testing Programs, 53 Fed. Reg. 11,969 (1988), and Department of Transportation Procedures for Transportation Workplace Drug Testing Programs, 49 CFR §40.1 et seq., and Drug testing, 49 CFR §199.1 et seq.

Supervisor - The person responsible for directly or indirectly supervising the Employee.

Workday - The time when the Employee reports to work until the time the Employee leaves the workplace for the day; this includes all breaks and eating periods. The only exception is that for rules pertaining to alcohol the workday shall not include breaks or eating or social periods after which the Employee will not be returning to perform job duties but only in particular cases and with the Administrator's prior approval.

## 6. DRUG ABUSE

A. Any form of drug abuse by Employees is prohibited during the Workday. Drug abuse includes:

1. Use, possession, or sale of Drugs, other drugs illegal under applicable state law or Paraphernalia during the Workday;
2. Being under the influence of Drugs or other drugs illegal under applicable state law during the Workday;
3. Use of Drugs or other drugs illegal under applicable state law during non-working hours which could affect the Employee's performance during the Workday.

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4. Use or misuse of prescription drugs which affects job performance or creates a risk of work related injury. The use of prescription drugs that may affect the worker's ability to safely or effectively perform job duties must be reported to the worker's supervisor.
- B. It is prohibited while operating a company vehicle to:
1. Be under the influence of or possess an illegal drug;
  2. Be under the influence of alcohol to a level which would be illegal under the applicable state law.

Violation of this Program or these prohibitions may result in disciplinary action in addition to what is required or suggested under this Program. A violation of B.2. above which does not take place during the Workday shall not subject the Employee to the disciplinary action set forth under Section 9 of this Program but shall make the Employee subject to the provisions of the Company's Driver Safety Program.

7. HIRING POLICY

It is the policy of the Company not to employ individuals who test positive for Drugs during an initial screen of threshold levels which the Company has determined indicate the potential for Drug abuse during the Workday.

8. VOLUNTARY TREATMENT

Employees are encouraged to seek help for any drug problem before it deteriorates into a disciplinary matter. If an Employee voluntarily notifies his or her Supervisor that he or she may have a substance abuse problem, the Company will assist the Employee in contacting the EAP or other treatment facility for treatment. The Company encourages such Employees to use the EAP for treatment. Treatment through the EAP or other treatment facility will not prevent an Employee from receiving disciplinary measures as set forth under this Program. Also, for safety reasons, Drug testing may be conducted at any time without cause following an Employee's voluntary referral to an EAP.

9. DRUG TESTING REQUIREMENTS

Drug testing by urinalysis shall be performed in accordance with the Regulations. Drug testing by other accredited means, e.g. blood, oral fluid, Breathalyzer and hair, may be used provided that testing meets state requirements. Tests shall be conducted by the Certified Laboratory. Tests shall include pre-employment testing, reasonable suspicion, post-accident, return-to-duty, and follow-up or Probationary Period testing. Employees may also be tested as required by an Owner, Customer, or government regulations. Such requirements will not negate the requirement to be Drug tested under this Program. For example, Employees who are also subject to Department of Transportation drug testing requirements will need to fulfill those requirements and the requirements set forth in this

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Program. Employment and continued employment with the Company shall be based on Drug test results. All Employees who refuse to submit to Drug testing shall be terminated from employment or treated as having had a positive test result and subject to Section 9.I.

- A. Certified Laboratory: The Certified Laboratory to be used meets the minimum standards as identified in the Regulations and the following paragraphs. The Certified Laboratory must permit unannounced inspections, including examination of records at any time, by the Owner or Customer, the Administrator, and, if the Owner, Customer or Company is subject to state agency jurisdiction, a representative of that state agency.

Urine samples that yield positive results on confirmation must be retained by the Certified Laboratory in accordance with its established procedures and applicable regulations. The Employee or his representative, the Owner or Customer, Administrator, or any governmental agency with appropriate jurisdiction may request that the Laboratory retain the sample for an additional period. All test results will be forwarded to the MRO.

- B. Threshold Levels: The threshold levels shall be the lowest thresholds offered by the Certified Laboratory at the time of the Drug test. The only exception is for alcohol tested by taking a urine sample. The threshold for such shall be .04 grams per deciliter, or an equivalent concentration.

- C. Pre-Employment Drug Testing: All Applicants shall undergo testing for all Drugs prior to hire. A positive result from an oral fluids test shall be confirmed by subsequent urinalysis test. Such testing shall be completed prior to employment. Employees who terminate employment with the Company and are subsequently re-employed more than one (1) year later shall be retested as Applicants. Exceptions to this rule may be granted only by the Corporate Safety Director.

If an Applicant has been Drug tested by another employer within the past year, it is within the Administrator's discretion as to whether such Drug test shall be substituted for a Preemployment Drug test by Company. The Applicant must supply Company with all information necessary for the Administrator to make such a decision.

- D. Pre-assignment and Random Testing: Where an Owner, Customer, or government regulation requires, all Employees subject to such testing shall be required to submit to testing for drugs as required. If the tested drugs are not defined in the policy, the tested drugs shall be the Drugs as defined herein. When possible and if it so desires, the Company shall request from the Owner or Customer that testing be waived if an Employee has recently been Drug tested. By signing the Attachment 1, every Employee hereby consents to the Company informing an Owner or Customer or other third party as to the results of any Drug test.

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When an Employee tests positive for drugs during a pre-assignment or random test or any other drug test required by such a policy, the Administrator shall make the following determination:

1. If the drug for which the Employee has tested positive is a Drug under the Company Program and the Owner's, Customer's policy or governmental regulation contains the same or higher thresholds for the Drug for which the Employee has tested positive, the Administrator may deem such positive result as a positive result under this Program. Thus, immediately upon the Administrator's determination, such Employee shall be subject to consequences set forth in Section 9.I. herein.
2. If the Employee has tested positive under the Owner's or Customer's policy or governmental regulation for a drug not included in the Company's definition of "Drug" or if the Owner's or Customer's policy has lower threshold levels for the Drug for which the Employee has tested positive, unless the Administrator can confirm that the Employee would have had a positive test under the Company's Program, the Administrator shall require that the Employee undergo a Drug test based upon reasonable cause under the Company's Program. If the Administrator obtains sufficient information to be certain that the Employee would have also tested positive under the Company's Program, the Employee shall be subject to Section 9.I. hereunder.

In making such determinations, the Administrator may use the resources of the EAP, the MRO, the Laboratory, and any other entity or person who could assist in making such a determination. Where, after some investigation, there is a question as to whether the Employee should be retested, the Employee shall be retested based on reasonable cause following the procedures in 9.E.2.

E. Mandatory "For Cause" Testing: An Employee shall be subject to mandatory Drug testing for any of the following reasons:

1. Post-Accident Testing.

As soon as possible (preferably within 32 hours), the Administrator shall Drug test each Employee whose performance either contributed to the Accident or cannot be completely discounted as a contributing factor to the Accident. The Administrator's decision to test under this paragraph must be based on the best information actually known to the Administrator immediately after the Accident. The Administrator may, in his or her discretion, waive testing if notice of the Accident is delayed so as to render a Drug test ineffective to determine whether the performance was affected by Drug use. Employees who fail to properly report accidents on the date of the accident may be

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subject to disciplinary action in the event of unexcused breach of company procedures up to and including dismissal.

The Employee who has been Drug tested under this section shall be allowed to continue work and receive full pay until the results are obtained unless the reason for the Drug test or Accident calls for a suspension regardless of the results of the Drug test. The result of such Drug test may be used in the handling of any workers' compensation claim or other claim that may be filed as a result of such Accident and should be forwarded to the third party administrator and the Workers' Compensation Claims Administrator, Lorraine Maxwell (717) 399-5253.

2. Testing Based on Reasonable Cause.

The Administrator shall Drug test each Employee when there is reasonable cause to believe that the Employee is violating the requirements of this Program. The decision to test must be based on specific, contemporaneous, articulable observations concerning the appearance, behavior, speech, or body odors of the Employee. The observations may include indications of the chronic and withdrawal effects of Drugs. If possible, at least two of the Employee's Supervisors shall substantiate and concur in the decision to test an Employee. If none of the witnesses or Supervisors have had training in detection of the possible symptoms of Drug use, the Corporate Safety Director or General Counsel shall be called to discuss the conduct and whether the parties should be tested. Notwithstanding the above, nothing in this section shall be construed to prohibit the Supervisor from requiring an Employee to be Drug tested without such consultation if the Supervisor is unable to contact any other person to confirm whether the Drug test should be done and the Supervisor is concerned that the effects of the Drug will dissipate if the test is not done immediately. The documentation of the Employee's conduct shall be prepared and signed by the witness(es) within twenty-four (24) hours, or as soon as reasonably practicable.

Whenever an Employee has been witnessed or whenever there is credible evidence that an Employee was using, possessing, or selling a Drug or Paraphernalia during the Workday, such Employee shall be deemed to have tested positive under this Program and the disciplinary actions set forth in this Program shall be enforced as if the Employee had tested positive under this Program. (See Section 9.I.). In addition, the Employee shall have a written warning placed in his or her personnel file. If the Administrator wishes to have the Employee Drug tested to confirm the incident, he or she may do so.

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An Employee tested under this section shall be suspended from duty without pay pending the results of the Drug test. However, if the Drug test is negative, the Employee shall be reimbursed for the lost wages. The Employee must call someone who will provide transportation to the medical facility or collection site and to the Employee's home.

Only if no one is available for such transportation, Company will call for public transportation where available and the Employee shall pay the cost. Only where public transportation is not available and where the Employee is unable to contact anyone to provide transportation, Company will provide transportation. The Supervisor shall immediately document the incident. The Employee shall be tested for all Drugs.

F. Medical Review Officer (MRO): The Medical Review Officer shall:

1. Report the results of all negative Drug tests to the Administrator or his or her designated representative.
2. Review and interpret each confirmed positive test result as follows to determine if there is an alternative medical explanation for the confirmed positive test result:
  - i) Review the Employee's medical history and any relevant biomedical factors. Call the Employee or Applicant to discuss the results of any positive Drug test (except Drug tests that are positive for PCP or marijuana) before the results are reported to the Administrator or his or her designated representative.
  - ii) Review all medical records made available by the Employee tested to determine if a confirmed positive test resulted from legally prescribed medication.
  - iii) If necessary, require that the original specimen be reanalyzed to determine the accuracy of the reported test result.
  - iv) Verify that the Laboratory report and assessment are correct.
  - v) Where there is a positive test result for opiates, determine that there is clinical evidence, in addition to the urine test, of illegal use of any opiate, unless the confirmation test for opiates confirms the presence of 6 monoacetylmorphine.
3. After conducting the above review, report each confirmed positive for which there is no alternative medical explanation to the Administrator. Also, report each initially confirmed positive result which the MRO determines after review to be negative to the Administrator.

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- G. Drug Test Results: When the MRO reports to the Administrator that an Applicant or Employee has a confirmed positive test, the Administrator shall contact the Applicant or Employee to inform of test results. In the event of a positive oral fluids test, the Administrator shall request that the Applicant or Employee take a urinalysis test as soon as possible. Failure to timely take a requested urinalysis test after a positive oral fluids test shall be treated as a final positive test result. An Applicant or Employee may offer any additional information available to explain his or her positive result. The Administrator may then discuss any such information with the MRO if the Administrator, in his or her sole discretion, wishes to do so. If the Administrator is satisfied that the positive Drug test results are correct, the Administrator shall immediately implement the consequences established by this Program for the Applicant or Employee. (Note - for special rules about Owner or Customer required testing, see Section 9.D. above.)
- H. Tampering with Drug Tests: When the collection facility, Certified Laboratory, or the MRO determines that an Applicant or Employee has tampered with a Drug test in any way, the Administrator shall take the action set forth herein. An Applicant or Employee who tampers with a specimen during a reasonable cause or post-accident Drug test shall be treated as if the test result was positive and, the Administrator shall follow the appropriate procedures set forth herein for a positive drug test..
- An Employee who tampers with a sample from any other type of Drug test shall be considered to have tested positive and subject to Section 9.I. Any Employee who tampers with more than one Drug test shall be terminated from employment for willful misconduct because of violating the Company's policy.
- I. Consequences of Positive Drug Test: Any Applicant testing positive shall immediately be disqualified from employment with the Company. If an Employee testing positive is an Hourly Per Project Employee, the Employee shall be immediately terminated. If the Employee testing positive is not an Hourly Per Project Employee, the Employee shall be suspended without pay for five (5) working days. During that suspension, the Administrator will submit to the EAP the name of the Employee who has tested positive and say it is a mandatory referral. (This must be done so that the Administrator will be told if the Employee does not follow the Program.) The Employee will, during the time of the suspension, decide whether he or she wishes to take advantage of the service offered by the EAP and accept treatment for drug abuse or be terminated from employment at the end of the suspension period. An Employee actively participating in an EAP supervised program will be allowed to return to active employment under the following conditions:
1. Return to Work. Prior to returning to work following the suspension period, the Employee must successfully pass a return to duty Drug test. The

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Employee will continue to be suspended without pay until he or she successfully passes such return-to-duty Drug test. The Employee shall pay for and schedule with the Laboratory any return to duty test. The Employee shall pay all costs of any test prior to taking the test. The Employee can take as many Drug tests as he or she would like before successfully passing a test. However, once an Employee has been suspended without pay for thirty (30) calendar days, such Employee shall be terminated from employment with the effective date of termination being the last day worked.

2. EAP. The Employee must remain in the EAP recommended treatment program until released by the treatment provider. If the Employee does not do so, he or she shall immediately be terminated from employment. The Employee will be subject to periodic unannounced testing during the time he or she is in the EAP recommended treatment program. The frequency of Drug testing shall be determined by the MRO in consultation with the Administrator. The Employee shall also pay the costs of any Drug test taken while the Employee is in the EAP treatment program prior to taking the test. Costs of negative tests (other than a Drug test under Subsection 1 above) will be refunded. If the Employee tests positive for any Drug during the time such Employee is in the EAP (but after the time the Employee has successfully passed a return-to-duty Drug test), the Employee shall immediately be terminated.
3. Probationary Period. Upon satisfactory completion of the treatment program, the Employee will be placed on a two (2) year probationary program ("Probationary Period") and will be subject to periodic unannounced testing. The frequency of such Drug testing shall be determined by the Administrator. The Employee shall also pay the costs of any Drug test taken during the Probationary Period prior to taking the test. Costs of negative tests will be refunded. Any positive Drug test during the Probationary Period shall result in the Employee's immediate termination.
4. After Probationary Period. Following the successful completion of the Probationary Period, the Employee will no longer be considered on probation and the requirements of the probation will be removed. However, any subsequent positive Drug test will result in the Employee's immediate termination. The Employee shall also pay the costs of any such positive test.

Any Employee who failed a Drug test and whose employment with the Company is terminated (voluntarily or otherwise) and who becomes an Applicant shall be required to pass a pre-employment Drug test, and, if the Employee was terminated for failing to enter and complete the EAP and Probationary Period, shall be required to successfully complete the EAP, and shall be subject to the Probationary Period. If



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the Applicant had successfully completed the EAP treatment and had been released from the EAP, he or she shall provide evidence of such successful completion and the EAP shall agree that the Applicant need not be involved in the EAP program but the Employee still is subject to a two (2) year Probationary Period. If the Applicant had not completed the Probationary Period before termination of employment, the Applicant shall be subject to a two (2) year Probationary Period.

An Applicant who fails a Drug test or otherwise violates this Program or an Employee who is terminated as a result of a positive Drug test or violation of this Program may not reapply for work with the Company until six (6) months have passed from the date of the failed Drug test. When the Applicant reapplies, such Applicant must pass a pre-employment Drug test and, if hired, will be subject to a two (2) year Probationary Period.

Unless applicable law requires otherwise, or the Administrator has determined, in his or her sole discretion, that an exception should be made in the best interest of the Company, or in the interest of fairness, no individual who is sanctioned under this Program for two failed Drug Tests or the equivalent of two failed Drug Tests as provided herein, shall be employed by the Company. A failed Drug Test or the equivalent of a failed Drug Test pursuant to the drug testing program of an affiliated company shall be treated as a failure under this program.

#### 10. SEARCHES

The Administrator or Supervisor shall conduct such searches during the Workday as the Administrator or Supervisor believes necessary when the Administrator or Supervisor has reasonable cause to believe an Employee is in possession of, using, or selling Paraphernalia or a Drug. The Supervisor should contact the Administrator to confirm that a search should be performed. Nevertheless, a Supervisor may conduct a search without any Administrator's approval if an Administrator cannot be contacted and the Supervisor is concerned that the Drug or Paraphernalia will be disposed of if the Supervisor does not act quickly. The decision to search must be based on a reasonable and articulable belief that the Employee is using, possessing, or selling a Drug or Paraphernalia. Reasonable cause can include a positive Drug test.

Searches can be made of an Employee's personal effects, motor vehicles, tool boxes, clothing, or any other items present at the worksite. However, during the search, the Employee shall not be touched.

The Supervisor will tell the Employee that a search is to take place. The Employee then shall decide whether to consent to the search. If the Employee refuses to submit to a search, the Employee may be reprimanded as determined by the Administrator or found in

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violation of this Program. If the Employee voluntarily agrees to the search, the search will be in the presence of at least one witness of the Supervisor's choice.

When a search uncovers that an Employee is in possession of a Drug or Paraphernalia during the Workday, the Employee may be Drug tested for reasonable cause under Section 9.E.2. Even if the Employee is not tested, the Employee is in violation of this Program (specifically Section 6.A.) and shall be reprimanded. However, because of the possibility of someone's planting a Drug or Paraphernalia on an Employee, the Employee shall not be subject to the sanctions in Section 9.I. Further, the Employee has the right to request that the drug found be analyzed. In such case, the Supervisor shall call the Administrator to inform him or her as to what is proceeding. Then the Supervisor shall establish a chain of custody for the suspected drug. The suspected drug shall be delivered to the Laboratory in the quickest way reasonably practicable. Whether or not such analysis is done, the Drug or Paraphernalia shall be confiscated and destroyed.

When an Employee has been searched on two separate occasions and both times Drugs or Paraphernalia have been found, even if the Drug tests have been negative, the Employee may be found to be in violation of this Program (specifically Section 6. A.) and, thus, be subject to the sanctions in Section 9.I.

The Company reserves the right to contact any appropriate law enforcement agency.

#### 11. OTHER DRUG USE

Where the Company, through means other than a Drug test or a search pursuant to Section 10, obtains proof or clear and convincing evidence that an Employee or applicant has violated Section 6 of this Program (including, but not limited to, conviction for a drug related offense), the Employee or Applicant shall be subject to the sanctions of Section 9.I.

#### 12. RECORD KEEPING

A. Record Retention: The Company shall keep the following records for the periods specified and permit access to the records as provided by paragraph B of this section:

1. Records that demonstrate the collection process conforms to the Regulations must be kept for at least three (3) years.
2. Records of each Employee's Drug test results that show an Employee failed a Drug test, and the type of test failed (for example, post-accident), and records that demonstrate rehabilitation, if any, must be kept for at least five (5) years, and include the following information:
  - i) The functions performed by the Employees who failed a Drug test.
  - ii) The Drugs which were used by Employees who failed a Drug test.

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iii) The disposition of Employees who failed a Drug test (for example, termination, EAP referral).

iv) The age of each Employee who failed a Drug test.

3. Records of each Employee Drug test results that show Employees passed a Drug test must be kept for at least one (1) year.
  4. A record of the number of Employees tested, by type of test (for example, post-accident), must be kept for at least five (5) years.
- B. Except as provided herein, information regarding an Applicant's or Employee's Drug test results or rehabilitation may be released only upon the Applicant or Employee's written consent.

#### 13. EMPLOYEE ASSISTANCE PROGRAM

The EAP will counsel or treat all persons who request counseling or treatment concerning Drug use as set forth in the Company's contract with the EAP.

#### 14. PROGRAM ADMINISTRATION

- A. Program Implementation: The Administrator shall be responsible for administration of this Program.
- B. Notification of Employees: The Administrator shall be responsible for assuring that all Applicants and Employees shall be notified of the requirements of this Program and for acquiring documentation of notification by Applicant or Employee signature on the Statement of Understanding. A sample notification letter to Employees is shown as Attachment 3 to this Program.

#### 15. DOCUMENTATION

- A. Statement of Understanding: Each Employee and Applicant shall read this Program or its summary and document understanding by signature in the Statement of Understanding section of the Program summary (Attachment 1). The Statement of Understanding shall be retained with the regular Employee file. Refusal to sign the Statement of Understanding shall be considered a violation of the Program and shall be considered a refusal to test under the Program.
- B. Authorization/Consent to Perform Drug Testing: Each Employee and Applicant shall document consent to perform Drug testing prior to initiation of each test. Authorization documentation shall be provided by the Certified Laboratory. An example of an Authorization/Consent form is shown in Attachment 2 to this Program. Authorization/Consent documentation shall be maintained with Program records and may be maintained by the MRO.

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- C. Authorization to Release Test Results: Each Employee and Applicant shall specifically authorize the release of results to the MRO. Authorization shall be documented by signature of the tested Employee or Applicant prior to the release of Drug test results and is included on the Authorization/Consent form shown as Attachment 2 to this Program. A tested Employee or Applicant may receive results of his or her own Drug test(s). Authorizations shall be retained with Program records. Refusal to sign shall be considered a violation of the Program and shall be considered a refusal to test under the Program.
- D. Drug Test Results: Drug test results shall be documented by the Certified Laboratory, and shall be communicated by the MRO and the Administrator, in accordance with the Regulations, applicable state or local regulations and established procedures. All negative test reports shall be forwarded to the MRO. All confirmed positive test reports shall be forwarded to the MRO for further confirmation. The MRO shall forward test results to the Administrator. The Administrator shall be responsible for assuring compliance with Program requirements by allowing only Applicants and Employees testing "negative" to work for the Company (except those Employees who have failed only one (1) Drug test and are meeting the requirements of this Program). Drug test results shall be maintained with Program records by the Medical Review Officer.

16. ATTACHMENTS

Examples of documentation or records required for compliance with the Program are included as Attachments and are listed below:

- A. Attachment 1 - Program Summary and Statement of Understanding (Field and Office Iterations).
- B. Attachment 2 – Specific requirements for certain states which amend the Program.
- C. Attachment 3 – Instruction Sheet for Drug Testing.
- D. Attachment 4 – Termination Notice Re: Drug Test.

DRUG AND ALCOHOL-FREE WORKPLACE PROGRAM  
STATEMENT OF UNDERSTANDING  
FIELD

The Company is committed to providing and maintaining a safe work environment. The use of Drugs ("Drugs" are controlled drugs and/or alcohol) during the Workday poses a serious threat to the safety of our employees and others, compromises the quality of our services, and jeopardizes the protection of property at our work sites.

Therefore, the Company does not allow:

- \* Use, possession, or sale of Drugs or drug Paraphernalia during the Workday (including any meals and breaks);
- \* Being under the influence of Drugs during the Workday (including any meals and breaks);
- \* Use of Drugs during non-working hours which could affect the Employee's performance during the Workday.

It is prohibited while operating a company vehicle to:

- \* Be under the influence of or possess an illegal drug;
- \* Be under the influence of alcohol to a level which would be illegal under the applicable state law.

For employees, violation of any of these rules may result in an immediate termination of employment. For applicants for employment, failure to pass a Drug test will result in the rejection of the application.

As an employee or applicant for employment, I have read the above summary and understand that:

1. Employment is contingent upon a negative Drug test result.
2. There are mandatory conditions requiring Drug testing during employment and, if required, I must consent to and successfully complete such testing in order for employment to continue; such testing is a condition of continued employment. I understand that I must report all accidents as soon as possible, but in no event more than two hours after they occur.
3. Drinking alcohol or otherwise using Drugs during the workday which includes break or lunch periods is a violation of the Program.
4. Results of testing will be used by and available to all persons handling or contesting any workers' compensation, unemployment compensation, or other claims that are or may be filed. I hereby consent to this use of my test results and consent to the distribution of my results to persons involved in, handling, or contesting such claims.
5. I hereby consent to the release of information concerning the results of any Drug test to any Administrator or person to whom such Administrator has delegated responsibility under this Program.
6. The results of a Drug test may be given to an owner, customer, or government agency when required and I may be required to submit to various types of Drug testing when an owner, customer, or government agency requires. Such testing, if required, is a condition of continued employment with the Company.
7. Upon reasonable cause, there may be and I hereby consent to searches of my person, my personal effects, vehicles, and any property of mine present at the Work site for Drugs and drug paraphernalia.

8. The confirmed presence of Drugs or drug paraphernalia without explanation will result in the termination of my candidacy as an applicant and may result in the termination of my employment with the Company.
9. If I refuse a Drug test, I will have been considered to have voluntarily terminated my employment.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
Signature of Applicant or Employee                      Typed/Printed Name                      Date

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
Witness Signature                      Typed/Printed Name                      Date

DRUG AND ALCOHOL-FREE WORKPLACE PROGRAM  
STATEMENT OF UNDERSTANDING  
OFFICE

The Company is committed to providing and maintaining a safe work environment. The use of Drugs ("Drugs" are controlled drugs and/or alcohol) during the Workday poses a serious threat to the safety of our employees and others, compromises the quality of our services, and jeopardizes the protection of property at our work sites.

Therefore, the Company does not allow:

- \* Use, possession, or sale of Drugs or drug Paraphernalia during the Workday (including any meals and breaks);
- \* Being under the influence of Drugs during the Workday (including any meals and breaks);
- \* Use of Drugs during non-working hours which could affect the Employee's performance during the Workday.

It is prohibited while operating a company vehicle to:

- \* Be under the influence of or possess an illegal drug;
- \* Be under the influence of alcohol to a level which would be illegal under the applicable state law.

For employees, violation of any of these rules will result in an immediate one-week suspension of employment without pay and termination of employment at the end of such suspension unless the employee undergoes rehabilitation and passes a return-to-duty Drug test. For applicants for employment, failure to pass a Drug test will result in rejection of the application.

As an employee or applicant for employment, I have read the above summary and understand that:

1. Employment is contingent upon a negative Drug test result.
2. There are mandatory conditions requiring Drug testing during employment and, if required, I must consent to and successfully complete such testing in order for employment to continue; such testing is a condition of continued employment. I understand that I must report all accidents as soon as possible, but in no event more than two hours after they occur.
3. Drinking alcohol or otherwise using Drugs during the workday which includes break or lunch periods is a violation of the Program.
4. Results of testing will be used by and available to all persons handling or contesting any workers' compensation, unemployment compensation, or other claims that are or may be filed. I hereby consent to this use of my test results and consent to the distribution of my results to persons involved in, handling, or contesting such claims.
5. I hereby consent to the release of information concerning the results of any Drug test to any Administrator or person to whom such Administrator has delegated responsibility under this Program.
6. The results of a Drug test may be given to an owner, customer, or government agency when required and I may be required to submit to various types of Drug testing when an owner, customer, or government agency requires. Such testing, if required, is a condition of continued employment with the Company.

7. Upon reasonable cause, there may be and I hereby consent to searches of my person, my personal effects, vehicles, and any property of mine present at the Work site for Drugs and drug paraphernalia.
8. The confirmed presence of Drugs or drug paraphernalia without explanation will result in the termination of my candidacy as an applicant or the termination of my employment with the Company unless I undergo rehabilitation and pass a return-to-duty Drug test.
9. If I refuse a Drug test or if I refuse to comply with requirements of the Employee Assistance Program, I will have been considered to have voluntarily terminated my employment.

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
Signature of Applicant or Employee                      Typed/Printed Name                      Date

\_\_\_\_\_/\_\_\_\_\_/\_\_\_\_\_  
Witness Signature    Typed/Printed Name                      Date



DRUG AND ALCOHOL-FREE WORKPLACE PROGRAM

PROGRAM ADDITIONS FOR VARIOUS STATES:

The following are additional requirements of the Program for branches which perform work in the states noted below. These additions are required to comply with those states' laws. Please note: In certain states or project sites you may not be permitted to smoke in a building or a public place.

Arizona. Notwithstanding the requirements of the Program, the Company must pay the cost of all tests except pre-employment.

California. Call Corporate or General Counsel before firing an Employee (not Applicant) for refusal to submit to a Drug test.

Connecticut. Prior to enforcing disciplinary measures for a positive Drug test, the Employee shall take a second Drug test. Thus, for all tests other than pre-employment, have the Employee take a Drug test one day and another Drug test the following day. Further, there must be individualized suspicion that the Employee is under the influence before a post-accident test can be given.

Florida.

1. Employees must have 60 days' notice before the Company implements the Program.
2. The Company will pay the cost of testing but not the cost of retests requested by employees or applicants.
3. After receiving a confirmed positive test result, the Company has five days to inform the Employee or Applicant in writing of the consequences of the result and the Employee's or Applicant's options. The Employee or Applicant has five days after receiving the test result in which to explain the result (unless the Employee or Applicant has already done so with the MRO). If the Company does not accept the explanation, it must give the Employee or Applicant a written statement explaining why the explanation is unsatisfactory and enclose a copy of the positive test results. The Employee or Applicant can then challenge the test result administratively or legally. The Employee or Applicant must notify the Laboratory to retain the sample during the appeal. The Employee or Applicant has 180 days after learning of the positive result to arrange to have a portion of the sample retested at another state licensed laboratory.

Georgia. Add the following to Attachment 3 which is a letter explaining the Program to Employees and Applicants:

"Employees and Applicants have the right to appeal a positive test result within five days of notice of the result. Georgia law regarding drug testing can be found at Georgia Code Annotated Sections 34-9-410 to 34-9-421 (effective July 1, 1993)."

Further, Employees must receive notice at least 60 days before testing begins.

Hawaii. The Company must pay all test-related costs unless the testing is covered by Federal Department of Transportation regulations.

Iowa. There will be no pre-employment testing unless required by Federal regulations.

Louisiana. The cut-off level for marijuana may not be lower than 50 nanograms per millimeter.

Maine.

1. Each Employee or Applicant must be provided with a copy of the written Program approved by the Maine Department of Labor and a copy of the Maine statute at least sixty days before the policy takes effect. (Call James Hipolit for such documents.)
2. While awaiting the results of a Drug test, the Employee may be suspended as set forth under the Program but, while suspended, will receive full pay and benefits.

Maryland. All Employees or Applicants who test positive will be provided with the following:

1. A copy of the laboratory test indicating the test results.
2. A copy of the Program.
3. Written notice of the disciplinary action to be taken.
4. A statement saying that the Maryland statute permits an Employee to request independent testing of the same sample for verification of the test result. The Employee or Applicant must pay the cost of such test.

This will be sent in person to the Employee or Applicant within thirty days from the date the test was performed.

Minnesota.

1. The Company will post a notice in an appropriate and conspicuous location that it has adopted a drug and alcohol-testing policy and that copies of the policy are available for inspection during regular business hours by Employees or Applicants.
2. Within three working days after receipt of the test result report, The Company will inform in writing the Employee or Applicant of a negative or positive test result and the right to request and receive a copy of the report. When there is a positive result, the Employee or Applicant may request a confirmatory retest at the Employee's or Applicant's own expense if the Employee or Applicant within five working days after notice of the result has notified The Company in writing. Within three working days after receipt of the notice, The Company will notify the Laboratory of the request and ask the Laboratory to either conduct a confirmatory retest or transfer the sample to another laboratory licensed to conduct the retest. If the confirmatory retest does not confirm the original positive test result, no adverse personnel action will be taken against the Employee or Applicant.
3. The above will not apply to Drug testing done under Federal regulations.

Mississippi.

1. At least thirty days before implementing Drug testing, each employee will be given Attachment 3 explaining the policy. The following will be added to Attachment 3: "Mississippi Code Annotated Sections 71-7-1 to 71-7-19 sets forth Drug testing requirements. Any Employee who tests positive for a Drug will have an opportunity to contest the accuracy of or otherwise explain any such result."
2. Testing must be conducted either during or immediately after the regular work period of Employees and must be deemed to be performed during work time so that they receive compensation and benefits while being tested.
3. Within five working days after receipt of a positive test result from the Laboratory, the Employee will be notified in writing of the result, told the consequences of such result (see Program Section IX.H.), and the options available to the Employee.
4. The Company will pay the cost of all Drug tests except that the Employee or Applicant must pay the cost of any additional test made at his/her request.
5. Within ten working days after receiving notice of the positive result, the Employee may submit information explaining why the results do not constitute a violation of the Program. If the Administrator is not satisfied with the explanation, he/she will place a written response, along with a report of the positive test results, in the Employee's record.

Montana.

1. Only Employees or Applicants who are required to work in hazardous work environments, in intrastate commercial transportation where the Employee is subject to driver qualification requirements, or in jobs where the primary responsibility is security, public safety, or fiduciary responsibility shall be required to submit to pre-employment Drug tests.
2. No Employee is required to submit to a Drug test as a condition for continuation of employment unless the Administrator has reason to believe that the Employee's faculties are impaired on the job as a result of alcohol consumption or illegal drug use. (The only exception is for Drug tests conducted in a regular biennial physical for jobs involving intrastate commercial transportation.)
3. Any Employee or Applicant must be given a copy of the test results and provided with the opportunity at the expense of the Employee or Applicant to obtain a confirmation test by an independent laboratory.

Nebraska. A positive finding of alcohol by preliminary screening procedures must be subsequently confirmed by either: a) gas chromatography with flame ionization detector or other scientific testing technique which has or may be approved by the Nebraska Department of Health; or b) a breath testing device operated by a breath testing device operator.

Oklahoma. Before testing, The Company will provide an Employee Assistance Program that provides minimum drug and alcohol dependency evaluation and referral services for substance abuse counseling, treatment, or rehabilitation.

Rhode Island. For post-accident Drug tests, the Administrator must have reasonable grounds to believe, based on specific objective facts, that the Employee's use of Drugs is impairing his/her ability to perform his/her job.

Utah.

1. All persons in management positions in the branch must submit to Drug testing every five years. (Next test - 2001)
2. Any Drug testing must occur during or immediately after the regular work period and must be deemed work time for purposes of compensation and benefits (but this is only for current Employees).
3. The Company will pay all costs of Drug testing except where the Employee or

Applicant requests such test. This includes the cost of transportation if the testing of a current Employee is conducted at a place other than the workplace.

Vermont.

1. An Applicant may not be Drug tested unless:
  - a. The Applicant has been given an offer of employment conditioned on the Applicant's receiving a negative test result. A conditional offer of employment shall not be necessary if the Applicant resides more than 200 air miles from the place the Applicant is to be tested.
  - b. The test is given not less than ten days from the date the Applicant received Attachment 3. (PLEASE NOTE THIS IMPORTANT REQUIREMENT FOR VERMONT.)
2. The Drug test must be given as a part of or in conjunction with a comprehensive physical examination. (PLEASE NOTE THIS IMPORTANT REQUIREMENT FOR APPLICANTS IN VERMONT.)
3. The EAP rehabilitation program must be provided by the Company.
4. The Employee or Applicant may at his/her request and expense have a blood sample drawn at the time a urine sample is taken. The Laboratory must simultaneously provide the Administrator and the Employee or Applicant with identical copies of the written report of the Drug test result that includes all of the following:
  - a. The name of the person tested;
  - b. The type of test conducted for both initial screening and confirmation;
  - c. The results of each test;
  - d. The threshold level on both the initial screening and confirmation procedures;
  - e. The name and address of the Laboratory; and
  - f. Any other information provided by the Laboratory to the Administrator concerning that person's test;

**DRUG AND ALCOHOL-FREE WORKPLACE PROGRAM**

APPLICANT FOR EMPLOYMENT INSTRUCTION SHEET

No person shall be employed by the Company until such person tests negative for drugs and alcohol in accordance with the Company's written Drug and Alcohol-Free Workplace Program.

Therefore, you must report to:

\_\_\_\_\_

(Collection Site)

at \_\_\_\_\_ a.m. / p.m. (circle one) on \_\_\_\_\_  
(Date)

You must present to the appropriate person there the following:

1. The Authorization Form which has been completed for you by company personnel.
2. Proper photo identification.

**FAILURE TO REPORT AS DIRECTED ABOVE WILL RESULT IN DISMISSAL OF YOUR APPLICATION AND YOU WILL NOT BE PERMITTED TO REAPPLY FOR EMPLOYMENT WITH THE COMPANY FOR SIX (6) MONTHS.**

**TERMINATION NOTICE**

Where an Employee has tested positive for the use of a Drug and refuses to enter the EAP or to take a return to duty Drug test, fill out the termination notice saying the employee has voluntarily terminated employment.

**TERMINATION NOTICE**

NAME: \_\_\_\_\_ Soc. Sec. Number: \_\_\_\_\_

LAST DAY WORKED: \_\_\_\_\_ REHIRE: YES \_\_\_\_ NO \_\_\_\_

=====

REASON FOR TERMINATION:

L;AY OFF:

- Job Completed \_\_\_\_\_
- Reduction in Force \_\_\_\_\_
- Other (Explain) \_\_\_\_\_

DISCHARGE:

- Refusal to Follow Instructions \_\_\_\_\_
- Too Slow \_\_\_\_\_
- Absenteeism \_\_\_\_\_

VOLUNTARY QUIT:

- Dissatisfied \_\_\_\_\_
- Other Employment \_\_\_\_\_
- Personal Reasons \_\_\_\_\_

Drunk or Drinking on Job \_\_\_\_\_

Other (Explain) \_\_\_\_\_

EXPLANATION:

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

=====

- Original - To Employee
- 1st Copy - To Local Union
- 2nd Copy - To Employer's Assoc.
- 3rd Copy - To File

By \_\_\_\_\_  
Title \_\_\_\_\_ Date \_\_\_\_\_

<b>Safety Inspections</b>	Issue Date: January 2001 Revised: October 2006 Issued By: Safety Dept.
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## 1 **PURPOSE AND SCOPE**

To provide an effective means of identifying and eliminating both existing and potential hazards, thereby minimizing personal injury causes and property damage. Conducting and documenting job site safety inspections serves the following purposes:

- \* Injury Prevention
  - \* Compliance with OSHA regulations
  - \* Recognition and elimination of hazards
  - \* Employee participation and motivation

## 2 **REFERENCES**

- 2.1 Accident Prevention Manual of Industrial Operations, National Safety Council, 1981

## 3 **DEFINITIONS**

- 3.1 Inspection - Conducted on a regular basis throughout all areas of the facility or site project to identify potential and existing hazards and corrective actions.
- 3.2 Imminent Danger - A condition which, if not immediately corrected, will result in a serious or fatal injury.

## 4 **RESPONSIBILITIES**

- 4.1 Construction Superintendent/Project Managers, shall conduct job site safety inspections in accordance with the procedures outlined below and ensure corrective actions are implemented. Managers shall be trained to conduct inspections.
- 4.2 Employees shall provide feedback on the usefulness of personal protective equipment.
- 4.3 Responsibility for the PPE program lies with the safety director. The PPE program will be audited each year.

## 5 **PROCEDURE**

### 5.1 Job Site Inspections

- 5.1.1 Job site safety inspections will be conducted by the Construction Superintendent/Project Manager, along with the Foreman.

### 5.1.2 Frequency

- a) Job Safety inspections will be conducted at least weekly.



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- b) Additional inspections - Will be conducted at the discretion of the Construction Superintendent / Project Manager for those operations in which significant hazards are present .

### 5.1.3 Method of Inspection

Using the "Job Site Safety Inspection Report" Form 9977, See Attachment 7.1 as a guide; each item will be evaluated, noting any item which is not in compliance with recognized safety and health standards. Any identified hazards will be corrected as soon as possible. If corrective actions cannot be taken during the inspection, a date shall be selected for expected compliance. Safety deficiencies presenting an IMMEDIATE DANGER shall be corrected immediately. If corrective actions cannot be implemented immediately the operation shall be shut down until corrective actions are in place.

### 5.1.4 Distribution of Report

Copies of the completed "Job Site Safety Inspection Report" will be distributed as follows:

- \* Area Manager
- \* Office Manager
- \* Office Safety File

## 5.2 WAREHOUSE AND OFFICE INSPECTIONS

- 5.2.1 An inspection of the warehouse and office facilities will be made on a monthly basis by the Construction Superintendent / Project Manager as required in OSHA Standards for General Industries 29 CFR Part 1910. Emphasis will be made to maintain the following:

- General housekeeping
- Material storage and handling
- Material handling equipment
- Portable fire extinguisher
- Ventilation
- Powered industrial trucks
- Machine guarding
- Flammable and combustible liquids
- Exits
- Aisles
- Electrical systems
- First Aid and Eye Bottles

- 5.2.2 Any unsafe conditions or acts identified should be noted with immediate steps taken for corrective action. Maintain documentation of each inspection for one year. Safety deficiencies presenting an IMMEDIATE DANGER shall be corrected immediately

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6 **RECORDKEEPING**

6.1 Job Site Inspection Report Form 9977 should be kept for 1 year.

7 **ATTACHMENTS**

7.1 Job Site Inspection Report Form 9977

**JOB SITE SAFETY INSPECTION**

**PROJECT:** \_\_\_\_\_ **LOCATION** \_\_\_\_\_

**DATE OF AUDIT:** \_\_\_\_\_ **AUDITED BY:** \_\_\_\_\_

To be completed by Project Foreman Weekly

	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>COMMENTS</b>
<b>1. OFFICE TRAILER OR BUILDING</b>				
a. Posting OSHA & other req safety signs.	( )	( )	( )	_____
b. Occupational Clinic and first aid kit available.	( )	( )	( )	_____
c. Emergency telephone numbers posted at site.	( )	( )	( )	_____
d. Fire hazards checked and extinguisher available	( )	( )	( )	_____
e. Proper storage of material	( )	( )	( )	_____
f. Fire Extinguishers Inspected & Charged	( )	( )	( )	_____

	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>COMMENTS</b>
<b>2. FLOORS, STAIRS AND PLATFORMS</b>				
a. Openings - Permanent and temporary - Guarded.	( )	( )	( )	_____
b. Tread - Non slip surface	( )	( )	( )	_____
c. Adequate Lighting	( )	( )	( )	_____
d. Handrails and Toeboards	( )	( )	( )	_____
e. Adequate platforms.	( )	( )	( )	_____
f. Exits properly marked and unobstructed.	( )	( )	( )	_____

	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>COMMENTS</b>
<b>3. LADDERS</b>				
a. OSHA approved, construction and design.	( )	( )	( )	_____
b. Properly secured with safety shoes	( )	( )	( )	_____
c. Fiberglass - Type IA or better	( )	( )	( )	_____
d. Proper extension & pitch.	( )	( )	( )	_____
e. Inspected and maintained.	( )	( )	( )	_____
f. Ladder In Use Tied Off	( )	( )	( )	_____

	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>COMMENTS</b>
<b>4. SCAFFOLDING</b>				
a. Tags signed by Competent Person	( )	( )	( )	_____
b. Base - level	( )	( )	( )	_____
c. Tied and secured to structure.	( )	( )	( )	_____
d. All connections secured.	( )	( )	( )	_____
e. Planks OSHA approved	( )	( )	( )	_____
f. Guardrails, midrails and toeboards.	( )	( )	( )	_____
g. Overhead protection.	( )	( )	( )	_____
h. Fall Protection above 6 feet.	( )	( )	( )	_____

Eliminated old "h" Tagged and Signed

	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>COMMENTS</b>
<b>5. PERSONAL PROTECTION</b>				

- a. Safety glasses with side shields ( ) ( ) ( ) \_\_\_\_\_
- b. Hard hats worn ( ) ( ) ( ) \_\_\_\_\_
- c. Safety footwear. ( ) ( ) ( ) \_\_\_\_\_
- d. Gloves ( ) ( ) ( ) \_\_\_\_\_
- e. Respirators/dust mask ( ) ( ) ( ) \_\_\_\_\_
- f. Ear Protection ( ) ( ) ( ) \_\_\_\_\_
- g. Face shield ( ) ( ) ( ) \_\_\_\_\_
- h. Fall Protection above 6ft. ( ) ( ) ( ) \_\_\_\_\_

**6. TOOLS AND EQUIPMENT**

**YES NO N/A COMMENTS**

- a. Proper tool for job ( ) ( ) ( ) \_\_\_\_\_
- b. Inspection & maintenance ( ) ( ) ( ) \_\_\_\_\_
- c. Mechanical safeguards in use ( ) ( ) ( ) \_\_\_\_\_
- d. Insulated and grounded ( ) ( ) ( ) \_\_\_\_\_
- e. Ground fault protection GFCI ( ) ( ) ( ) \_\_\_\_\_
- f. Permanent & temporary cord inspection ( ) ( ) ( ) \_\_\_\_\_

**7. BASIC SAFETY ACTIVITIES**

**YES NO N/A COMMENTS**

- a. Task Safety Analysis ( daily- ea. Task) ( ) ( ) ( ) \_\_\_\_\_
- b. Project Safety Plan in Place ( ) ( ) ( ) \_\_\_\_\_
- c. Verify preshift and end of shift safety huddle ( ) ( ) ( ) \_\_\_\_\_
- d. All employees completed Safety orientation ( ) ( ) ( ) \_\_\_\_\_
- e. Qualified Operators – Boomlift, scissor, etc ( ) ( ) ( ) \_\_\_\_\_

Special Safety Problem:

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Recommendations:

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General Comments:

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## Site Specific Safety Inspection

PROJECT: \_\_\_\_\_ LOCATION/CONTRACT NO.: \_\_\_\_\_  
 INSPECTOR: \_\_\_\_\_ DATE OF INSPECTION: \_\_\_\_\_

		Score	Points Awarded	Comments
<b>Site and Emergency Information</b>				
1.1	Posting of OSHA & other req'd safety signs.	2		_____
1.2	Occupational Clinic established & First Aid Kit available/full?	5		_____
1.3	Emergency numbers posted (Police, Fire, Ambulance)	1		_____
1.4	Emergency eyewash bottle available?	1		_____
1.5	Personnel signing time sheets - i.e. No injuries for the shift.	2		_____
1.6	Project Safety Plan completed?	2		_____
1.7	Task Safety Analysis completed ?	2		_____
1.8	Fire hazards checked and extinguisher available.	1		_____
1.9	New personnel on site receive: Site Orientation __	5		_____
1.10	Company Safety Orientation __ Safety Handbook __ Acknowlgmt __	5		_____
1.11	Weekly safety Meetings? __ Documented? __	3		_____
1.12	Are MSDS's available for each chemical and current inventory?	1		_____
1.13	Are all Supv./Foreman complete Supv 10-HR OSHA training	3		_____
1.14	Safety Manual on project site	1		_____
	Subtotal	34	0	
<b>Personal Protective Equipment (PPE)</b>				
2.1	Are personnel wearing approved HH, safety glasses, boots, gloves?	4		_____
2.2	Other PPE as needed? Face shield/ goggles, hearing prot. Tyvek	1		_____
2.3	Are required respirators used? Asb, RCF, Lead, Mold	1		_____
2.3.1	Medical clearance and fit tests performed? Documented __	3		_____
2.3.2	Documented training?	1		_____
	Subtotal	10	0	
<b>Housekeeping</b>				
3.1	Project work areas are clean and free of excess trash, debris	2		_____
3.2	Walkways and passageways clear	1		_____
3.3	Material or equipment properly stored/stacked	1		_____
3.4	Are electrical cords, hoses, etc. elevated to prevent trip haz.	1		_____
3.5	Trash receptacles are provided for work areas and water kegs	1		_____
3.6	Scrap metal free of protruding nails or other puncture hazards	1		_____
	Subtotal	7	0	
<b>Fall Protection</b>				
4.1	Body harnesses required and worn in proper manner	3		_____
4.2	Lanyards are adequately secured to suitable anchorage - 5000 lbs	2		_____
4.3	Fall Protection Plan completed - as needed	1		_____
4.4	Fall Protection maintained and has current inspection	1		_____
4.5	Openings covered / guarded ?	2		_____
4.6	Stairways free of tripping hazards?	1		_____
	Subtotal	10	0	
<b>Scaffolds and Ladders</b>				
5.1	Scaffold tagged and signed by competent person	2		_____
5.2	Built per specification - level, plumb secured to structure , Other	3		_____
5.3	Guardrails, midrails, toeboards,	1		_____
5.4	Proper ladder for job performed / properly secured.	2		_____
5.5	Ladder proper angle and exceed the landing by min. 3 ft.	1		_____
5.6	Ladder inspected prior to use - Fiberglass or wood	2		_____
	Subtotal	11	0	



## Site Specific Safety Inspection

		Score	Points Awarded	Comments
<b>Vehicles / Mobile Equipment</b>				
6.1	Scissor / Boom lift operators qualified through on-site training	4		_____
6.2	Licenses or certifications as required e.g. forklifts	1		_____
6.3	Operator tied off as required or forklift seatbelt worn	2		_____
6.4	Equipment inspected (daily / monthly) and properly maintained - Doc?	2		_____
	Subtotal	9	0	
<b>Tools and Equipment</b>				
7.1	Electrical cords - condition and current inspection	1		_____
7.2	GFCI used on all cord sets/electrical equipment	3		_____
7.3	Tools inspected and maintained in a safe condition	1		_____
7.4	Pneumatic / hydraulic hose connections properly secured	1		_____
7.5	Proper tools used for the job performed	1		_____
	Subtotal	7	0	
<b>Fire Protection</b>				
8.1	Flammables stored properly	1		_____
8.2	Fire extinguishers properly located, tagged and monthly inspected	2		_____
8.3	Metal flammable safety can with flame arrestors	1		_____
	Subtotal	4	0	
<b>Permits / Safety Task Permits</b>				
9.1	Applicable permits posted	1		_____
9.2	Safety Directives followed: i.e Asbestos, Lead, Mold, RCF, Conf. Space	4		_____
	Subtotal	5	0	
<b>Miscellaneous</b>				
10.1	Other Issues - List below	3		_____
	Total Score Possible / Total Points Awarded	100	0	
	<b>Adjusted Score Percent</b>	<b>0.0%</b>		

**Summary / Recommendation(s) / Action Items**

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<b>Incident Reporting, Investigation &amp; Follow Up</b>	Issue Date: January 2001 Revised: June 2011 Issued By: Safety Dept. _poh
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## 1. **PURPOSE AND SCOPE**

This Safety Directive provides the required procedures to ensure prompt investigation, analysis and reporting of company incidents and near misses. These procedures focus on identifying the root cause of the incident and implementing corrective actions that will prevent similar incidents.

All incidents and serious near misses must be reported in accordance with this procedure. Reporting and investigation is required for incidents involving:

- Work related injuries or illnesses to employees, customer's employees or contractors of the company;
- Damage to company, contractor, customer, or public property;
- All motor vehicle or equipment accidents that take place during business hours or in the performance of company business or that involve any company-owned property; and
- All near misses with the potential for injury, illness or property damage to have taken place.

## 2. **REFERENCES**

- 2.1 The Company - Administrative Manual, *Workers' Compensation and Automobile Insurance*, Section E-500.
- 2.2 *Department of Labor*, Title 29 CFR parts 1960.70 and 1910.29
- 2.3 The Company - Drug and Alcohol-Free Workplace Programs - November 1996
- 2.4 Alberta Occupational Health and Safety (OHS) Code, Part 11, 182-184
- 2.5 The Company Safety and Health Procedures Manual, Safety Directive 1.2, Attachment 3, Task Hazard Risk Assignment Matrix

## 3. **DEFINITIONS**

- 3.1 Company Vehicle/Equipment - Any Company-owned, customer-provided, or rented/leased vehicle or motorized equipment and all jobsite equipment used under a signed equipment use agreement.
- 3.2 Incident - An event that includes all injuries (including first aid), illnesses, property damage, environmental (land, water, or air contamination), motor vehicle and/or equipment accidents and near misses.

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3.3 Near Miss - An event with the potential of causing injury, illness, property damage, environmental impact, and/or business interruption.

#### 4. **RESPONSIBILITIES**

4.1 Workers are required to immediately report all injuries/incidents to their supervisors as a condition of employment. Serious incidents will be reported to the Construction Manager, Superintendent, Branch Manager and Regional Safety and Health Manager as soon as possible. Refer to Safety Directive 1.2, Attachment 3, Task Hazard Risk Assignment Matrix to evaluate actual or potential risk assigned to an incident.

4.2 Supervisors/Superintendents are responsible for verbally notifying the Regional Safety and Health Manager and the Claims Manager of any incident within 2 hours of the incident occurring, and are responsible to ensure the initial electronic Incident Report is completed within 72 hours. Where agreed upon, the Regional Safety and Health Manager may contact the Claims Administrator and provide all needed information.

Supervisors/Superintendents shall initiate and coordinate the incident investigation with the Regional Safety and Health Manager and establish appropriate corrective actions, responsible parties for implementing the corrective actions and the established time frames for implementing the corrective actions. Supervisors/Superintendents shall post the required sequence of notification for all incidents.

4.3 The Construction Manager/Branch Manager will ensure the following:

- All necessary resources, items, tools, equipment, and PPE necessary to conduct a thorough accident investigation are allocated and used;
- All necessary resources are provided to implement the corrective actions;
- The corrective actions are satisfactorily completed;
- All incident investigation reports are documented and maintained;
- Support all media and information release activities in conjunction with the internal Risk Management Department and the customer's Risk Management and Media Relations Departments;
- Ensure all customer (owner/clients) are properly notified of all incidents per the customer's policies and requirements, including all injuries or work related illnesses, spills or releases, fires, explosions, vehicle incidents or damage and property damage; typically, this is within 24 hours or less; and
- All applicable OSHA and state records are maintained as required.

4.4 The Regional Safety and Health Manager shall:

- Participate in the completion of and review each incident and investigation report and determine the necessary and appropriate extent of investigation;



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- Lead and direct the investigation process on all serious incidents and near misses and confirm that corrective actions are implemented and are adequate to prevent recurrence;
- Provide any necessary guidance to the operational office regarding record keeping requirements;
- Coordinate with the Corporate Safety Director in the issuance of relevant Safety Alert bulletins to communicate pertinent safety, health and environmental information throughout the company's operations;
- Work in conjunction with and support the Worker's Compensation Claims Department information needs related to the incident;
- Support all media and information release activities in conjunction with the internal Risk Management Department and the customer's Risk Management and Media Relations Departments;
- Determine if the injury is a Recordable Injury and enter this determination into the Electronic Incident Reporting System and complete the OSHA 301, as applicable;
- Within 8 hours of notification and following consultation with the Director of Risk Management, complete any required reporting to OSHA and/or state equivalent agencies in the event of a fatality or when 3 or more employees are hospitalized, and
- Ensure all parties are properly trained in their assigned roles within the incident reporting and investigation system. All employees are trained regarding reporting procedures as a part of the new employee safety orientation program. All supervisory employees involved in incident investigation are trained in incident investigation and root cause analysis as a part of the company 10 hour OSHA Supervisory course.

4.5 Worker's Compensation Claims Department will support the office in the management of the incident and direct all medical care and return to work activities. The Claims Department will also direct and communicate with the third party administrator to meet the various state regulatory claim and insurance requirements and assist the injured or ill worker to obtain quality medical care and return to work.

## 5. **PROCEDURE**

### 5.1 General

Workers are to immediately report all job-related incidents to their supervisor as a condition of employment. Unless there are extreme circumstances, this report is to be made within 1 hour, and verbal notification to the Regional Safety and Health Manager and Claims Manager is to be completed by the operations office within 2 hours of the incident occurring. Attachment 7.1 provides a checklist for site actions to be completed following an incident.

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## 5.2 First Aid/Medical Treatment

- 5.2.1 Injured workers shall receive **prompt** first aid and/or medical treatment. Injured workers requiring Emergency Medical Treatment, depending on the extent of injury or illness, should be seen at the nearest available medical facility.
- 5.2.2 First Aid / CPR should be administered only by personnel who are certified in First Aid and CPR by the American Red Cross or equivalent or by licensed medical providers. For Canadian operations, the number and qualifications of first aid providers shall meet the Alberta OHS Code, Schedule 2, Tables 5, 6 or 7 requirements.
- 5.2.3 The injured worker shall receive medical treatment for non-emergencies at a facility identified on the designated list of medical providers for all work-related injuries and illnesses. Treatment in an emergency room should be limited to emergency care requirements. NOTE: Some customers may have specific requirements regarding injured worker care. If this is the case, comply with the written requirements of the customer. If treatment in an emergency room for all work site injuries is one of these requirements, then the Superintendent or Construction Manager shall notify the Regional Safety and Health Manager of this requirement prior to the start of work. The Regional Safety and Health Manager shall notify the Claims Manager and contact the designated emergency room and coordinate future potential treatment protocols.
- 5.2.4 The Supervisor, or designee, shall transport or accompany the injured worker to the approved medical provider and provide the treating clinic/physician with the following forms:
- “Dear Medical Provider” letter. Attachment 7.2
  - Return-To-Work Examination Form. Attachment 7.3
- 5.2.5 The company drug testing program requires post-incident drug testing for all incidents and locations except those prohibited by applicable law or collective bargaining agreement. All employees involved in an incident shall be post-incident drug tested in accordance with Safety Directive 1.7, Drugs and Alcohol, unless prohibited by applicable state law or a collective bargaining agreement.

## 5.3 Reporting

- 5.3.1 For injuries requiring off-site medical treatment or treatment at an onsite medical clinic, unless the injury is life or limb threatening, verbal notification of the injury is to be made to the Regional Safety and Health Manager and/or Claims Manager prior to the employee being taken for treatment. The nature of the injury, the probable causation, and the follow-up plan for employee care and related injury

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prevention is to be discussed, agreed upon and communicated to all affected parties.

- 5.3.2 The proper sequence of reporting for non-emergency incidents is as follows: employee notifies supervisor, supervisor notifies manager, manager notifies Regional Safety and Health Manager, manager notifies customer contact.
- 5.3.3 The proper sequence of reporting for emergency incident is as follows: employee or supervisor notifies emergency services (911, fire, police, ambulance), supervisor notifies customer contact or security (adhere to customer site requirements), supervisor notifies manager, manager notifies internal resources as appropriate (safety department, claims department, etc).
- 5.3.4 The Supervisor or designee shall complete the Electronic Incident Report within **72 hours** after the incident and submit it to the Electronic Incident Reporting System for automated distribution. The Electronic Incident Report should include uploads of the Task Safety Analysis (TSA) form, the *Employee Incident Report* (Attachment 7.5), and photographs (unless photographs are prohibited in writing on the customer's site). These items are mandatory for all incident reports as a minimum standard and are necessary to properly evaluate and learn from the incident so that it is not repeated.
- 5.3.5 Coordinate all public and media relations interaction with the Risk Management Department and the customers Risk Management and Media Relations Departments. This specifically includes the release of any written or verbal information to any third party including relatives of workers.
- 5.3.6 Vehicular Accident Reporting
  - a) Operators involved in a vehicular accident will follow Section 5.0 of this procedure. In addition, a *Vehicle Accident Report* (Attachment 7.6) must be completed within 24 hours and uploaded into the Electronic Incident Reporting System. Regardless of the responsibility for an accident, any injuries requiring medical treatment to employees on company business must be reported to the Workers Compensation Claims Manager and Regional Safety and Health Manager within 2 hours.
  - b) Damage to an unattended Company vehicle shall be reported to the department assigned to the vehicle and to the Claims Manager.
  - c) Employees operating a personally-owned vehicle for Company business shall report any incident in accordance with the procedures defined herein during such use.

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### 5.3.7 Property Damage Incident Reporting

Incidents involving damage to private or public property shall be reported in accordance with the procedures and timeframes defined herein via the Electronic Incident Reporting System.

## 5.4 Incident Investigation

5.4.1 An initial incident investigation will be initiated immediately and completed and entered into the Electronic Incident Reporting System within three (3) working days. The purpose of providing this duration of time for the incident investigation is to ensure that adequate time is available to develop and report thorough and accurate information. The supervisor/foreman/Superintendent will:

- Go to the incident site and assess the area to determine if any uncontrolled physical, chemical, or biological hazards exist at the incident site. If hazards do exist, the supervisor shall implement all necessary control measures to ensure that other individuals are not exposed to the hazard(s) and to prevent any further incidents.
- Immediately control access to the incident area as indicated by the severity of the incident. As appropriate, ensure that evidence at the accident site is not touched or disturbed, except to protect workers, the public, property, or the environment. At a minimum, collect the information bulleted below:
  - A list of the people, equipment and materials present at the incident site when the incident occurred, specifically including items the injured worker was using when the incident took place;
  - A list of all witnesses present when the incident occurred, to include name, company affiliation, and contact information;
  - A record of the weather, illumination (light), temperature, noise level, and ventilation in the area where the incident took place;
  - An objective assessment of the apparent medical status of the worker as a result of the incident;
  - The date and time of the incident;
  - The work schedule for the site, to include days of the week the employee typically works on the project, typical start and end times of work, and how long the worker has been employed on the site; and
  - Any other information relevant to the incident such as apparent fatigue, intoxication, etc. that may have contributed to the incident.
- Interview the worker(s) involved in the incident. Use the following interview techniques:
  - Put the worker at ease.
  - Conduct the interview at the scene of the incident if possible.

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- Ask for the employee's understanding and recollection of the sequence of events involved in the incident.
- Ask any necessary questions (what, when, where, but not why).
- Repeat and document the worker's understanding of what happened — correct any misunderstandings.
- Close the interview on a positive note — prevention.

- k) Interview witnesses or persons familiar with the circumstances (use the same techniques as with workers).
- l) Take pictures to document conditions, equipment, tools, etc. (unless prohibited by written customer policy).
- m) Any tools or equipment involved in the incident shall be thoroughly inspected, and if the accident was serious or had the potential to be serious, then any tools or equipment shall be removed from service and secured for further evaluation or evidence.
- n) Re-enact the incident only when able to do so safely and without putting any persons or property at risk.

5.4.2 The Electronic Incident Reporting System shall be used to record the findings of the Incident Investigation.

5.4.3 As applicable, the appropriate information will be entered on the OSHA 300 Log **within 7 calendar days**. The OSHA 300 Log will be kept in each local company business office and the Lancaster office.

5.4.4 Corrective actions are essential to preventing recurring injuries, illnesses, and accidents. A major aspect of injury and illness prevention is eliminating or controlling hazards through engineering controls, administrative controls, or the use of personal protective equipment, in this order of preference. Every injury, illness, and accident must be evaluated to determine if the hazards can be eliminated. If they cannot be eliminated, they are to be controlled.

## 5.5 Follow-up

5.5.1 The company Claims Manager shall establish and maintain communications with the employee, operational office, and treating Occupational Physician.

5.5.2 The operational office shall work together with the Claims Manager, medical providers, and Regional Safety and Health Manager to optimize the opportunities to keep the employee working or return the employee to work as soon as medically possible. The goal is to return employees to modified duty working in conjunction with the treating physician.

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5.5.3 All necessary follow-up will be conducted with the operational office by the Regional Safety and Health Manager to determine that the corrective actions were implemented.

## 6. **RECORDS**

- 6.1 The Electronic Incident Reporting System will be completed for all incidents and the records will be maintained in the Lotus Notes System or the associated archive for the duration of business operations and as required by applicable statute and code.
- 6.2 *OSHA 300 Logs* for the past five (5) years will be kept in each office. The Regional Safety and Health Manager will amend all applicable OSHA records, as required, and make all OSHA notifications as required.

## 7. **ATTACHMENTS**

- 7.1 Incident Reporting Checklist
- 7.2 “Dear Medical Provider” Letter
- 7.3 Return-To-Work Examination Form
- 7.4 Incident Investigation Report
- 7.5 Employee Incident Report
- 7.6 Vehicle Accident Report

## INCIDENT REPORTING CHECKLIST

To be used by the Supervisor as a guide in reporting of employee injuries, illnesses and/or serious near misses.

### WITHIN 2 HOURS OF INCIDENT (OR SOONER IF POSSIBLE)

- Employee involved in any injury, illness and/or serious near miss shall contact supervisor IMMEDIATELY.
- If injury, illness or chemical exposure: ADMINISTER FIRST AID.
- If the injury requires medical treatment **off site**, transport to an assigned medical provider. Prior to transporting the injured worker, contact the Regional Safety Manager for consultation. The Emergency Room (ER) shall only be used for life threatening conditions or as directed by medical personnel.
- The Supervisor, or designee, **shall go** with the injured worker to the authorized medical provider with the following forms:
  - “Dear Medical Provider” letter ( Attachment 7.2)
  - Return-To-Work (RTW) Examination Form (Attachment 7.3) to be completed by medical provider during the exam and given to Supervisor or designee prior to leaving medical provider’s facility.
- The drug testing program in place requires post-accident testing. The Supervisor will contact the Construction Manager, or other Administrator under the program.
- Supervisor will contact by phone the Construction Manager and the Regional Safety and Health Manager.

### WITHIN 24 HOURS OF INCIDENT (OR SOONER IF POSSIBLE):

- Employee(s) involved and Supervisor** shall complete the forms in accordance with the Incident Reporting, Investigation, Follow-up procedure and **FAX distribute via Lotus Notes Incident Reporting Database** each report to the following personnel:
  - 1. **Incident Investigation Report** - (Attachment 7.4)
  - 2. **Employee Incident Report** – Attachment 7.5)
  - 3. **Vehicle Accident Report** (Attachment 7.6)
- Contact YOUR Regional Safety and Health Manager**
  - Kevin Dalecki 302-521-3165
  - Tom Pokornik 419-466-6028
  - Mark Kennedy 412-915-6161
  - Mark Fischer 719-510-1793

**(ON COMPANY LETTERHEAD)**

January 2, 2006

Dear Medical Provider:

The company wants to ensure that all injured employees are given proper medical attention and ask for your assistance in managing our occupational injuries and illnesses.

Safety is given extremely high priority in the company's culture. When injuries do occur, we would like to ask for your assistance in trying to contain these costs and limit the impact to our employees and our business. Since your facility has been chosen as an approved medical provider, your staff would most likely attend to any of the injuries/illnesses incurred by our employees. These injuries/illnesses would be limited to non-emergency work-related medical cases. To accomplish these goals, here are some protocols that can be followed:

1. Please opt for an **over-the-counter medication** if it is a suitable alternative to a prescription.
2. Please opt for **butterfly or Steri-Strips™** in lieu of sutures or gluing the wound.
3. **Our company** makes every effort to accommodate recommendations for **light duty/restricted duty assignments**, if an employee is unable to perform the required job functions as a result of an injury or illness. We need to know the specifics regarding the worker's restrictions and therefore request that you complete the enclosed RETURN-TO-WORK Examination form and return it to us.
4. When suitable, please **release the employee** to work either the same day or next day even if the next day is the weekend.

**If you have any questions regarding these protocols, please call me at 717-799-6325 or contact the Regional Safety Manager for the respective area – Tom Pokornik 419-466-6028, Kevin Dalecki 302-521-3165, Mark Kennedy 412-915-6161 or Mark Fischer 719-510-1793**

Your assistance in these matters will help us provide appropriate medical treatment and continuous improvements in our safety program. Thank you for your service and support in these matters.

Sincerely,

Paul O'Hayre  
Corporate Director Safety, Health and Environmental

Enclosure



## RETURN-TO-WORK EXAMINATION FORM

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Exam Date: \_\_\_/\_\_\_/\_\_\_

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

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Examining Provider: Please complete this form or [similar form](#) and fax to RISK MANAGEMENT at (717) 393-3872. Please give original to injured worker to return to his/her supervisor. For questions, please contact Lorraine [Maxwell](#) at (800) 696-8547.

---

**DIAGNOSIS:** \_\_\_\_\_

**TREATMENT PLAN:** \_\_\_\_\_

Therapeutic / Medications: \_\_\_\_\_

Physical Therapy: \_\_\_\_\_

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

- May return to full duty effective \_\_\_\_\_
  - May return to limited duty from \_\_\_/\_\_\_/\_\_\_ to \_\_\_/\_\_\_/\_\_\_
  - Unable to return to work from \_\_\_/\_\_\_/\_\_\_ to \_\_\_/\_\_\_/\_\_\_
- 

**WORK LIMITATIONS:**

- Restricted lifting/pushing/pulling:
    - Up to 10 lbs.
    - 10 - 20 lbs.
    - 20 - 50 lbs.
  - Work only with right/left hand:  Restricted repetitive motion right/left hand
  - Sitting job only  Restricted operation of moving equipment
  - Other: \_\_\_\_\_
- 

**FOLLOW-UP PLAN:**

- Release from care.
- Schedule for follow-up appointment on \_\_\_/\_\_\_/\_\_\_.
- Referral to \_\_\_\_\_
- Appointment date \_\_\_/\_\_\_/\_\_\_ Time \_\_\_\_\_AM/PM

Comments: \_\_\_\_\_

---

\_\_\_\_\_  
Examiner's Name (print)

\_\_\_\_\_  
Examiner's Signature

\_\_\_\_\_  
Date

# Incident Report

This form shall be completed by the Supervisor within 72 hours for injuries, illnesses and serious near misses.

Incident Date : 07/14/2009 Time: 04:15 PM

Incident Type : JDE AB#:

Responsible Office : Supervisor in Charge :

Incident Location : Contract No :

Person Injured : First Name : Last Name :

Job Title :

Injured Worker's Phone : Supervisor's Phone :

Injured Worker's  
Street Address :  
City: State: Zip Code:

Job Foreman : Superintendent :

Job Foreman Phone : Superintendent Phone :

TSA Uploaded :  Yes  No

Site Work Schedule :

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday

Shift Start Time : Shift End Time :

Personnel Involved :  
a. Company (list name(s)/title) b. Non-Company (list name(s), company and phone number)

Witnesses:  
a. Company (list name(s)/title) b. Non-Company (list name(s), company and phone number)

Date of Birth : Date of Hire :

Nature of injury /illness (if applicable):

Give detailed description of events of the incident in chronological order (use attachments if necessary ):

Were pictures taken ? If so,  Yes  No  
limit this report to 2 pictures. If  
additional pictures are  
warranted please forward to  
the Safety dept. via email.

Preliminary Summary : Incident resulted from (check all that apply):

Employee was offered medical care at this time but refused treatment

These items can be completed by end of shift by Supervisor (Job Foreman) in charge if all causes can be determined. If not, notify the Safety Manager for assistance.

Root Cause(s) (ie that single cause which, if corrected, would prevent recurrence of this and similar incidents).  
Choose one:

Contributing Cause(s) (ie the cause(s) that contributed to the incident but by itself would not have caused the incident).  
Choose one or more:

Recommended Corrective Action (s) (use attachments if necessary)	Responsible Supv /Mgr	To Be Completed By (Date)
--	-----------------------	---------------------------

Investigated By:

Name(s)	Title	Date
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Employee's Account Section:

Describe in your own words "What Happened":

Describe resulting injury /illness/damages (contusion/strain/laceration; right/left side; upper/lower, etc):

Have you been treated previously for an injury of the same type for either similar signs or symptoms ?  Yes  No

Person(s) Notified: Title(s):

Date Notified: Time:

Comments:

**- MY EMPLOYER HAS OFFERED ME MEDICAL CARE FOR THIS INJURY AND I DECLINE TREATMENT AT THIS TIME . IF LATER I WISH TO SEEK MEDICAL CARE FOR THIS INJURY I WILL NOTIFY MY EMPLOYER PRIOR TO SEEKING TREATMENT .**

**This Section Completed By Safety Department**

**This incident has been classified as :**                       OSHA                       Non-OSHA

**Describe specific medical treatment (use attachments if necessary ):**

**Does employee or personnel involved have a history of similar incidents or incidents due to similar causes ?**

Yes     No                      **If Yes, when?**

**Comments :**

**Regional Safety Manager :**

**SUPERVISOR'S INCIDENT INVESTIGATION REPORT**

**This form shall be completed by the Supervisor within 24 hours for injuries, illnesses and serious near misses.**

1. **Verbal notifications** to the Safety and Health Manager and Corporate Workers Compensation Administrator **are required for all** injuries requiring medical attention. Check departments notified.

Safety Mgr. \_\_\_\_\_  
Person Notified

Corp. Risk Management \_\_\_\_\_  
Person Notified

2. Incident Date: \_\_\_\_\_

3. Time: \_\_\_\_\_  a.m.  p.m.

4. Incident Type:  Injury  Illness  Property Damage  Serious Near-miss  Auto

5. Responsible Office: \_\_\_\_\_

6. Supervisor in Charge: \_\_\_\_\_

7. Incident location: \_\_\_\_\_

8. Contract No. \_\_\_\_\_

9. Name Of Person (s) Injured \_\_\_\_\_

Job Title \_\_\_\_\_

10. Telephone Numbers: Supervisor \_\_\_\_\_

Injured Worker \_\_\_\_\_

11. Personnel involved:

a. Company (list name(s)/title)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b. Non-Company (list name(s), company and phone number)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

12. Witnesses:

a. Company (list name(s)/title)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b. Non-Company (list name(s), company and phone number)  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

13. Nature of injury/illness (if applicable) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

14. Give detailed description of events of the incident in chronological order (use attachments if necessary)

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

15. Were pictures taken?  No  Yes If yes, by whom? \_\_\_\_\_  
Name Date Time

16. Preliminary Summary: Incident resulted from (Check all that apply):

Unsafe Act  Unsafe Condition  Unauthorized Work  Failure to use P.P.E.  
 Procedural Violation  Equipment Failure  External Condition  Other (Explain):

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

Employee was offered medical care at this time but refused treatment. \_\_\_\_\_  
Supervisor/ Mgr Signature

Witnesses: \_\_\_\_\_

**SUPERVISOR'S INCIDENT INVESTIGATION FOLLOW-UP REPORT**

**Items 17 - 20 can be completed by end of shift by Supervisor in charge if all causes can be determined. If not, notify the Safety Manager for assistance.**

17. Root Cause(s) (i.e. that single cause which if corrected would prevent recurrence of this and similar incidents)  
 Choose one:
- attention diverted (distracted)
  - equipment problem
  - no SOP or inadequate/defective SOP
  - personnel error
  - client error
  - employee(s) did not follow established procedure(s)
  - external phenomenon (e.g., power failure, weather, theft)
  - Other (explain [Use attachments if necessary] \_\_\_\_\_)
  - personal protective equipment not available/not used
  - training deficiencies (circle one or more):
    - no training
    - inadequate training
    - refresher training needed
    - insufficient hands-on experience
  - reduced stamina/acuity (i.e., tired, ill, long hours, etc.)

18. Contributing Cause(s) (i.e. the cause(s) that contributed to the incident but by itself would not have caused the incident.) (Choose one or more):
- attention diverted (distracted)
  - equipment problem
  - personnel error
  - other (explain) (Use attachments if necessary): \_\_\_\_\_
  - personal protective equipment not available/not used
  - training deficiencies (circle one or more):
    - no training
    - inadequate training
    - refresher training needed
    - insufficient hands-on experience

19.

Recommended Corrective Actions(s) [use attachment if necessary]	Responsible Supv./Mgr.	To be Completed by (Date)

Name(s) (print)                      Title(s)                      Signature(s)                      Date

20. Investigated by: \_\_\_\_\_

21.

**BOXED AREA COMPLETED BY SAFETY DEPARTMENT.** This incident has been classified as:

OSHA:     Injury or  Illness                      Due to:  Lost Time                       Restricted Duty                       Medical Treatment

Describe specific medical treatment [use attachments if necessary]: \_\_\_\_\_

Non-OSHA:     First Aid                       Near Miss with Serious Potential                       Not applicable (Not an Injury or Illness)

Does employee or personnel involved have a history of similar incidents or incidents due to similar causes?

No     Yes    If Yes, when? \_\_\_\_\_

22. Comments [use attachments if necessary] \_\_\_\_\_

\_\_\_\_\_

23. Distribution: \_\_\_\_\_

Fax Copy 1) Lancaster – Risk Management 717-393-3872    2) Regional Safety Mgrs – Mark K.724-934-8704 **or** Tom 419-466-6028 **or** Kevin 302-684-2947 **or** Mark F 719-598-9257. Original to be retained in the location office Loss Control File.

Supv. Investigation & Employee Incident Report information submitted via Lotus Notes Incident Reporting Database

**EMPLOYEE INCIDENT REPORT**

Return completed form to your supervisor within 24 hours for all injuries, illnesses and "near misses."

NAME: \_\_\_\_\_ Last 4 digits SS # \_\_\_\_\_ Phone \_\_\_\_\_

INCIDENT DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ AM / PM (circle one)

INCIDENT TYPE: (circle one) INJURY ILLNESS PROPERTY DAMAGE NEAR MISS

INCIDENT LOCATION: JOB SITE NAME \_\_\_\_\_

BUILDING / AREA/ EQUIPMENT WORKING ON AT TIME \_\_\_\_\_

DESCRIBE IN YOUR OWN WORDS "WHAT HAPPENED":

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

DESCRIBE RESULTING INJURY/ILLNESS/DAMAGES:

(contusion/strain/laceration; right/left side; upper/lower, etc.)

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

HAVE YOU BEEN TREATED PREVIOUSLY FOR AN INJURY OF THE SAME TYPE FOR EITHER SIMILAR SIGNS OR SYMPTOMS.  Yes  No (check one)

WITNESSES: \_\_\_\_\_

PERSON(S) NOTIFIED/TITLE: \_\_\_\_\_

DATE/TIME NOTIFIED: \_\_\_\_\_ AM PM (circle one)

COMMENTS: \_\_\_\_\_

EMPLOYEE SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

MY EMPLOYER HAS OFFERED ME MEDICAL CARE FOR THIS INJURY AND I DECLINE TREATMENT AT THIS TIME. IF LATER I WISH TO SEEK MEDICAL CARE FOR THIS INJURY I WILL NOTIFY MY EMPLOYER PRIOR TO SEEKING TREATMENT.

EMPLOYEE SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

**VEHICLE ACCIDENT REPORT**

This form shall be completed by the Employee/Supervisor within 24 hours of all accidents and sent to the Safety Department. Phone: 717-399-5238 Fax: 717-393-3872

Date: \_\_\_\_\_ Time: \_\_\_\_\_ AM \_\_\_\_\_ PM \_\_\_\_\_

Accident Location: Street: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_

Accident Description: \_\_\_\_\_

Complete the drawing diagram on the reverse side.

**Operator Of Our Automobile**

Driver's Name \_\_\_\_\_ Telephone No. \_\_\_\_\_

Branch \_\_\_\_\_

Unit No. \_\_\_\_\_ Year: \_\_\_\_\_ Make: \_\_\_\_\_ Model: \_\_\_\_\_

Amount of Damage & Where: \_\_\_\_\_

**Operator Of Other Automobile**

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

\_\_\_\_\_ Telephone No. \_\_\_\_\_

Amount of Other Auto Damage & Where: \_\_\_\_\_

Vehicle Year: \_\_\_\_\_ Make: \_\_\_\_\_ Model: \_\_\_\_\_ Plate No. \_\_\_\_\_

Owner's Name and Address: \_\_\_\_\_

Insurance Company: \_\_\_\_\_ Policy No. \_\_\_\_\_

Address & Telephone No. \_\_\_\_\_

**Witness(es)**

1. Name and Address: \_\_\_\_\_

2. Name and Address: \_\_\_\_\_

**Person Injured**

1. Name and Address: \_\_\_\_\_

2. Name and Address: \_\_\_\_\_

**Police Information**

Were Police called to the scene: Yes No

Name of Investigating Officer: \_\_\_\_\_

Name and Telephone No. of Police Dept: \_\_\_\_\_

Police Report No. \_\_\_\_\_



**IN CASE OF A  
MOTOR VEHICLE ACCIDENT**  
(Please Keep This Form in Your Glove Compartment)

1. Take precautions necessary to protect the scene of the accident from further accidents.
2. Call the police. If someone is injured, request medical assistance. If fire is involved, request fire department aid.
3. Answer police questions. Give identifying information to other party involved, but make no comments about assuming responsibility.
4. Complete the Vehicle Accident Report on the reverse side of this page. You will need this information later for state and insurance reports.
5. As soon as possible, report the accident by calling: **1-717-399-5238.**

DIAGRAM ( Draw a diagram of incident )

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## 1 **PURPOSE AND SCOPE**

To identify and document specific procedures to be followed in the event that a regulatory inspection is conducted at a job site. The regulatory agency inspection is the first stage of the enforcement process which presents the possibility of further progressing into litigation.

## 2 **REFERENCES**

The Company Safety Manual 2006

## 3 **DEFINITIONS**

3.1 Compliance Safety and Health Officer (CSHO) - A federal compliance safety and health officer who performs inspections to determine compliance with established OSHA requirements.

3.2 Environmental Protection Agency (EPA) Inspector - A federal environmental compliance officer who performs inspections (primarily asbestos/lead abatement) to determine compliance with established EPA requirements.

## 4 **RESPONSIBILITIES**

4.1 Construction Managers, Project supervisors/foreman shall understand their role as the company spokesperson during the job site inspection.

4.2 The Branch Manager will contact the Safety Department whenever there are any regulatory inspections, regardless of the outcome and coordinate all correspondence with the agencies to resolve citations. The Branch Manager shall send a copy of the citation and all correspondence to the Risk Management Department.

## 5 **PROCEDURE**

### 5.1 General

5.1.1 Inspections by regulatory agencies can occur with little or no prior notification. The first impressions of regulatory inspectors can impact the direction and level of detail involved in the review. Thorough preparation and documentation can have a positive impact on regulatory inspections.

5.1.2 To begin a typical inspection the OSHA Compliance Officer (CSHO) present himself job site, displays his credentials and ask to meet the appropriate management representative. If a serious injury/illness, hospitalization of more than two individuals, or a fatality has occurred, request Corporate Legal Counsel to be present during the inspection.

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5.1.3 Review and record pertinent information from the CSHO's credentials before the opening conference begins. Ask about the CSHO's background, work experience, and knowledge of our type of work. Make a careful record of the responses.

## 5.2 Scope of Inspection - Opening Conference

5.2.1 During the opening conference, determine the reason for the visit or inspection. The reasons could be:

- An imminent danger inquiry.
- A fatality inspection.
- A complaint.
- A referral.
- A general programmed or "Focused" inspection or "Comprehensive" - wall-to-wall.

5.2.2 Once you learn the reason for the inspection, contact Corporate Risk Management and tell them of the reason for the visit or inspection. If the inspection is prompted by a complaint, request a written copy.

## 5.3 Records Review

5.3.1 At the end of the opening conference the CSHO may ask to review your records, such as the OSHA 300 Logs. Take the requested documents to the CSHO. Do not take the CSHO to the area where all of the documents are kept. Do not volunteer information. You should only give those documents requested and maintain a list of the documents reviewed.

5.3.2 You do not have to provide copies of work or safety procedures or other materials to the CSHO unless they are required to be maintained under OSHA or records directly related to the purpose of the inspection. Consult Corporate Legal Counsel/Risk Management for review of such records prior to disclosure. In any event, if you have questions concerning providing documents to a CSHO during an inspection, contact Corporate Legal Counsel.

## 5.4 Etiquette

It is proper to be polite during an OSHA inspection. That does not mean that information is to be freely given to a CSHO. Do not argue with the CSHO, although you may indicate that there is no hazard or no worker exposure to any hazard, or the standard does not apply in the reviewed situation.

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## 5.5 Walkaround Inspection

- 5.5.1 The Compliance Officer may ask you to arrange for an employee representative to accompany him during the walkaround. Actual selection of the employee representative is made by the employees, usually through the union, if applicable.
- 5.5.2 During the walkaround inspection an authorized person (supervisor) will accompany the CSHO at all times. If there is more than one CSHO, make sure an authorized person is assigned to each one.
- 5.5.3 During the inspection, the company representative assigned to be with the CSHO should take written notes of everything the CSHO observes, persons spoken to, and what was said during the inspection. If the CSHO takes a photograph or measurements, the company representative should take the same picture, if possible, and ask the CSHO the reason for the photograph or measurement.
- 5.5.4 If the CSHO is using a measuring or sampling device, the company representative should note whether the equipment was properly calibrated before it was used.
- 5.5.5 Remember, never volunteer information to the CSHO during the inspection and always keep the answers as short as possible. Anything said could be construed as an admission and can be used against the company. In addition, you do not have to discuss the details of how a process or machine operates, permit a demonstration of the equipment, or interrupt the work of individuals. If the CSHO requests a demonstration of an operation or process not being performed at that time, the Company representative should explain that the operation or process is not scheduled for that time and that worker(s) are not available to perform it.
- 5.5.6 During the walkaround inspection of the job site, do not agree, comment, or nod in response to any comment by the CSHO. If you must respond, your comments should be limited to “we note your comment or concern.” You are not obligated to answer a question merely because it is asked.
- 5.5.7 Be prepared to correct apparent violations during the inspection and tell the CSHO that the violation has been corrected. Examples of apparent violations that may be corrected easily include blocked aisle, unsafe floor surfaces, etc.

## 5.6 Employee Interviews

- 5.6.1 The Occupational Safety and Health statute states that OSHA can interview a reasonable number of individuals during the inspection. Such interviews should not take workers away from their workstations for a period that would interfere with the performance of their regular job functions.

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- 5.6.2 The CSHO will state that he/she has the right to conduct a private interview. However, it is the worker's right to have OSHA conduct a private interview. We should advise the worker that he/she has the right to have a company official present when they are being interviewed if they desire. The right to a confidential interview is theirs to decline.
- 5.6.3 After the inspection, if the individual interviewed is cooperative and if a supervisor was not present during the interview, we should try to learn everything the individual said and what the CSHO said to the individual.
- 5.6.4 The supervisor will maintain a record of the names of all individuals who were interviewed by the CSHO.

#### 5.7 Closing Conference

- 5.7.1 The CSHO will advise you of apparent violations. Listen and limit your participation to seeking information from the CSHO rather than providing information. He/she may try to elicit your concession that violations exist. You should take their observations under advisement.
- 5.7.2 You should ask the CSHO specifically why an apparent violation exists, what is the specific hazard and/or the worker exposure, etc. It is a good idea to try to determine exactly what the CSHO thinks is required to abate an apparent violation.
- 5.7.3 Do not agree or admit to anything. For example, do not agree that any hazardous conditions exist or that a recommended time frame for abatement is adequate or reasonable. By the same token, do not try to talk the CSHO out of issuing a citation.
- 5.7.4 The company will hold a post-closing conference after the CSHO leaves the premises or immediately the next morning, if the time is late in the day.
- 5.7.5 A review of the whole inspection from opening to closing conferences will be conducted. Written notes from the authorized person assigned to escort the CSHO in the facility and other information such as photographs taken and individuals interviewed will be reviewed. This information will be discussed with the Corporate Director of Safety, Health and Environmental and Corporate Legal Counsel.

#### 5.8 Inspection Summary

- 5.8.1 After the inspection has been performed, a written summary of the inspection will be prepared. The summary will review the following elements:

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- The reason for the inspection.
- Areas inspected and records requested.
- Minutes of meetings with inspectors.
- Personnel who met with inspectors.
- Comments made by inspectors.
- Response actions required, fines, and warnings.
- Time frames for compliance and re-inspections.

5.8.2 The inspection summary should include an internal evaluation of performance during the inspection and management review and recommendations for changes to operating procedures.

## 5.9 Other Inspections

### 5.9.1 Fatality Inspection

- a Corporate Legal Counsel and the Corporate Director of Safety, Health and Environmental will be notified immediately if a fatality occurs to a Company worker or a contractor of the Company. All of the procedures performed for the inspections should also be performed for a fatality inspection. The scope of the inspection will be limited to the fatality. Corporate Legal Counsel should direct and control the investigation.
- b All requests for documents, interviews, and related information will be directed through Corporate Legal Counsel. We should not allow anyone to be interviewed who was involved in the incident while they are still under the emotional impact of the incident.
- c OSHA must be notified within eight (8) hours of a fatality. A written preliminary report must be prepared and submitted to the Company President within 24 hours of the accident.

5.9.2 Health (Industrial Hygiene) or Environmental (Asbestos Abatement/Lead Abatement) Inspections - When a CSHO arrives to conduct a health inspection, the same procedures should be followed for the notification and opening conference. During the inspection, if any samples are taken, find out what substance(s) the CSHO is trying to detect. Take notes regarding the instruments and techniques used by the CSHO. Make sure to record the location, time, and types of samples taken. Record the length of time during which the samples were collected. Make sure to note any unusual circumstances that may affect the sample results. If at all possible, take the same samples using the same methods as the CSHO.

### 5.10 Citation Arrives

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5.10.1 Immediately forward one copy of the citation to the Corporate Director Safety, Health and Environmental. There is a limited time period usually 10 to 15 days (calendar or working days), depending on the regulatory agency for filing a notice of contest.

5.10.2 Discuss with the citations issues with the Corporate Director SH&E in preparation for the informal conference as discussed in 5.11. The Company's Branch Manager is responsible for coordinating all correspondence including written response to resolve the citation. Informal Conference. The Corporate Risk Management Department/Legal Council will assist with the efforts to resolve the citation.

5.11 Informal Conference

5.11.1 The Company has the right to request an informal conference to settle any potential disputes without initiating the more elaborate proceedings brought on by a petition for review. Most citations are resolved at this level. We are still required to "file" a written request for appeal within the stated agency time frame.

5.11.2 Informal Conferences are conducted with the agency via telephone or in-person. Depending on the level of seriousness of the citation, the Director of SH&E may participate in the informal conference.

5.12. Final Resolution

The Branch Manager will sign the final agreement between the agency and the Company resolving the citation and forward one copy to the Corporate Director HS&E.

6 **RECORDKEEPING**

A copy of the citation and all written correspondence to the agency shall be kept at the Branch Office in addition to the copy maintained at the Corporate Office in Lancaster.

7 **ATTACHMENTS**

None

<b>Safety Conformance - Discipline</b>	Issue Date: March 2000 Revised: May 2007 Issued By: Safety Dept.
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## 1 **PURPOSE AND SCOPE**

It is the policy of the Company to ensure conformance with safety requirements through a progressive employee discipline program. The program pertains to those employees who may engage in an unsafe act, including both the employee and the management representative who may have knowledge of or be responsible for such actions. The program encourages positive counseling, coaching and training for non-serious incidents.

## 2 **REFERENCES**

The Company Employee Handbook

## 3 **DEFINITIONS**

None

## 4 **RESPONSIBILITIES**

The project superintendents and supervisors are responsible for implementation of this Safety Directive and shall be responsible for commitment to safety goals.

## 5 **PROCEDURE**

Disciplinary action will be given for not following verbal or written safety procedures, guidelines, rules, horseplay as well as failure to wear selected PPE, abuse of selected PPE, etc.

5.1 For **Non-Serious** incidents in which a company employee is involved will typically include the following corrective steps:

5.1.1 First Occurrence - Oral or written reprimand.

5.1.2 Second Occurrence - Written reprimand with re-training. Time off without pay may be assessed, if appropriate.

5.1.3 Third Occurrence - Formal disciplining action in the form of suspension and possible termination of employment. The length of time will depend upon the severity of the situation and the nature of severity of the previous reprimands.

5.2 The safety conformance program also requires formal disciplinary action for serious incidents. **Serious** incidents in which an employee is involved will include the following corrective steps: (Very serious incidents that are an Imminent Danger may result in immediate termination.)

5.2.1 First Occurrence - Written reprimand, and time off without pay (the length of time depending on the severity of the situation). Termination may be initiated, as appropriate, for incidents which jeopardize the health or safety of employees.



<b>Safety Conformance - Discipline</b>	Issue Date: March 2000 Revised: May 2007 Issued By: Safety Dept.
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5.2.2 Second Occurrence - Termination of employment. Suspension instead of termination may be recommended only with the concurrence of the Construction Manager.

5.2.3 Zero Tolerance – “Zero Tolerance” has been adopted for the following willful violations and is listed below as well as in the Safety Handbook.

Fall Protection	Sexual Harassment
Lockout/Tag	Drugs/Alcohol
Confined Space Entry	Fighting/Horseplay

5.3 The difference between **Non-Serious** and **Serious** incidents depends on the possible consequences that could take place if the incident were to occur. If the consequences of the incident could result in a serious injury or death (to either the employee or co-workers), or is an obvious violation of a health or safety code or regulation, the incident would be characterized as "**Serious**" in nature. If more than one employee is involved in an unsafe act, each employee is subject to discipline, the degree of which depends upon the circumstances. Job site Forman who fail to initiate discipline upon subordinates are also subject to disciplinary actions under this policy. Refer to Attachment 7.1 Safety Infraction Warning Notice to document violations.

5.4 Management will review disciplinary data (trends) and upgrade employee training.

5.5 The Supervisor shall meet with the employee(s) to discuss the infraction and inform individual(s) of the rule or procedure that was violated and the corrective action to be taken.

5.6 Motivation and Incentives

The company maintains a safety incentive program to reinforce positive work behavior and reward achievement. The Construction Manager determines the level of program and frequency of reward at the start of each project. Rewards are given for positive performance, length of service, safety achievement, etc.

## 6 **RECORDKEEPING**

Form 9913 Safety Infraction Warning Notice shall be kept for 3 years.

## 7 **ATTACHMENTS**

7.1 Safety Infraction Warning Notice

**SAFETY INFRACTION WARNING NOTICE**

To \_\_\_\_\_  
(Employee Name)

Upon your employment with The Company, you were informed as to our policy regarding Safety Rules and Regulations.

The violation you are being cited for is as follows: \_\_\_\_\_

On \_\_\_\_\_ you were cited for a safety violation, Job # \_\_\_\_\_).

This shall serve as your written warning for a \_\_\_\_\_ offense. A third violation at any job location may result in termination of employment with our company. Any offense that is an **Imminent Danger Violation**, could result in immediate termination.

**Reminder:** 1st violation was \_\_\_\_\_ on \_\_\_\_\_ at \_\_\_\_\_  
(Date) (Job Location)

If you have any questions regarding this communication, contact the writer or Supervisor at once.

**VIOLATION:**  1st  2nd  3rd (Cited By) Name Title Date  
 **IMMINENT DANGER**

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

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(Employee Name)

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The violation you are being cited for is as follows: \_\_\_\_\_

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(Date) (Job Location)

If you have any questions regarding this communication, contact the writer or Supervisor at once.

**VIOLATION:**  1st  2nd  3rd (Cited By) Name Title Date  
 **IMMINENT DANGER**

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

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**Reminder:** 1st violation was \_\_\_\_\_ on \_\_\_\_\_ at \_\_\_\_\_  
(Date) (Job Location)

If you have any questions regarding this communication, contact the writer or Supervisor at once.

**VIOLATION:**  1st  2nd  3rd (Cited By) Name Title Date  
 **IMMINENT DANGER**

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

<b>Subcontractors</b>	Issue Date: March 2000 Revised: October 2008 Issued By: Safety Dept - POH
<b>Safety Directive No. 1.12</b>	Page 1 of 4

## 1 **PURPOSE AND SCOPE**

To establish and standardize procedures for safety qualification of subcontractors performing work for the Company and for the safety supervision of the Company subcontractors. Good safety performance from our subcontractors is required by our Company's commitment to safety and good business practice. Each subcontractor is required to comply with provisions of the Occupational Safety and Health Administration standards, state, local and owner's regulations specific to the project.

It is the policy of the company that all subcontractors be approved by the Regional Safety and Health Manager before performing work at the project site. The review shall include evaluation of the subcontractors written programs, safety training, and safety statistics in addition to establishing compliance with the corporate minimum insurance, contract and credit worthiness requirements. Each subcontractor must have demonstrated metrics indicating they have an Experience Modification Rate below 1.0 and a Total Recordable Incident Rate below 5.0, or must meet specific customer metric requirements if they are more stringent, in order to be considered for the subcontracted work.

## 2 **REFERENCES**

OSHA 29 CFR 1926.16 Rules of Construction

## 3 **DEFINITIONS**

Subcontractor – Any entity which receives a contract from our Company to perform work on our job sites. Subcontractors shall included, without limitation, entities providing scaffolding or scaffold services, performing demolition, hazardous substance remediation, or hazardous substance transportation or performing floor or ceiling installation. Subcontractors may be exempted from the requirements for providing a Subcontractor Qualification Profile (SQP) presented as Attachment 7.1 if if they perform services with little safety risk, but such exemption must be approved by the Regional Safety and Health Manager.

## 4 **RESPONSIBILITIES**

- 4.1 Project Manager( PM) Subcontractors must secure permission and obtain all necessary special instructions related to the safety and security of the job site from our project manager before beginning work in any area of our job site. The PM shall ensure the subcontractor has designated an on-site safety representative.
- 4.2 Regional Safety and Health Manager Review and approve the SQP, maintain an approved Subcontractor Qualification list and reevaluate all subcontractors annually.

## 5 **PROCEDURES**

<b>Subcontractors</b>	Issue Date: March 2000 Revised: October 2008 Issued By: Safety Dept - POH
<b>Safety Directive No. 1.12</b>	Page 2 of 4

- 5.1 Before any contract can be awarded to a subcontractor, the Subcontractor Qualification Profile (SQP) must be approved. The insurance certificate and any permits which may be required by the public authorities, our customer or the site owner in connection with the performance of their work, must also be on file with our office. The contract shall require provisions regarding safety. All primary subcontractors are to be included in pre-job meetings, safety orientations, and any additional customer specific requirements.
  
- 5.2 When a contractor/subcontractor desires to use Company Equipment to perform the subcontractor's work, it must first sign the "Equipment Use Agreement" set forth in Attachment 7.2
  
- 5.3 Each subcontractor shall have a written safety program in place which is acceptable to the Company as well as our customer and/or owner. Listed below are a number of fundamental safety rules prescribed by federal, state, and local agencies. Compliance with these, and with all other governmental rules applicable to the subcontractor's work, is required.
  - 5.3.1 Designate an on-site safety representative having a minimum qualification of 10 Hour OSHA Construction training.
  - 5.3.2 Furnish approved personal safety equipment for employees (hard hats, eye protection, safety harnesses, personal fall arrest equipment, etc.)
  - 5.3.3 Provide training, instruction, and monitoring for personal protective equipment to work in hazardous locations or perform special projects.
  - 5.3.4 Give instructions to all employees as to the nature of the work, hazards of the job, use of protective equipment, safety rules and site rules under which they will work. Weekly tool box safety meeting will be held and all subcontractors shall participate in the job and task hazard analysis procedures and conduct regular safety inspections of their work.
  - 5.3.5 Report all accidents and injuries immediately. Each subcontractor is responsible for filling out any required reports or records. Transportation of injured employees is the responsibility of the subcontractor. A copy of the subcontractor accident report and State required forms must be submitted to the company and owner/customer representative.
  - 5.3.6 Follow the job site housekeeping rules dealing with proper disposal and storage of debris or materials.
  - 5.3.7 Keep flammable liquids in approved safety containers and stored in specific areas as assigned with proper fire fighting equipment.

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- 5.3.8 Other fire protection and preventive measures are mandatory. This includes fire extinguishers, proper storage of materials and supplies, and other procedures to protect flammable or combustible materials or areas on site. The use of job made heaters is prohibited. Only approved heating devices are acceptable with no open fires or burning.
- 5.3.9 Each subcontractor will provide his/her own fire extinguishers to protect his/her own equipment, materials, buildings, storage and work areas. Fire extinguishers must be inspected and tagged at least annually.
- 5.3.10 All job site equipment such as trucks, motor cranes, fork lifts, boom trucks, etc., must meet all federal, state, local, and site regulations and should be equipped with fire extinguishers.
- 5.3.11 All scaffolds, work platforms, and open sided floors shall be protected with handrails and toe boards. Safety harnesses will be used for work being performed from elevated areas of greater than 6 feet.
- 5.3.12 Any trench, cut or hole over 5 feet deep will be properly shored, sloped or otherwise protected. Access to and from such areas must be provided within 25 feet of where employees are working.
- 5.3.13 All trucks, cranes, dozers, and other mobile equipment shall be parked in designated areas and locked or otherwise secured after normal working hours.
- 5.3.14 Any work areas involving confined or enclosed spaces shall be monitored for oxygen and/or hazardous gas, or ventilated before employees are allowed to enter. Such spaces will be identified, marked and proper access maintained with written daily records. Employees will be instructed as to the hazards and proper working procedure before entry into such areas. A Confined Space Permit is required that meets both the Company and owner site specific requirements. Refer to Safety Directive 9.2, Confined Space Entry.
- 5.3.15 Any work area that presents a hazard such as overhead work, open holes, train tracks, etc. will be blocked off or barricaded.
- 5.3.16 All welding, cutting or hot work being performed will require protection from slag and/or sparks in the area under or close to such work. A hot work permit is required from Owner's Representative. A fire watch is required for 30 minutes after completion of hot work.
- 5.3.17 All outside buildings, trailers, tool rooms, fab shops or other buildings will be properly erected and fire protection will be provided.

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5.3.18 Any hazardous materials used in the performance of the work will be listed with a Hazardous Material Data Sheet from the manufacturer and submitted to the Company for filing with the Company's own applicable MSDS's. Each subcontractor will instruct their employees in the proper use and/or disposal of hazardous material. MSDS's shall be centralized in one location.

5.3.19 Post Job Safety Performance Reviews shall be conducted with all primary subcontractors upon completion of the work by the Project / Construction Manager and/or Regional Safety and Health Manager or their designee at the Area or Market level.

## 6 **RECORDKEEPING**

6.3 The Subcontractor Qualification Profile (SQP) and Equipment Use Agreement shall be treated as other contract documents in accordance with the Company Administrative Manual.

## 7 **ATTACHMENTS**

7.1 Subcontractor Qualification Profile

7.2 Equipment Use Agreement

SUBCONTRACTOR QUALIFICATION PROFILE (SQP)

(Contractor's Firm Name)			
(Street Address)	(City)	(State)	(Zip Code)
(Contact)		(Telephone Number)	

Please provide the following information relative to your firm's safety performance and program:

**A. Certificate of Liability Insurance AND Experience Modification Rate (EMR)**

1. Please obtain from your insurance agent a Certificate of Liability Insurance showing the general liability, auto (if applicable) and workers compensation coverages. The certificate must list our company as a certificate holder as well as an additional insured. Please attach the certificate to this form.
2. Please obtain from your insurance agent (or state fund, if applicable) your interstate EMRs for the last three rating periods. If you do not have an interstate rating, obtain your intrastate EMRs. Then complete the following data:

	<u>Effective Dates</u>	<u>Modification Rate</u>
Current policy year	_____	_____
One year previous	_____	_____
Two years previous	_____	_____

Is your firm self-insured for Workers' Compensation claims? Yes \_\_\_ No \_\_\_

3. **We require backup for the above information. Please furnish a letter from your insurance agent, insurance carrier, or state fund (on their letterhead) verifying the EMR data listed above.**
4. How many years has your firm been in business under your present firm name? \_\_\_\_\_

**B. OSHA Recordable Incidents**

1. Furnish a copy of your firm's OSHA 300 Logs from the past three (3) years. It is unlikely we can qualify your company to bid work without your OSHA 300 Log.
2. Some firms are not required to complete the OSHA 300 Log because they have too few employees (less than ten at any time during the calendar year) or are exempted by virtue of the services they perform. If you don't complete an OSHA 300 Log, is it because your firm:
  - has too few employees? Yes \_\_\_ No \_\_\_
  - performs a service which is exempted from completing an OSHA 300 Log? Yes \_\_\_ No \_\_\_

If you do not complete an OSHA 300 Log and you answered "No" to the above questions, please explain.

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3. The answers you provide in this section may determine whether you will be permitted to bid work. You are responsible and accountable for providing accurate information. Using your past three years OSHA 300 Logs, provide the following injury and illness information:

	200_	200_	200_
a. Number of fatalities	_____	_____	_____
b. Number of lost workday cases	_____	_____	_____
c. Total number of restricted cases	_____	_____	_____
d. Total number of recordable cases	_____	_____	_____
e. Total employee hours worked	_____	_____	_____
f. Number of employees	_____	_____	_____

**SUBCONTRACTOR QUALIFICATION PROFILE (SQP)**

4. Have you had any regulatory agency inspections in the last three (3) years? Yes \_\_\_\_\_ No \_\_\_\_\_  
If you answered "Yes", please provide copies of the documentation, including any citations issued.

**C. Safety Program**

1. Do you hold safety meetings for:

	<u>Yes</u>	<u>No</u>	<u>Frequency*</u>	<u>Title of Person Conducting Meeting and Dates</u>
a. Field Supervisors?	___	___	_____	_____
b. Employees?	___	___	_____	_____
c. New hires? Orientation	___	___	_____	_____
d. Subcontractors?	___	___	_____	_____

2. Do you conduct job safety inspections? Yes \_\_\_\_\_ No \_\_\_\_\_ Frequency\* \_\_\_\_\_

\* D - Daily                      W - Weekly  
M - Monthly                    Q - Quarterly  
S - Semiannually            A - Annually

3. Please list all safety training that your company provides to its employees e.g. Fall protection, Scaffolding (include any specialty training). \_\_\_\_\_  
\_\_\_\_\_

4. Does your company use Job Safety Analysis? Yes \_\_\_ No \_\_\_ Please provide a copy attached to this profile.

5. Does your company use occupational clinics for injured employees? Yes\_\_\_ No \_\_\_  
Please provide name and location of the clinic. \_\_\_\_\_

6. Does your company have a drug and alcohol program with post accident testing? Yes \_\_\_\_\_ No \_\_\_\_\_

7. Do you have a formal (written) safety program? Yes \_\_\_\_\_ No \_\_\_\_\_  
Please provide a hard copy or CD and submit either email, mail or fax.

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

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

Title: \_\_\_\_\_

Email: (for approval)\_\_\_\_\_

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

**Mail to:**

**Irex Corporation Risk Management Dept PO Box 1268 Lancaster, PA 17608  
Fax 717-393-3872 Email: Donna Ridinger at dridinge@irexcorp.com**

Risk Management will email notification to Subcontractor upon approval. Subcontractor must receive approval prior to work.



## EQUIPMENT USE AGREEMENT

WHEREAS, the Company ( \_\_\_\_\_ ) has supplied, for its own use and convenience, one or more scaffolds, ladders, lifts or other equipment (“Equipment”) in connection with work performed or to be performed at all locations where Contractor is performing work for the Company from (dates) \_\_\_\_\_ to \_\_\_\_\_ at \_\_\_\_\_ (the “Locations”).

WHEREAS, \_\_\_\_\_ (“Contractor”) desires to use the Equipment to perform work at the Locations;

NOW THEREFORE, in considerations of the promises and undertakings set forth herein, and intending to be legally bound hereby, the Company and Contractor agree as follows:

1. The Company will allow Contractor to use the Equipment for Contractor’s work at the Locations, provided that such use by Contractor will not interfere in any way with the Company’s use of the Equipment.
2. Contractor will use the Equipment only in accordance with the Manufacturer’s operating instructions and will employ all necessary safety procedures concerning use of the Equipment. Contractor will not allow any individual to use the Equipment who has not been properly trained in accordance with OSHA regulations and proper safety procedures.
3. Contractor assumes all risk of loss or damage to the Equipment while being used by Contractor or in the custody or control of contractor. Contractor shall defend, indemnify and hold harmless the Company, its parent, subsidiary and affiliated companies, and their directors, officers, employees, successors and assigns from and against any and all claims, demands, actions, causes of action, losses, liabilities, damages, costs and expenses (including attorneys’ fees) arising in whole or in part, directly or indirectly from the use, operation, custody, control, maintenance, storage or repair of the Equipment by Contractor, provided, however, that Contractor shall not be responsible to indemnify and hold harmless the Company for Company’s sole negligence. Contractor shall fully repair or replace any Equipment damaged or destroyed during or as a result of Contractor’s use.

4. The Company makes no warranty of any kind concerning the Equipment. Contractor's use of the Equipment will constitute acknowledgment that the Equipment have been checked and found to be in good and safe condition and fit for the use intended. In no event will the Company be liable for any claim or damages resulting from Contractor's use of the Equipment, from any inability of Contractor to use the Equipment, or from any delay or limitation on Contractor's access for the Equipment.
  
5. Contractor shall maintain, at its sole cost and expense, property insurance insuring against loss or damage to the Equipment in an amount not less than the replacements value of the Equipment, and liability insurance insuring against claims for bodily injury and property damage arising from the Equipment or use thereof in the minimum amounts of \$1 million per occurrence bodily injury and \$500,000 per occurrence property damage. Contractor will name the Company as an additional insured on such policies, and provide the Company's certificates of insurance evidencing the coverage.

The Company

\_\_\_\_\_ (Contractor)

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

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

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

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

<b>Workplace Violence</b>	Issue Date: June 2009 Revised: Issued By: Safety Dept. _poh
Safety Directive No. 1.13	Page 1 of 4

## 1 **PURPOSE AND SCOPE**

To establish corporate policy and procedures related to actual or threatened workplace violence in order to protect the health and safety of our employees, others, the community and property.

## 2 **REFERENCES**

- 2.1 Alberta Occupational Health and Safety (OHS), Part 27, Sections 389-392
- 2.2 Alberta OHS Safety Bulletin, Preventing Violence and Harassment at the Workplace

## 3 **DEFINITIONS**

Violence - The threatened, attempted, or actual conduct of a person that causes or is likely to cause physical injury or property damage.

## 4 **RESPONSIBILITIES**

- 4.1 Each employee shall take an active part in recognizing, preventing and reporting workplace violence by abiding by the policies rules as provided in this directive. Employees at risk for workplace violence or harassment shall participate in the Employee Assistance Program (EAP) or other suitable program to address their at-risk behaviors. Employees who have been exposed to workplace violence or harassment shall also be offered medical consultation services through the EAP or a similar program.
- 4.2 Supervisors are responsible for implementing and enforcing all workplace violence rules and requirements within their respective areas/locations and reporting all cases of workplace violence or harassment to management. Supervisors shall actively participate in all investigations related to reports of workplace violence or harassment. Supervisors shall identify all at-risk behaviors and environments to management for preemptive intervention.
- 4.3 Management is responsible to ensure that workers and supervisors are trained to adequately recognize workplace violence and adhere to the related company rules and procedures. Management personnel are responsible for identifying and mitigating at-risk personnel and environments. Management is also responsible for investigating and acting on all cases of reported abuse or harassment and taking all appropriate corrective actions warranted by the findings. Management shall offer all employees who have been exposed to workplace violence or harassment medical treatment or referral services through the EAP or a similar program.

## 5.0 **PROCEDURE**

<b>Workplace Violence</b>	Issue Date: June 2009 Revised: Issued By: Safety Dept._poh
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## 5.1 Rules of Conduct

- 5.1.1 Every employee is expected to be alert and business-like in his/her work and courteous and considerate in all his/her work associations.
- 5.1.2 Actual (physical actions) or threatened (verbal actions) violence of any type in the work environment is strictly prohibited and is grounds for immediate termination. The company has a zero tolerance policy for workplace violence or harassment, with sanctions that include up to immediate termination.

## 5.2 Hazard Assessment

Hazard assessment is a defined process designed to identify both existing and potential hazards so that they may be mitigated through proactive actions. Hazard assessment as it relates to workplace violence includes:

- Analyzing all aspects of the work environment that may enhance or encourage opportunities for workplace violence;
- Evaluating existing and potential employees for risk to cause or participate in workplace violence; and
- Implementing the proper mitigation controls to minimize the risks for workplace violence to occur.

### 5.2.1 Worker Assessment

- a. Assess your workplace to identify if any individuals or groups of workers have been victims of workplace violence or harassment in the past.
- b. Identify the nature of the workplace harassment or violence and group common items together. Examples include verbal abuse, sexual harassment, and physical aggression or assault.
- c. Identify the effects, severity and frequency of reported abusive or violent incidents.
- d. Establish the workforce perception of their safety in the workplace.
- e. Evaluate your findings and look for trends or commonalities that can be proactively modified to eliminate the cause or causes of the harassment or violence.

### 5.2.2 Workplace and Work Process Assessment

<b>Workplace Violence</b>	Issue Date: June 2009 Revised: Issued By: Safety Dept._poh
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- a) Determine the areas (physical locations or departments) where workplace violence or abuse has occurred.
- b) Evaluate the characteristics of each occurrence in terms of dates, times, activities, etc.
- c) Determine the security of the environments and processes in which workplace violence has occurred in terms of lighting, access control, alarm systems, visibility, and ability to summon help if needed.
- d) Evaluate the work processes where violence or abuse have occurred in terms of workload, numbers of workers in the space, supervision availability, etc.
- e) Evaluate your findings and look for trends or commonalities that can be proactively modified to eliminate the cause or causes of the harassment or violence.

### 5.2.3 Organizational and Management Assessment

- a) Ensure the company policy of zero tolerance on workplace violence and harassment is adequately communicated to all employees.
- b) Monitor compliance with the company policy on workplace violence and harassment in your organizational locations and ensure all workers are adhering to the policy.
- c) Review and investigate the effectiveness of the company policies and procedures related to workplace violence and harassment and make improvements as warranted by these reviews.

## 5.3 Training and Communication

### 5.3.1 General

- a. Employees shall be informed of the zero tolerance policy for workplace violence and harassment as part of the new employee orientation process. This communication shall include what the policy means, why the policy exists, who the policy applies to and how the policy is implemented.
- b. Employees shall be trained in the company policies and procedures regarding workplace violence and harassment at the time of initial assignment or orientation. The training program shall ensure employees understand their rights and responsibilities, the scope of workplace violence and their risk

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factors, the company's policy of prevention, and safe and appropriate responses to incidents of workplace violence or harassment, including how to obtain assistance.

The training shall also educate employees on the correct procedures for reporting, investigating and documenting incidents and the follow-up procedures and support services (EAP, etc.) available to them in the event they are involved in a workplace violence or harassment incident.

- c. Ongoing education and reinforcement of the policy shall be done in the form of signage in the workplace, toolbox meetings, and as a component of recurring safety training.

## 6 **RECORDS**

Records of all reported incidents of workplace violence or harassment shall be maintained for a period of 3 years past the last day of employment with the company.

All employee training records shall be maintained for 3 years.

## 7 **ATTACHMENTS**

None

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## 1 **PURPOSE AND SCOPE**

The Company will take the necessary steps and provide the necessary equipment and training to protect personnel and property from fire damage and other emergency situations in the work place. Fire Protection and Emergency Planning and Preparedness will be instituted at all warehouse, office, and job site locations.

## 2 **REFERENCES**

OSHA 29 CFR 1926.150 Fire Protection  
 OSHA 29 CFR 1926.34 Means of Egress  
 OSHA 29 CFR 1926.35 Employee Emergency Action Plans  
 OSHA 29 CFR 1926.152 Flammable and Combustible Liquids  
 OSHA 29 CFR 1910.38 Emergency Action Plans  
 OSHA 29 CFR 1910.39 Fire Prevention Plans  
 OSHA 29 CFR 1910.106 Flammable and Combustible Liquids  
 OSHA 29 CFR 1910.157 Portable Fire Extinguishers  
 Alberta Occupational Health and Safety Code, Part 7 Sections 115-118

## 3 **DEFINITIONS**

Class A Fire - means a fire involving ordinary combustible materials such as paper, wood, cloth, and some rubber and plastic materials.

Class B Fire - means a fire involving flammable or combustible liquids, flammable gases, greases and similar materials, and some rubber and plastic materials.

Class C Fire - means a fire involving energized electrical equipment where safety to the employee requires the use of electrically nonconductive extinguishing media.

Class D Fire - means a fire involving combustible metals such as magnesium, titanium, zirconium, sodium, lithium and potassium.

Class I or Flammable Liquid – means any liquid having a flashpoint below 100°F (37.8°C.). Class I liquids can be subdivided into Class IA, Class IB or Class IC depending on their flash points and boiling points.

Class II or III Liquids or Combustible Liquids - means any liquid having a flashpoint at or above 100°F. Class II liquids include those with flashpoints at or above 100°F. (37.8°C.) and below 140°F. (60°C.). Class III liquids include those with flashpoints at or above 140°F. Class III liquids can be subdivided into Class IIIA and Class IIIB depending on their flashpoints.

Extinguisher Classification - means the letter classification given an extinguisher to designate the class or classes of fire on which an extinguisher will be effective.

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Multipurpose Dry Chemical - means a dry chemical which is approved for use on Class A, Class B and Class C fires.

#### 4 **RESPONSIBILITIES**

- 4.1 Employees – Employees shall understand their role in responding to an emergency situation that may require incipient stage fire suppression or the rescue or evacuation of workers. Examples of such emergencies include fires, unplanned chemical releases, and natural disasters such as tornados, hurricanes, earthquakes and floods. Workers are responsible for knowing the routes of evacuation, closest emergency exits, and locations of post-evacuation assembly. Workers are also responsible to attend training, participate in Emergency Action and Response Planning efforts, know the means and methods of alarm notification, and participate in incipient stage fire suppression training if incipient stage fire suppression is authorized by the Emergency Action Plan (U.S.) or Emergency Response Plan (Canada) for the project site. Workers shall be knowledgeable and practiced in the site Emergency Plans in all cases where the customer or location has an overriding Emergency Plan that we are required to work under.
- 4.2 Supervisors - Supervisors shall ensure the appropriate number of the proper size and type of fire extinguishers are provided in the work place at the time of initial work activity throughout project completion and that the extinguishers are inspected monthly, certified annually and maintained in operating or “Ready Condition”. Supervisors are responsible for ensuring all employees are trained in the use of all emergency equipment as deemed necessary by the potential exposures and their assigned responsibilities in the Emergency Action or Response Plan for the project site, including their routes of egress and areas of assembly in the event of an emergency evacuation.
- 4.3 Superintendents - Superintendents are responsible for the development and/or implementation of a Fire Prevention and Protection Program and Emergency Action Plan (Emergency Response Plan in Canadian terminology) to be followed throughout all phases of construction and/or demolition work at each project site. Such plans include conducting a Hazard Assessment of the project site and developing mitigation actions in accordance with the procedures defined in this Directive. Superintendents shall consult with affected workers when developing the Emergency Action or Response Plan.
- 4.4 Management – Management is responsible to provide the necessary resources (funding, labor and time) to ensure that Emergency Planning requirements within this directive are enacted in all locations they are responsible for. Management is responsible for monitoring their work locations to ensure that the Emergency Action and Response Plans are developed, implemented and effective. Management is



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responsible to ensure that all emergency planning documents and efforts are periodically reviewed for effectiveness and updated as needed.

## 5 **PROCEDURES**

### 5.1 **Equipment - General**

5.1.1 Access to all fire fighting equipment shall be maintained at all times. The equipment must be conspicuously located.

5.1.2 All fire fighting equipment must be periodically inspected and maintained in operating condition.

5.1.3 Personnel shall be trained at their initial assignment and annually thereafter in the use of any fire fighting equipment they have responsibility to operate.

### 5.2 **Portable Fire Extinguishers**

5.2.1 A fire extinguisher, rated not less than 2a, as indicated on manufacturer's label, must be provided for each 3,000 sq. feet of protected work area or warehouse. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet on construction sites, and 75 feet for Class A or 50 feet for Class B fires on non-construction sites.

5.2.2 One or more fire extinguishers, rated not less than 2A, shall be provided on each floor. In multistory buildings, at least one fire extinguisher shall be located adjacent to stairways.

5.2.3 On construction sites, a fire extinguisher, rated not less than 10 lb, shall be provided within 50 feet of wherever flammable or combustible liquids exceed 5 gallons or where 5 pounds or greater of flammable gases are stored or used.

5.2.4 The type and number of required fire extinguishers must be determined according to the specific risk present on the job site or within the specific work area.

5.2.5 Extinguishers and water drums, subject to freezing, shall be protected from freezing.

5.2.6 Visual inspections of fire extinguishers shall be made monthly by the Construction Superintendent or designated qualified person to insure that extinguishers are at full charge and that there is no evidence of damage to any of the exterior parts. Annual maintenance checks shall be performed by an authorized individual or company. Maintenance checks shall be documented (recorded) and maintained for one year past the date of the last entry or life of the shell (extinguisher).

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5.2.7 Each extinguisher must have a tag attached to show the date of the last visual inspection, along with the initials of the person making the inspection.

### 5.3 Fire Prevention Measures

5.3.1 Pre-job planning should include a review of possible fire hazards.

5.3.2 Smoking and other potential sources of ignition are prohibited at or in the vicinity of conditions or operations which constitute a potential fire hazard, and all such areas or operations must be posted as "No Smoking or Open Flame".

5.3.3 Internal combustion engine powered equipment shall be so located that the exhausts are directed well away from combustible material. Exhausting internal combustion engine powered equipment to the interior of a structure is prohibited without either written authorization from the Corporate Safety Department or the exhaust of the equipment fitted with the appropriate scrubbers that will prevent excessive carbon monoxide emissions. All exhaust points through the exterior of the structure shall be fitted to ensure the exhaust piping or other conduit is maintained a minimum of 6 inches away from combustible materials.

5.3.4 All spark-producing operations shall have an appropriately sized fire extinguisher located and immediately accessible within 25 feet of the operation. Shields or guards shall be used to prevent the spread of sparks from the immediate work area.

5.3.5 Temporary buildings, when located within another building or structure, must be one of either noncombustible construction or have a fire resistance of not less than one hour.

5.3.6 Open yard storage of combustible materials must be maintained for stability of the pile and in no case higher than 20 feet.

5.3.7 No combustible material shall be stored outdoors within 10 feet of a building or structure.

5.3.8 Storage areas must be kept free from an excess accumulation of combustible materials.

5.3.9 Portable fire extinguishing equipment, suitable for the fire hazard involved, shall be provided at convenient, conspicuously accessible locations in any exterior yard or storage area. Portable fire extinguishers, rated not less than 2A, shall be placed so that maximum travel distance to the nearest unit shall not exceed 100 feet

### 5.4 Warehouse Fire Protection

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- 5.4.1 All exits must be clearly marked and unobstructed.
- 5.4.2 All materials shall be stored, handled, and piled with due regard to their fire characteristics. Noncompatible materials, which may create a fire hazard, shall be segregated by a barrier having a fire resistance of at least 1 hour.
- 5.4.3 Material must be arranged to minimize the spread of flames and permit access to fire fighting. Aisles and exits shall be kept clear.
- 5.4.4 Clearance of at least 36 inches must be maintained between the top level of stored material and any sprinkler deflector.
- 5.4.5 Clearance must be maintained around lights and heating devices. Materials shall not be stored within 3 feet of any exit or fire doors.

5.5 Flammable and Combustible Liquids

- 5.5.1 Only approved closed containers and portable tanks shall be used for storage and handling of flammable and combustible liquids. Approved metal safety cans shall be used for the handling and use of flammable liquids in any quantity.
- 5.5.2 Flammable and combustible liquids shall not be stored in areas used for exits, stairways, or normally used for the safe passage of people.
- 5.5.3 No more than 25 gallons of flammable or combustible liquids shall be stored in a room unless it is stored within an approved storage cabinet.
- 5.5.4 Flammable (flash point up to 99 degrees Fahrenheit) and combustible (flash point between 100 and 139 degrees Fahrenheit) liquid storage cabinets must be an OSHA and NFPA approved metal cabinet.
- 5.5.5 A maximum of 60 gallons of Class I or II liquids or 120 gallons of Class III liquids may be stored in any single storage cabinet except on a construction site you may store 60 gallons of flammable or 120 gallons of combustible liquids in an approved storage cabinet. Cabinets shall be labeled in conspicuous lettering, "Flammable-Keep Fire Away." No more than 3 such storage cabinets shall be located in any single storage area. Quantities in excess of those stated above shall be kept in inside storage rooms constructed to meet the requirements of the test specifications set forth in Standard Methods of Fire Test of Building Construction and Material, NFPA 251-1969.
- 5.5.6 At least one portable fire extinguisher, having a rating of not less than 20-B units, shall be located outside of, but not more than 10 feet from, the door opening into

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any room used for storage of more than 60 gallons of flammable or combustible liquids.

- 5.5.7 Any storage of flammable liquid containers outside of the building shall not exceed 1,100 gallons in any one pile or area. Groups of containers shall be separated by a 5-foot clearance. These storage containers must not be closer than 20 feet to any building or the property line or within 10 feet of any street or alleyway. When 2 or more classes of materials are stored in a single pile, the maximum gallonage in that pile shall be the smallest of the 2 or more separate gallonages. Within 200 ft. of each container, there shall be a 12-ft. wide access way to permit approach of fire control apparatus.
- 5.5.8 The storage area shall be graded in a manner to divert possible spills away from buildings or other exposures or shall be surrounded by a curb at least 6 inches high. When curbs are used, provisions shall be made for draining of accumulations of ground or rain water or spills of flammable or combustible liquids. Drains shall terminate at a safe location and shall be accessible to operation under fire conditions.
- 5.5.9 Outside storage areas shall be protected against tampering or trespassers where necessary and must be kept free of weeds, debris, and other combustible materials.
- 5.5.10 At least one portable fire extinguisher having a rating of not less than 20-B units shall be located not less than 25 feet, nor more than 75 feet, from any flammable liquid storage area located outside.
- 5.5.11 Dispensing and handling of all flammable and combustible liquids must be done according to standards outlined in the OSHA standards 1926.152 (e) (1-5). Specifically, all areas in which flammable or combustible liquids are transferred at one time, in quantities greater than 5 gallons from one tank or container to another tank or container, shall be separated from other operations by 25-foot distance or by construction having a fire resistance of at least 1 hour. Drainage or other means shall be provided to control spills. Adequate natural or mechanical ventilation shall be provided to maintain the concentration of flammable vapor at or below 10 percent of the lower flammable limit.
- 5.5.12 Transfer of flammable liquids from one container to another shall be done only when containers are electrically interconnected (bonded).
- 5.5.13 Flammable or combustible liquids shall be drawn from or transferred into vessels, containers, or tanks within a building or outside only through a closed piping system, from safety cans, by means of a device drawing through the top, or from a container, or portable tanks, by gravity or pump, through an approved self-closing valve. Transferring by means of air pressure on the container or portable tanks is prohibited.

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5.5.14 The dispensing units shall be protected against collision damage.

5.5.15 Dispensing devices and nozzles for flammable liquids shall be of an approved type.

5.6 Temporary Heating Devices

5.6.1 When heaters are used in confined spaces, special care must be given to provide sufficient ventilation in order to insure proper combustion, and maintain the health and safety of workers.

5.6.2 Temporary heating devices must be installed to provide clearance to combustibles not less than the amount shown below:

Temporary Heating Device Type	Clearance Required		
	Sides	Rear	Chimney Connector
Room Heater – Circulating Type	12	12	18
Room Heater – Radiant Type	36	36	18

Temporary heating devices, which are listed for installation with lesser clearances than specified above, may be installed in accordance with their approval.

5.6.3 Heaters not suitable for use on wood floors must not be set directly on them or on other combustible materials. When such heaters are used, they shall be placed on suitable heat insulating materials or at least one-inch thick concrete, or equivalent. The insulating material must extend beyond the heater a minimum of 2 feet in all directions.

5.6.4 Heater, when in use, must be set horizontally level, unless otherwise permitted by the manufacturers' markings.

5.6.5 Solid fuel salamander type heaters are prohibited in buildings or on scaffolding.

5.6.6 Flammable liquid fired heaters must be equipped with a primary safety control to stop the flow of fuel in the event of flame failure.

5.6.7 The storage of liquefied petroleum gas (LPG) containers inside any structure is not permitted.

5.6.8 LPG storage outside of buildings, for containers awaiting use, shall be located from the nearest building or group of buildings, in accordance with the following:

Quantity of LP-Gas stored	Distance
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	(feet)
500 lbs. or less	0
501 to 6,000 lbs	10
6,001 to 10,000 lbs	20
Over 10,000 lbs	25

5.6.9 LPG containers shall be placed in a suitable ventilated enclosure or otherwise protected against tampering. Storage locations shall be provided with at least one approved portable fire extinguisher having a rating of not less than 20-B:C.

## 5.7 Emergency Action and Emergency Response Planning

5.7.1 Emergency Action (U.S. terminology) or Emergency Response (Canadian terminology) Plans shall be developed for all project sites. On sites with 10 or more workers, this plan must be written, kept at the work site, and made available for employee review. For sites with less than 10 workers, the plan may be communicated verbally but this communication must be documented to include the date, time, and attendees.

5.7.2 The Plan must include the following items:

- The procedures for conducting initial and recurring worker training for all new and continuing employees at each work site. All new employees and employees new to the work site shall be trained in the Emergency Action Plan and/or Emergency Response Plan at the time of initial assignment to the project site. All employees will be trained in the Emergency Plans whenever the Plans are modified or updated. All employees at ongoing or fixed work site locations will receive annual refresher training in the Emergency Action and/or Emergency Response Plans. Such training shall be documented by date, content, instructor and employee signature. The records shall be maintained for a period of one year after completion of the contracted work or three years, whichever is longer. For fixed project sites and office locations, employee training records shall be maintained for a period of three years.

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- The procedures for reporting a fire or other emergency, including both at the work site (alarm and notification systems) and to third parties (customer contacts, responding agencies, medical providers, etc);
- The procedures for emergency evacuation, including the type of evacuation (fire, tornado, etc.) and exits routes and assignments;
- The procedures to be followed by any authorized employees who remain to operate critical facility operations, as applicable;
- The procedures to account for employees after evacuation, including designation of primary and secondary assembly areas (2 locations are needed in case the emergency or the response preclude the safe use of the primary assembly area);
- The types of emergencies that may impact the work site and the authorized responses to those emergencies. Examples of the types of emergencies include fires, unplanned chemical releases or spills, and natural disasters such as tornados, hurricanes, earthquakes and floods. Examples of appropriate responses to these emergencies include:
  - Advise all personnel in the immediate area;
  - Initiate the alarm system for the site and all emergency responder agencies;
  - Evacuate all personnel to the Primary or Secondary Assembly Area, as indicated by the nature of the emergency;
  - Account for all personnel in the assembly area(s);
  - Report all personnel accounted for to the Incident Commander or Customer Representative or identify anyone who is not accounted for;

Nature of Emergency	Response Actions	Procedures
Fire	Report per site procedure and initiate alarm system; evacuate to muster area unless part of trained response team; account for all personnel; follow instructions; stay alert for response vehicles and activities.	Ensure all personnel trained in emergency alarm system procedures, emergency evacuation routes and muster areas, and proper evacuation methodology.
Chemical Spill / Release	Report per site procedures and initiate alarm system; evacuate to muster area unless part of trained response team; account for all personnel; follow instructions; stay	Ensure all personnel trained in emergency alarm system procedures, emergency evacuation routes and muster areas,

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	alert for response vehicles and activities; monitor wind direction for plume travel;	and proper evacuation methodology. Train on means and methods of determining wind direction.
Hurricane, Tornado, Flood	Report to protected muster area; account for personnel; follow instructions;	Ensure all personnel trained in emergency alarm system procedures, emergency evacuation routes and muster areas, and proper evacuation methodology. Train on potential natural disaster occurrence at project site. Train on emergency communication systems.

- Procedures to be followed by employees performing rescue or medical duties, including the location of all rescue and first aid equipment and a list of the employees authorized to use the rescue equipment or administer first aid. The only type of rescue authorized for company employees to participate in is rescue operations in the event an individual has fallen from height and is suspended awaiting rescue. Site specific written Fall Protection Plans that include procedures for emergency rescue are required prior to the start of work in all such instances where a rescue could be required, as specified in Safety Directive 5.2 and the associated Fall Protection Plan and Rescue Plan attachments.

Typical company Emergency Equipment is limited to portable fire extinguishers, first aid kits, fall rescue kits, and communication radios. The fire extinguishers are located in the site trailer(s) and throughout the construction site as specified in this Directive. First aid kits are located in the site trailer(s), gang boxes, and company vehicles. Fall rescue kits are stored in the trailer and located at the area where the fall protection activity that could require a rescue is being conducted. Company radios and cellular telephones are carried by job site foreman, superintendents, and managers.

- The name, address, telephone number and directions to the closest emergency medical provider facility;



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- The name, address, and telephone number of the closest emergency responder agencies, including police, fire, ambulance/EMS, onsite security, hospital, and other applicable entities;
- A list of the Authorized Employees who are trained and approved to conduct incipient stage fire suppression (i.e. to use portable fire extinguishers) or use other emergency response equipment as identified in the Plan; and
- The name or job title of each employee who may be contacted by employees who need more information about the plan or an explanation of their duties under the plan.

5.7.3 Affected employees shall be consulted in the development and implementation of the Emergency Action or Emergency Response Plan.

5.7.4 The Plan shall be periodically reviewed and updated as needed to reflect improvements or changes at the work site that could impact the effectiveness of the emergency procedures.

## 6 **TRAINING**

All new employees and employees new to a work location or site shall be trained in the Emergency Action Plan and/or Emergency Response Plan at the time of initial assignment to the location.

All employees will be trained in the Emergency Action and/or Emergency Response Plans whenever the Plans are modified or updated.

All employees at ongoing or fixed work site locations will receive annual refresher training in the Emergency Action and/or Emergency Response Plans.

All employees authorized to use emergency equipment (portable fire extinguishers, first aid kits, fall protection rescue systems, site radios, etc) shall be trained the proper use and inspection of such equipment prior to being authorized to use the equipment, be included as an equipment user in an Emergency Action or Emergency Response Plan, and at least annually thereafter.

## 7 **RECORDKEEPING**

All Fire Prevention and Emergency Action or Emergency Response employee training records must be kept for three (3) years.

## 8 **ATTACHMENTS**

None

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## 1. **PURPOSE**

The Company will take all the necessary measures to reduce and control the hazards of bloodborne pathogens and other diseases associated with bodily fluids. This Exposure Control Plan covers employees who are trained in First Aid and designated to render First Aid assistance as a requirement of their job for the personal protection of our employees. The most significant bloodborne diseases that employees could be exposed to on the job are hepatitis B (HBV) and human immunodeficiency virus (HIV).

## 2. **REFERENCES**

- 2.1 OSHA 29 CFR 1910.1030 Bloodborne Pathogens
- 2.2 American Red Cross, Standard First Aid Textbook, Mosby Lifeline, 2006

## 3. **DEFINITIONS**

- 3.1 Bloodborne Pathogen - means a pathogenic microorganisms that are present in human blood and can cause disease in humans. These pathogens included, but are not limited to, Hepatitis B Virus (HBV) or Human Immunodeficiency Virus (HIV), which causes AIDS. Other potentially infectious materials includes the following body fluids: semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, any body fluid that is visibly contaminated with blood.
- 3.2 Universal Precautions - treat all blood and certain human body fluids as if they were known to be infectious for HIV, HBV and other bloodborne pathogens.

## 4. **RESPONSIBILITIES**

- 4.1 Supervisors shall ensure their employees who are designated to render first aid assistance are trained in First Aid by the American Red Cross or equivalent. The supervisors shall make arrangements (Project Safety Plan) to promptly transport the injured person to an occupational clinic or hospital if a life threatening condition exist.
- 4.2 Supervisors shall ensure that the necessary protective equipment as described in this procedure is included in each job site first aid kit and that a copy of the Exposure Control Plan is accessible to employees. Supervisors shall inspect the first aid kit at least weekly on their job site to ensure expended items are replaced.
- 4.3 Project Manager shall ensure that all first aid kits sent to job sites are full.

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## 5. PROCEDURE

5.1 First-Aid Training - Employees designated to render First-Aid as a requirement of their job will be trained in First-Aid by the American Red Cross or equivalent. “Blood and Disease Transmission” as found in the American Red Cross Standard First Aid textbook will be emphasized along with this procedure. At least one employee shall be first-aid trained (every 3 years) and CPR and blood-borne pathogens trained once per year. Employees shall be provided training at the time of initial assignment and annually thereafter.

5.2 An exposure determination has been completed and the only job classification noted with occupational exposure is the supervisors while rendering first-aid. This determination was made without regard to the use of personal protective equipment.

### 5.3 Work Practice Controls

The work practice controls listed below will be followed each time you respond or administer first aid.

- a) Avoid being splashed by blood.
- b) Place a barrier between you and the victim’s blood. This can be done by wearing disposable latex gloves and covering the wound with a dressing (guaze pad) or plastic wrap.
- c) Cover any cuts, scrapes, or skin conditions you have.
- d) Wash your hands immediately with soap and water after providing care, even if you wore gloves. If hand washing facilities are not available, use an antiseptic hand cleaner or antiseptic towelette. Use these as a temporary measure only. You must still wash your hands with soap and water as soon as feasible.
- e) Avoid eating, drinking and touching your mouth, eyes, or nose while providing care or before you wash your hands.
- f) Avoid touching objects that may have been contaminated with blood.
- g) Avoid handling any of your personal items, such as pens or combs, while providing care before washing your hands.
- h) Observe warning signs and labels as listed below: These labels shall be fluorescent orange or orange-red with lettering and symbols in a contrasting color.



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#### 5.4 Personal Protective Equipment and First Aid Kits

PPE shall to be provided at no cost to the employee such as gloves, breathing devices, etc. PPE shall be used unless the company can show that employees temporarily declined to use PPE under rare circumstances. The project manager shall ensure that appropriate PPE in the appropriate sizes and first aid kits are readily accessible. PPE should be cleaned, laundered & properly disposed. PPE shall be repaired and replaced as needed to maintain its effectiveness.

For Canadian operations, the Company shall provide first aid services, supplies and equipment and provide a first aid room in accordance with the applicable requirements of Schedule 2, Tables 5, 6 or 7 or shall enter into a written agreement with the Prime Contractor at the site to do so. First Aid kits shall be provided by the Company, maintained in a clean, dry and serviceable condition, kept inside a container that protects the contents from the weather, conspicuously identified and their location posted. The Foreman is responsible for ensuring the units are stored properly and are maintained with current supplies. Each kit shall have the following items to protect employees from contact with a bleeding person.

- a) Gauze pads are provided as a required item in First Aid kits.
- b) Latex or vinyl gloves
- c) Resuscitation Devices (mouthpieces/pocket masks) are required in all First Aid kits and are used for administering CPR. These are designed to isolate you from contact with a victim's saliva during resuscitation. AVOID unprotected mouth-to-mouth resuscitation.
- d) Biohazard bag
- e) First aid kits shall consist of appropriate items and stored in a weather proof container with individual sealed packages of each type of item.
- f) The contents of the first aid kit shall be checked before being sent out to each job and at least weekly on each job to ensure that expended items are replaced.
- g) The emergency numbers must be completed as part of the Project Safety Plan. The emergency numbers must be posted. ( NOTE)- 911 may not be available.
- h) Where the eyes or body of any person who may be exposed to injurious corrosive materials, suitable facilities shall be provided within the work area.

5.4.1 The designated First Aid Responder(s) at the site shall be identified in the Project Safety Plan and is responsible for complying with local workplace health and safety regulations and shall:

- Maintain a valid First Aid Certification from a nationally recognized training agency;
- Administer First Aid in the event of an emergency or other employee injury;
- Accompany injured workers to a place of medical treatment (occupational clinic, emergency room, hospital);

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- Maintain all First Aid kits in conjunction with the site Foreman or Superintendent;
- In conjunction with the Project Manager and Regional Safety and Health Manager maintain a project First Aid treatment record for all first aid rendered at the project site and ensure this record is maintained for 3 years following project completion (or longer) in the Project File;
- In conjunction with the Project Manager, ensure emergency First Aid communication system requirements and transportation needs are addressed and implemented prior to the start of work and included in the Project Safety Plan.

### 5.5 Housekeeping

Any blood contaminated items must be cleaned up immediately. All equipment or environmental surfaces shall be cleaned and decontaminated after contact with blood or other infectious materials. Place all used bandages, gauze pads, etc., in the leak proof biohazard bag for proper handling, storage, transport and disposal. The red biohazard bag affixed with the red-orange “Biohazard” label should be given to the medical personnel transporting the injured employee for proper disposal.

### 5.6 Hepatitis B Vaccine

The hepatitis B vaccine will be offered to all first aid responders and employees who have the potential to be exposed to bloodborne pathogens at no cost to the employee(s) unless the employee has previously had the vaccine or wishes to decline. Refer to Attachment 7.1 for the hepatitis B declination form. The vaccine will also be offered to all employees, as soon as possible, but no later than 24 hours, to all unvaccinated first aid responders who have rendered assistance in a first aid incident.

## 6. RECORDKEEPING

- 6.1 The company has established and maintains an accurate record for each employee with occupational exposure. The Hepatitis B Vaccine Declination Form (Attachment 7.1) should be kept in the employee file. Training records shall be maintained for three years from the date of training and medical records shall be maintained for at least the duration of employment plus 30 years. Training records shall include the following: Dates and Contents of Training, Names and Job Titles of persons attending.
- 6.2 The company shall ensure that all records required by this procedure are made available upon request of employees, Assistant Secretary and the Director for examination and copying. Medical records shall have written consent of the

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employee before released. The company will comply with the requirements involving transfer of records if the company ceases to do business in accordance with CFR 1910.1020(h).

## 7. **ATTACHMENTS**

### 7.1 Hepatitis B Vaccine Declination Form

**HEPATITIS B VACCINE DECLINATION**

I, \_\_\_\_\_, understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with the hepatitis B vaccine, at no charge to myself. 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.

I have received written information and/or counseling on hepatitis B and the hepatitis B vaccine. My signature below constitutes acknowledgment that the benefits and risks of the vaccine have been explained to me and that I have all the information I desire to decline this vaccine.

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

\_\_\_\_\_  
Social Security Number

\_\_\_\_\_  
Date

\_\_\_\_\_  
Witness

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## 1 **PURPOSE AND SCOPE**

The primary purpose of this Heat Illness Prevention Safety Directive is to improve worker safety and health by providing guidance for heat illness control when working in elevated temperatures within customer's facilities, during field work and/or wearing protective clothing which could compromise an individual's ability to dissipate body heat.

## 2 **REFERENCES**

- 2.1 *American Conference Of Governmental Industrial Hygienist - Threshold Limit Values (TLV) for Chemical Substances and Physical Agents and Biological Exposure Indices. 2005.*
- 2.2 *American Red Cross - Standard First Aid Manual, Mosby Lifeline, 2006.*

## 3 **DEFINITIONS**

- 3.1 **Acclimatization** - A physiological and psychological adjustment that progressively occurs over a period of increased duration in a hot environment and allows an individual to tolerate a hot environment.
- 3.2 **Antihypertensives** - Medication that lowers elevated blood pressure.
- 3.3 **Body Core Temperature** - The internal body temperature necessary to maintain normal body organ functions. This temperature is regulated between 96.8°F and 100.4°F.
- 3.4 **Convection** - The transfer of heat from one place to another by moving gas or liquid. Natural convection results from differences in density that are caused by temperature differences. Thus warm air is less dense than cool air. The warm air will rise relative to the cool air, and vice versa.
- 3.5 **Dry Bulb Temperature** - The temperature using an ordinary thermometer. This measurement is not dependant on the humidity.
- 3.6 **Diuretics** - A substance that promotes excretion of urine.
- 3.7 **Electrolytes** - Substances that can convey an electrical impulse when in solution. Body electrolytes include such elements as sodium, potassium, and chlorides.



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- 3.8 Heat Cramps - Least severe of heat related illness caused by overexposure to heat. Heat cramps are often the first signal the body is having trouble with the heat. Refer to Section 5.4 for signs and symptoms of each type of heat related illness.
- 3.9 Heat Exhaustion - Is a more severe condition of heat related illness than heat cramps.
- 3.10 Heat Stroke - Is the least common but most severe heat emergency in which the body systems are overwhelmed by the heat and begin to stop functioning. It often occurs when people ignore the signals of heat exhaustion. Heat stroke is a serious medical emergency.
- 3.11 Metabolic Heat - The heat that is generated within a persons body due to normal body functions as well as muscle contractions from increase activity or exercise.
- 3.12 Qualified Person - A person capable by education and/or specialized training of anticipating, recognizing, and evaluating employee's exposure to temperature extremes. This person will be capable of specifying the necessary controls and personal protective equipment to insure worker safety.
- 3.13 WBGT - Wet Bulb Globe Temperature. A temperature measurement that combines the effects of radiant heat, solar radiation, air movement, and dry bulb temperature.

#### 4. **RESPONSIBILITIES**

- 4.1 Supervisors shall assure that all affected employees are trained in the hazard recognition and control measures of working in hot environments including the signs and symptoms of heat related illnesses.
- 4.2 Health and Safety shall provide assistance when monitoring is requested for the evaluation of operations where the potential for heat stress exists and assist in establishing a trigger temperature for initiating a heat alert.

#### 5.0 **PROCEDURE**

##### 5.1 General

- 5.1.1 Heat stress is a disorder that may affect every employee at one time or another in their lifetime. It is very difficult to predict just who will be affected. Individuals can work at the same job, under the same conditions,

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and one will be affected by the heat and the other will not. Age, weight, physical condition, metabolism, alcohol or drug use, and medical condition are some of the determining factors affecting a person's sensitivity to heat and susceptibility to heat disorders. Determining a potential heat stress environment involves more than just the measuring of ambient air temperature. Radiant heat, air velocity and relative humidity are all factors that must be determined.

To keep internal body temperatures within safe limits, the body must get rid of its excess heat, primarily through varying the rate and amount of blood circulation through the skin and the release of fluid onto the skin by the sweat glands.

These automatic responses usually occur when the temperature of the blood exceeds 98.6°F and are kept in balance and controlled by the brain. In this process of lowering internal body temperature, the heart begins to pump more blood, blood vessels expand to accommodate the increased flow, and the microscopic blood vessels (capillaries) that thread through the upper layers of the skin begin to fill with blood. The blood circulates closer to the surface of the skin, and the excess heat is shed to the cooler environment.

If heat loss from increased blood circulation through the skin is not adequate, the brain continues to sense overheating and signals the sweat glands in the skin to shed large quantities of sweat onto the skin surface. Evaporation of sweat cools the skin, eliminating large quantities of heat from the body.

As environmental temperatures approach normal skin temperature, cooling of the body becomes more difficult. If air temperature is as warm as or warmer than the skin, blood brought to the body surface cannot lose its heat. Under these conditions, the heart continues to pump blood to the body surface, the sweat glands pour liquids containing electrolytes onto the surface of the skin and the evaporation of the sweat becomes the principal effective means of maintaining a constant body temperature.

Sweating does not cool the body unless the moisture is removed from the skin by evaporation. Under conditions of high humidity, the evaporation of sweat from the skin is decreased and the body's efforts to maintain an acceptable body temperature may be significantly impaired. These conditions adversely affect an individual's ability to work in the hot environment. With so much blood going to the external surface of the body, relatively less goes to the active muscles, the brain, and other

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internal organs. Strength declines, and fatigue occurs sooner than it would otherwise. Alertness and mental capacity also may be affected. Workers who must perform delicate or detailed work may find their accuracy suffering, and others may find their comprehension and retention of information lowered.

Personnel may be required to work under hot environmental conditions that can impair physical health. Hot environments may include working outdoors in high temperatures, or working indoors on or near equipment that generates high temperatures. Factors that affect an individual's heat load include the metabolism of the body and the heat transferred from the environment.

- 5.1.2 Heat related illnesses, injuries and reduced productivity occur in situations in which the total heat load exceeds the capacities of the body to maintain normal body functions without excessive strain. Many of the bodily responses to heat exposure are desirable compensatory mechanisms will no longer be capable of maintaining body temperatures at the level required for normal body functions. As a result, the risk of heat-induced illnesses, disorders and accidents substantially increases.
- 5.1.3 Personnel may be required to work under hot environmental conditions that can impair physical health. Hot environments may include working outdoors in high temperatures, or working indoors on or near equipment that generates high temperatures. Factors that affect an individual's heat load include the metabolism of the body and the heat transferred from the environment.
- 5.1.4 *Metabolic heat gain* - The body produces heat through metabolism and muscle contractions. The body tries to regulate the core temperature between 96.8°F and 100°F. As the body produces more internal heat through increased metabolism or muscle contractions, it maintains the core temperature by increasing the blood circulation to the skin surface. This will transfer the internal heat to the skin surface where it's then dissipated to the environment.
- 5.1.5 *Radiant heat gain* - Sources of heat emit radiant energy (e.g. infrared radiation) that is transmitted through the environment. The energy is absorbed by personnel and produces the feeling of heat.
- 5.1.6 *Convection* - Air currents produce a cooling effect when the air removes the layer of heat at the surface of the skin produced by the body. The cooler the air or faster the velocity, the greater the cooling effect.

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However, when the air is warmer than the body temperature, heat is added as a gain in body heat load.

- 5.1.7 *Evaporation* - Perspiration is one of the ways the body provides cooling. As the perspiration evaporates it cools the surface of the skin.

## 5.2 Pre Job Planning

- 5.2.1 The Supervisor shall review the job site area conditions to determine if heat stress is a recognized hazard for the work and shall consider both physical and environmental factors to determine how to safely accomplish the work.

The following factors related to heat illness hazard evaluation and recognition shall be taken into consideration along with the environmental factors detailed in the Engineering Controls section below:

- a) Environmental (climatic) factors of concern are air temperature, humidity, wind velocity and the sun's rays.
- b) The employee physical condition and work load (type of work) must also be assessed, including the planned work duration, and the use of some types of personal protective equipment necessary to safely complete the work such as respirators or Tyvek coveralls. The body releases greater amounts of heat as the physical work load increases and also with the use of certain types of personal protective equipment or clothing, e.g. body coverings, respirators, heavy clothes, etc. The personal factors associated with each employee as they relate to potential susceptibility to heat illness. The personal factors that can result in a worker being susceptible to heat illness include, but are not limited to, age, weight, overall fitness, drug or alcohol use, and prior heat-related illness events. Consumption of alcohol can increase dehydration and decrease personnel's tolerance to the heat. Both of these conditions can increase the risk of heat strain to the personnel.

Drugs, whether prescribed or social in nature, can adversely affect the worker and increase their risk to heat strain. The types of drugs that can affect susceptibility to heat illness include diuretics, antihypertensives, or any drug affecting the central nervous system, cardiovascular system, or body hydration.

- c) Workers who have exhibited prior heat illness can be more susceptible to subsequent heat illness events.
- d) Employee symptoms and/or complaints and employee conditioning and/or acclimatization.

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5.2.2 If heat stress conditions are a factor, the supervisor shall brief workers on heat stress conditions and control measures before exposure to high heat stress conditions. Where the level of environmental heat stress may be unpredictable and variable (seasonal) and where exposure time may vary with the task, the application of preventive measures (Heat Alert Program) should be implemented. A trigger level temperature should be established that would cause the program to go into effect.

### 5.3 Heat Stress Preventive Measures

Heat stress is the combination of environmental and physical work factors that constitute the total heat load imposed on the body. Heat impacts to workers can be reduced by lowering the temperature in the work environment and/or by reducing the amount of time workers spend in the high temperature environment.

Heat stress depends, in part, on the amount of heat the worker's body produces while a job is being performed. The amount of heat produced during hard, steady work is much higher than that produced during intermittent or light work. Therefore, one way of reducing the potential for heat stress is to make the job easier or lessen its duration by providing adequate rest time. Mechanization of work procedures can often make it possible to isolate workers from the heat sources (perhaps in an air-conditioned booth) and increase overall productivity by decreasing the time needed for rest. Another approach to reducing the level of heat stress is the use of engineering controls, including ventilation and heat shielding.

There are some work environments where heat production is difficult to control, such as work in areas where steam lines cannot be shut down, work in high temperature or high humidity work areas, and work areas with radiant heat from the sun or process or mechanical equipment.

When unacceptable levels of heat exist in the work environment, there are generally six primary approaches to manage and control the risks associated with heat illness or thermal burn hazards, as listed below:

- a) Modify the work environment;
- b) Modify the protective clothing or the control or process equipment;
- c) Modify the work practices used to complete the work tasks;
- d) Adjust to the work by use of a formal heat acclimatization program;
- e) Modify production by using work-rest regimens; and
- f) Increase the worker's knowledge of working in a hot environment.

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Rather than be exposed to heat for extended periods of time during the course of a job, workers should, wherever possible, be permitted to distribute the workload evenly over the day and incorporate work-rest cycles. Work-rest cycles give the body an opportunity to get rid of excess heat, slow down the production of internal body heat, and provide greater blood flow to the skin.

Workers employed outdoors are especially subject to weather changes. A hot spell or a rise in humidity can create overly stressful conditions.

The summarized work practices listed below help to reduce the adverse effects of heat illness:

- Postponement of nonessential tasks to cooler times of the day;
- Permit only those workers acclimatized to heat to perform the more strenuous tasks;
- Provide additional workers to perform the tasks keeping in mind that all workers should have the physical capacity to perform the task and that they should be accustomed to the heat.
- Know the weather conditions before performing work outdoors. Determine what the temperature for the day will be, what the humidity level is, what the chance of moisture is, and what the wind condition is expected to be.
- Provide cooling by using fans to create air currents when possible.
- When the source of the heat is produced by local equipment, provide a shield to reflect the radiant heat and reduce the heat load on personnel.
- When the source of heat is hot water tanks, boilers, furnaces, or heating pipes, reduce the amount of heat generated to the environment by eliminating leaks in the systems and ensuring that the insulation is in good condition.
- Take periodic rest breaks from working in the hot environment. The rest breaks should allow sufficient time for personnel to cool and rehydrate with water.
- Personnel should drink water regularly while working in hot environments. A recommended one-cup of water every 15- to 20-minutes should be consumed. The water should be sufficiently cooled to approximately 50°F to 60°F. The water source should be made available in a location so personnel do not have to leave the work area to get a drink.
- Personnel who are new to the hot work environment or personnel who have not worked in a hot environment for over five days should be acclimatized to the hot environment. The amount of time spent in the hot environment should be reduced while rest time should be

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increased. Provide electrolyte supplements until personnel become acclimatized.

- Perform outside jobs on hot days during the morning, if possible, when the temperature is the coolest.
- Personnel should be allowed to pace themselves while working in hot environments.
- Perform work using the buddy system (work in pairs). Personnel should know how to recognize the symptoms of heat stress and monitor the other person for the signs of heat stress.

5.3.1 Engineering Controls - A variety of engineering controls can be used to manage the environmental factors that contribute to heat loading in the work environment. The most common environmental factors affecting work area temperature include air temperature, humidity, radiant heat sources and air circulation. Engineering controls that can be used to manage the environmental factors affecting the work area include:

- Increasing general area ventilation and/or generating spot cooling by using local exhaust ventilation at points of high heat production;
- Using mobile evaporative cooling units and/or mechanical refrigeration to reduce heat in the work area;
- Installing equipment or process component shielding to reflect heat away from the work area and to control contact thermal burn hazards;
- Installing temporary insulation on heat generating components in the work area to reduce heat loading;
- Using process modifications, including temporary process shut downs or reductions in throughput; and
- Using mechanical equipment in place of manual labor to reduce the amount of time workers need to occupy the hot environment.

Check drinking fountains, fans and air conditioners for proper function and if necessary, repair the equipment to an operational state or provide fully functional portable equipment that serves a similar purpose.

- a) When working outdoors with direct sunlight exposure in high heat environments, an adequate area of shade shall be made available or constructed for use by employees to aid in heat illness prevention or recovery from heat illness symptoms. The shaded area shall be open to air flow or provided with mechanical ventilation or cooling. Worker access to the shaded area shall be available to workers at all times.

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- 5.3.2 Auxiliary Body Cooling and Protective Clothing - Make available auxiliary cooling systems which can range from such simple approaches as an ice vest, pre-frozen and worn under clothing, to more complex systems. Some of the available cooling systems presently available include:
- a) Water-cooled garments.
  - b) Air cooled garments.
  - c) Ice packed vests.
  - d) Wetted over-garments.

Work Practices - Work practices, such as providing a period of acclimatization, will help reduce the risk of heat disorders to the work force. Humans are, to a large extent, capable of adjusting to the heat. This adjustment to heat, under normal circumstances, usually takes about 5 to 7 days, during which time the body will undergo a series of changes that will make continued exposure to heat more endurable.

On the first day of work in a hot environment, the body temperature, pulse rate, and general discomfort will be higher. With each succeeding daily exposure, all of these responses will gradually decrease, while the sweat rate will increase. When the body becomes acclimated to the heat, the worker will find it possible to perform work with less strain and distress.

Gradual exposure to heat gives the body time to become accustomed to higher environmental temperatures. Heat disorders in general are more likely to occur among workers who have not been given time to adjust to working in the heat or among workers who have been away from hot environments and who have gotten accustomed to lower temperatures. Hot weather conditions of the summer are likely to affect the worker who is not acclimatized to heat. Likewise, the heat in the work environment may affect workers who return to work after a leisurely vacation or extended illness. Whenever such circumstances occur, the worker should be gradually reacclimatized to the hot environment.

The company shall ensure a plentiful supply of potable drinking water is available in the workplace and shall provide the supply when it is not plumbed into the work environment. Workers shall be encouraged to drink adequate liquid prior to starting work, at frequent intervals while working in the elevated temperature environment, and after work is completed. In high heat stress environments, an employee can lose as much as one quart of liquid per hour. Encourage workers to drink water frequently in small amounts to prevent excessive dehydration. It is preferred that water be consumed with a cup since thirst can be quickly



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satisfied when drinking directly from a fountain. The water should be kept reasonably cool (50°F to 60°F) and should be placed close to the workplace so that workers can readily access the potable water supply and other provided liquids. Liquids that replace body electrolytes lost in the sweating process reduce the effects of high heat environments on the body, but generally should only be consumed at a 50-50 ratio with potable water.

### 5.3.3 Work / Rest Regimen

- a) Alternating work and rest periods with longer rest periods in a cool area can help workers avoid heat strain. Encourage workers to recover in air- conditioned areas.
- b) If temperatures cannot be reduced to a tolerable level, it may be necessary to rotate workers. Monitor the environmental heat at the job sites and resting places.
- c) Postpone non-critical operations, if possible, until the alert is canceled. Work under high heat stress conditions should be kept to the minimum time required to complete a particular job task.
- d) **Workers who show even minor signs of heat disorder should be sent to the rest area (cool/shaded) and seek medical attention if any questions or concerns arise.**

5.3.4 Training - Supervisors and workers with the potential to work in high heat environments created by either ambient temperatures or heat-generating equipment or processes shall receive annual training in heat illness prevention and recognition of the symptoms associated with heat illness and the proper procedures to be followed when heat illness occurs. All supervisory personnel working in such locations shall be trained in the proper means of preventing heat illness and the appropriate responses to heat illness symptoms, including the appropriate emergency response procedures, prior to overseeing employees working in high heat environments.

Personnel on the work crew or on the job site who are trained in first aid shall be alerted to the potential need for their services and informed of the nature of the work, the area the work will be conducted in and the shift schedule the work will be conducted in. Worker understanding of the reasons for using appropriate work practices to prevent heat stress and the symptoms associated with heat illness support heat illness prevention. Effective communication of the heat illness prevention program in use on the job site is critical, and the site specific program shall be reviewed frequently throughout the execution of the work, and all new workers to the job site shall be thoroughly trained.

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Topics to be covered during training for heat stress are as follows:

- a) Knowledge of the hazard of heat stress;
- b) Recognition of signs and symptoms;
- c) Awareness of first aid procedures;
- d) Potential health effects of heat stress;
- e) Employees' responsibilities in avoiding heat stress;
- f) Dangers of the use of drugs and alcohol in hot working environments;
- g) Proper use of protective clothing and equipment;
- h) The importance of maintaining body fluids;
- i) The benefits and factors of acclimatization; and
- j) The environmental and physical factors that contribute to heat related illness.

**Note:** Due to the nature of the company's work, some projects take place in extremely hot environments with obvious risks for heat illness to occur, including heat stress and heat stroke. When these situations arise, the operational manager with responsibility for the work shall notify the Regional Health and Safety Manager and request technical assistance.

#### 5.4 Symptoms and Actions to Take to Manage Heat Related Disorders.

##### 5.4.1 General

Exposure to hot working environments can result in a number of heat disorders. These disorders are interrelated and a minor disorder can be a warning for the onset of a more serious disorder. The majority of heat disorders are related to an elevated body core temperature.

Early recognition and treatment at the first signs of heat stress is important to reduce the severity of the heat disorder. Personnel who succumb to heat stress, especially heat stroke, heat syncope, and heat exhaustion should be immediately removed from the hot environment and first aid measures provided to start cooling the body. Personnel should not return to work until they are fully recovered.

***CAUTION - Persons with heart conditions or those on a low sodium diet who work in hot environments should consult a physician about working in high heat environments.***

##### 5.4.2 Heat Stroke

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Heat stroke is the most serious heat disorder due to its rapid progression of debilitating effects on the body's organs and tissues. Heat stroke can be fatal and manifest in a very short period of time. Personnel who develop heat stroke will have:

- Hot, dry skin
- Skin may appear red all over or red mottled, or the skin may appear cyanotic (blue tint in the skin)
- An elevated body core temperature at 104.9°F (40.5°C) and rising
- Mental confusion
- Loss of consciousness, and
- Convulsions or coma, and eventually death.

When a person is overcome by heat stroke, first aid should be provided immediately to reduce the body core temperature and stabilize them until medical help can arrive. The victim should be removed from the hot environment to a cooler area. Place the person in cold water and provide massage, or wrap them in cool, wet sheets and blow air over them. Avoid over cooling, and treat for shock if present. After the person is removed from the hot environment, contact a local medical emergency provider immediately.

To prevent personnel from developing heat stroke, some workers should be medically screened to ensure they are fit to work in hot environments. Acclimatize the personnel to the hot environment to gradually increase their endurance and follow procedures as described in this program. Monitor the environment and personnel status during work in hot environments.

Response Actions: If a worker exhibits the symptoms of heat stroke, call for an ambulance immediately; lay the victim down; cool the body anyway you can. If ice packs or cold packs are available, place them on each of the victim's wrists and ankles, on the groin, in each armpit and on the neck to cool the large blood vessels. Do not apply rubbing (isopropyl) alcohol.

#### 5.4.3 Heat Syncope

Heat syncope is a disorder that results due to lack of acclimatization and low activity. The affected personnel faint while standing erect and still because blood is pooled in dilated vessels at the skin surface and lower extremities. This results in a reduced amount of blood supplying the brain.

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Response Actions: A worker exhibiting the signs of heat syncope should be removed to a cooler area until they regain consciousness. Recovery is normally complete, but the worker should be evaluated by an occupational physician. This heat illness can usually be prevented by acclimatization of workers and providing increased activity at intermittent stages.

#### 5.4.4 Heat Exhaustion

Heat exhaustion is associated with the depletion of body fluids and electrolytes while working in a hot environment. The onset of heat exhaustion varies and is dependent on the personnel's susceptibility to heat. The symptoms of heat exhaustion are:

- Fatigue
- Nausea
- Headache
- Giddiness
- Clammy or moist skin
- Flush complexion
- May faint when standing up due to rapid pulse rate and low blood pressure
- Dehydration, and
- Small volume of urine or low electrolyte concentration in urine.

Response and Prevention Actions: Personnel who develop heat exhaustion should be removed to a cooler environment. Loosen any tight clothing and apply cool, wet cloths to the skin. Provide the person with fluids and salt supplements at the rate of approximately one glass (4 ounces) of water every 15 minutes to restore hydration and electrolyte balances. Let the victim rest in a comfortable position and watch carefully for changes in his or her condition. Personnel should be kept at rest until their urine volume increases and indicates water and electrolyte balances are restored. The victim should not resume normal activities the same day. Contact medical emergency personnel immediately if the victim is unconscious.

Personnel can be prevented from developing heat exhaustion by acclimatizing the person for the hot environment. Ensure that plenty of drinking water is available and readily accessible at all times. Salt supplements for persons without any existing medical conditions can be provided during the acclimatization period only, and should then be discontinued. If the condition doesn't improve with hydration and rest, have the victim evaluated by an occupational physician.

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#### 5.4.5 Heat Cramps

Heat cramps are painful spasms in the muscles (commonly the abdomen and legs) that are used in performing the work. The spasms are caused by a low salt concentration due to the loss of salt from excessive sweating and increased fluid intake that dilutes the electrolytes.

Response and Prevention Actions: Remove from heat. Give water or an electrolyte supplement drink and provide rest. Lightly stretch the muscle and gently massage the area. Heat cramps should be considered as a warning sign of a possible heat-related emergency. Monitor the victim continuously for signs of improvement or degradation. If the condition doesn't improve with hydration and rest, have the victim evaluated by an occupational physician.

#### 5.4.6 Heat Rash

Heat rash is the development of raised red papules on the skin that leads to a prickly sensation. Heat rash occurs when sweat on the skin cannot evaporate because of clothing or humid environments and plugs the sweat glands.

Response and Prevention Actions: Heat rash is usually alleviated by using mild drying lotions and keeping the skin clean to prevent infection. Allowing the skin to dry between exposures to hot environments can help prevent heat rash.

#### 5.4.7 Heat Fatigue

Heat fatigue results in impaired performance in skilled and mental tasks. The personnel will experience discomfort and physiological strain.

Response and Prevention Actions: There is no real treatment for heat fatigue unless it is accompanied by other more serious heat disorders. The best prevention includes acclimatization of workers and training for work in hot environments.

## 6.0 EXPOSURE LIMITS

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To determine the exposure level of personnel working in hot environments, the level of physical exertion must be determined. The higher the level of activity, the greater the increase in the body's metabolic heat production. Determine if the work activity will be light work, moderate work, or heavy work. Based on the level of work activity and the environmental temperature, an 8-hour workday should consist of a work/rest cycle.

Table 1 below presents the 8-hour time-weighted average exposure limit for personnel who work in hot environments based on the temperature, work/rest regimen, and work activity.

**TABLE 1 - Heat Exposure Threshold Limit Values**

<b>Work-Rest Regimen</b>	<b>Work Load</b>		
	<b>Light</b>	<b>Moderate</b>	<b>Heavy</b>
Continuous Work	86°F (30.0°C)	80°F (26.7°C)	77°F (25.0°C)
75% Work 25% Rest, each hour	87°F (30.6°C)	82°F (28.0°C)	78°F (25.9°C)
50% Work 50% Rest, each hour	89°F (31.4°C)	85°F (29.4°C)	82°F (27.9°C)
25% Work 75% Rest, each hour	90°F (32.2°C)	88°F (31.1°C)	86°F (30.0°C)

Table 1 presents the exposure limits for a person who is fully acclimatized to the hot work environment and is wearing light clothing suitable to a hot environment. Personnel may be exposed to higher temperatures over an 8-hour workday if they have been medically monitored to determine they can tolerate the excess heat.

The measurement method to determine the environmental temperature should be a Wet Bulb Global Temperature (WBGT). When working in hot environments, a qualified person should measure the environmental temperature and calculate the WBGT. Apply the WBGT to the recommended exposure limits.

## **7.0 RECORDS**

Employee training records must be kept for three (3) years.

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8.0 **ATTACHMENTS**

8.1 Coping With Heat Stress – Employee Reference/Handouts

## Heat Illness Prevention Program – Safety Directive 2.3

### Attachment 8.1 – Coping With Heat Stress (Summarized Reference Material)

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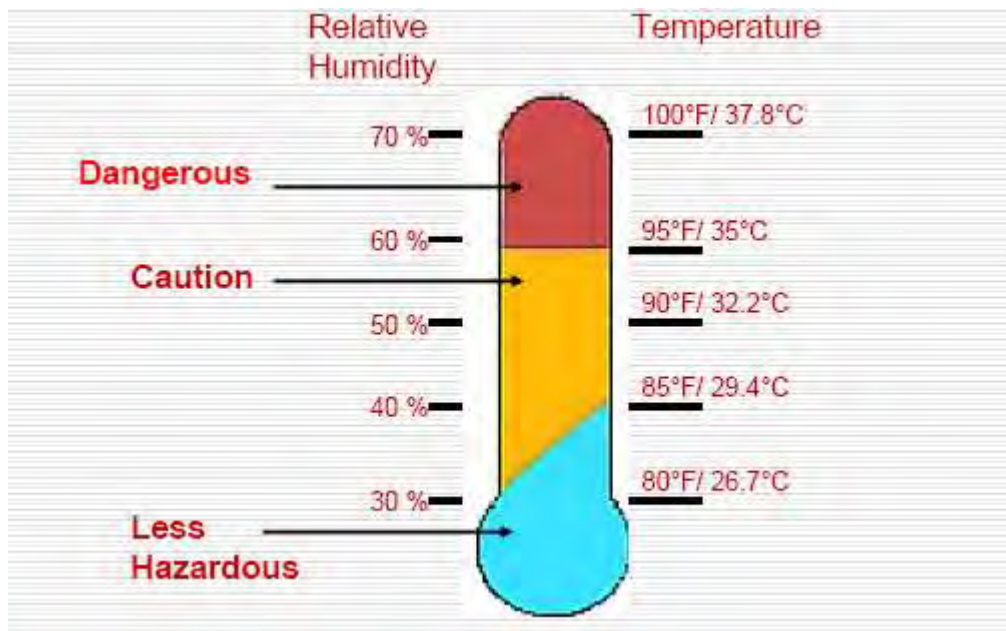
#### Coping with Heat Stress

It's that time of year again when we have to worry about the heat and its effects. Working under hot and humid conditions places a lot of stress on the body which can result in minor to life threatening illnesses.

Being aware of the various types of illnesses, symptoms and preventative steps will help you deal with the heat.

Heat = Temperature + Humidity Combined

The diagram below indicates temperatures and humidity levels that you need to be careful of and control with heat illness prevention techniques.





How do I recognize, treat and avoid illnesses?

Type	Symptoms	Treatment
Dehydration	<ol style="list-style-type: none"> <li>1. Flushed Face</li> <li>2. Extreme thirst, more than normal or unable to drink</li> <li>3. Dry/warm skin</li> <li>4. Dizziness made worse when standing</li> <li>5. Weakness</li> <li>6. Cramping in the arms and legs</li> <li>7. Headaches</li> <li>8. Dry mouth/ dry tongue</li> <li>9. Low blood pressure</li> <li>10. Rapid and deep breathing-faster than normal</li> <li>11. Fainting</li> </ol>	For mild to moderate dehydration, drink more water or quencher and try to avoid the heat until refreshed
Heat Rash	<ol style="list-style-type: none"> <li>1. Redness accompanied with swelling and inflammation of skin.</li> <li>2. Small blisters</li> </ol> <p>Both symptoms commonly occur on the back of the neck</p>	<p>The best treatment is to provide a cooler, less humid environment.</p> <p>Clean the affected area and apply a mild lotion to the area.</p>

Heat Cramps	<ol style="list-style-type: none"> <li>1. Muscle pain in the abdomen, arms or legs may occur with strenuous activity.</li> <li>2. Rapid heart rate</li> <li>3. Sweaty skin</li> </ol>	<p>Stop all activities and do not return to strenuous activities until the cramps subside. Further exertion may lead to exhaustion or heat stroke. This usually improves if you drink water or quencher to replace lost electrolytes and rest in a cool environment.</p>
Heat Syncope	<ol style="list-style-type: none"> <li>1. Faintness</li> <li>2. Dizziness</li> <li>3. Headaches</li> <li>4. Increased pulse rate</li> <li>5. Restlessness</li> <li>6. Nausea</li> <li>7. Vomiting</li> <li>8. A brief loss of consciousness</li> </ol>	<p>Lie or sit down under a shaded or cool environment.</p> <p>Try to take frequent breaks if working under high temperatures and drink a lot of water.</p>
Heat Exhaustion	<ol style="list-style-type: none"> <li>1. Headaches</li> <li>2. Paleness</li> <li>3. Heavy sweating</li> <li>4. Thirst</li> <li>5. Dizziness</li> <li>6. Fatigue</li> <li>7. Nausea</li> <li>8. Impaired judgment</li> <li>9. Loss of appetite</li> </ol>	<p>Shift to a cooler location and drink a lot of water.</p> <p>Use cold towels over your head and neck.</p>
Sunburn	<ol style="list-style-type: none"> <li>1. Skin becomes red and painful</li> </ol>	<p>Apply cold towels to affected areas or take a cold shower.</p>

	<ol style="list-style-type: none"> <li>2. Burning sensation and swelling</li> <li>3. Blisters</li> </ol>	<p>Apply moisture lotions and not ointments. Do not break blisters and try to avoid repeated sun exposure.</p> <p>Use sunscreen to avoid sunburn.</p> <p>Seek medical attention for severe cases.</p>
Heatstroke/Sunstroke	<ol style="list-style-type: none"> <li>1. High body temperature</li> <li>2. Red and dry skin</li> <li>3. Throbbing headaches</li> <li>4. Nausea</li> <li>5. Unconsciousness</li> <li>6. Rapid and shallow breathing</li> <li>7. Fatigue</li> </ol>	<p>Go to a shaded, cool area.</p> <p>Sponge or shower with cold water.</p> <p>Use a cold towel and wrap around the body.</p> <p>Call the hospital for treatment.</p>

## General Precautions

### Hydration:

The best way to avoid heat strokes and other heat disorders is to keep your body well hydrated. Drink a lot of water if you are exercising or working in hot conditions. Doctors recommend drinking more than eight glasses of water per day when working in hot environmental conditions.

### Ventilation:

Remain in cool areas where your body can cool itself. When working in hot environmental conditions, try to take frequent breaks to regain energy and to avoid overexposure to the sun.

### Clothing:

What you wear plays a big factor in how your body handles the heat. Light and loose fitting clothing will help your body in breathing and cooling itself.

### Limit yourself:

It is also important to watch the amount of activities you are participating in during the hot summer months. Don't overdo it. Heat stroke and other heat disorders can take affect in less than an hour. If you feel hot and dizzy, it's best to take time and rest.

<b>Personal Protective Equipment (PPE)</b>	Issue Date : January 2001 Revised: July 2009 Issued By: Safety Dept._poh
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## 1 **PURPOSE AND SCOPE**

The purpose of this Directive is to provide requirements for hazard assessment and eye, face, head, foot, hand, body, limb, hearing and respiratory protective equipment selection necessary to control workplace hazards. The Directive also provides requirements for training and selection of various personal protective equipment used by employees and to provide instruction relating to the proper use, care, storage, and maintenance of various personal protective equipment.

## 2 **REFERENCES**

- 2.1 OSHA 29 CFR 1926.95 Criteria for PPE; 1926.96, Foot Protection; 1926.100, Head Protection; 1926,101, Hearing Protection; 1926.102, Eye and Face Protection.
- 2.2 OSHA 29 CFR 10.132 - General Requirements; 1910.133, Eye and Face Protection; 1910.134, Respiratory Protection; 1910.135, Head Protection; 1910.136, Foot Protection
- 2.3 OSHA 29 CFR 1910;1915;1917;1918;1926 - *Employer Payment for Personal Protection Equipment*; Final Rule, November 15, 2007
- 2.4 American National Standards Institute (ANSI) Z87.1 - *Occupational and Educational Eye and Face Protection* and (ANSI) Z41 - *Protective Footwear*

## 3 **DEFINITIONS**

- 3.1 Contaminant - Any material, which by its action upon, within, or to a person is likely to cause physical harm.
- 3.2 Hazard Assessment - An assessment of the workplace to determine if hazards are present, or are likely to be present, which necessitates the use of Personal Protective Equipment (PPE). Hazard assessments are performed prior to the start of the work, prior to each shift, and whenever there is a change in process, procedure or material that could increase or alter the PPE selection criteria using a Task Safety Analysis (TSA) for all tasks that apply to the assigned work.
- 3.3 Proper - Approved, certified or suitable, within acceptable guidelines set forth by governing codes and standards, as well as recognized safe work practices.

## 4 **RESPONSIBILITIES**

- 4.1 Supervisors shall ensure safe work practices are followed and that the appropriate PPE is used properly by personnel. In the event that wearing of PPE creates a greater hazard when performing the assigned work, the company shall determine the safest way to proceed. Supervisors shall also perform random inspections as appropriate.

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- 4.2 Each employee shall be responsible for obtaining the appropriate personal protective equipment and shall utilize such equipment as intended/designed by the manufacturer. Any defective equipment shall be promptly reported to their supervisor.
- 4.3 The Construction Manager with assistance from the Safety Department shall be responsible for hazard assessment of each type of construction project to assure that sources of hazards are identified to workers and their supervisors. The PPE program shall be audited annually.

## 5 **PROCEDURE**

### 5.1 General

- 5.1.1 Selection of personal protective equipment (PPE) shall be based on assessment of the hazards at the job sites and the hazards that the employees are likely to encounter. The daily use of a TSA includes PPE. PPE should be used in conjunction with engineering controls, guards and good work practices to control workplace hazards.
- 5.1.2 Company issued safety glasses with side shields, **gloves**, hard hats and sturdy work boots are the required minimum PPE for all company projects. All PPE will be provided by the company, at no cost to the employee, with the exception of sturdy work boots (with or without safety toe) and prescription safety glasses which are considered personal items and the responsibility of the employee for maintaining their condition and sanitation. Employee shall provide and pay for ordinary safety-toe protective footwear, including steel-toe boots, and ordinary prescription safety eyewear, since the Company permits such items to be worn off the job site.
- 5.1.3 Training for all affected personnel shall be verified through a roster that contains the name of each employee trained, the date(s) of training, and the subject of the instruction.
- 5.1.4 PPE shall be of the proper type and size, affording optimum protection for the user
- 5.1.5 PPE shall be worn properly and maintained in good repair, relating to its physical appearance and/or sanitary condition. Failure to use the proper PPE (e.g. correct gloves) will result in disciplinary action.
- 5.1.6 PPE which is damaged or shows signs of wear, jeopardizing the protection afforded by the equipment, shall be removed from service and repaired and/or replaced. Employees are encouraged to provide feedback on the usefulness of PPE.

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5.1.7 PPE shall not be altered, modified or abused in any manner which affects the intended protection features as designed by the manufacturer. Only accessories designed by the manufacturer are to be used.

## 5.2 Eye and Face Protection

5.2.1 Eye protection equipment of approved design shall be worn when engaged in all operations in which a potential of eye injury is present. ANSI Z87.1-1989. Goggles, face shields, and similar equipment must be of approved design and construction according to ANSI Standard Z87.1 - 1989 and **marked** as approved (Canada – must meet CSA Z94.3-92, Z94.3-99, Z94.3-02). If employee requires eye protection and needs to wear prescription glasses, goggles or shields will be provided which accommodate the need for prescription glasses or the employee may use prescription safety eyewear compliant with the appropriate standards referenced above.

5.2.2 The use of contact lenses is discouraged, and is specifically prohibited in areas with potential exposure to organic or corrosive hazardous chemicals. Prescription safety glasses are available as an alternative per 5.2.1 and 5.2.4.

5.2.3 Colored lenses are only permitted in outside areas during bright sunlight. They are not permitted inside buildings, at night, or in any poorly lighted areas.

5.2.4 Employees who wear prescription glasses and are required to wear approved eye protection shall comply with the following;

- a) Prescription safety glasses shall be equipped with side shields and will be marked with Z87.1 (U.S.) or CSA Z94.3-92, Z94.3-99, Z94.3-02 (Canada). (usually marked on the temple bars).
- b) Monogoggles or safety glasses can be worn over prescription glasses, providing the device does not disturb the adjustment of the prescription lenses.
- c) Goggles shall incorporate lenses (lenses mounted inside of goggles)

5.2.5 Eye/face protection shall be worn properly and kept in good repair. Damaged eye/face protection equipment shall be replaced.

5.2.6 Nonflammable welding helmets with lift-up front or stationary fronts with lift-up lenses, providing filtered protection against ultraviolet light, shall be worn while performing welding activities. Approved safety glasses shall be worn under welding hoods, providing additional protection against eye injury when welding hoods are lifted.

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- 5.2.7 Sufficient cleaning stations shall be available for cleaning safety glass lenses. Cleaning stations should be equipped with an anti-fogging solution and disposable wipes which offer scratch resistant cleaning.
- 5.2.8 Where exposure to eye injury through contact with chemicals exists, adequate eye wash/shower stations shall be available for immediate use and employees are prohibited from wearing contact lenses. Portable eye wash stations shall be provided and in the work area and available for employee use.
  - a) Eye protection used during exposure to chemicals shall be approved for such exposure. Only approved chemical goggles shall be used - standard monogoggles do not afford adequate protection.
  - b) Water supply for eye wash / shower units shall be sterile and of potable quality.

### 5.3 Head Protection

- 5.3.1 Head protection will be worn on all construction projects as part of the minimum required PPE in which there is a possibility of injury from impact, falling or flying objects, or from electrical shock and burns.
- 5.3.2 Hard hats must be of approved design in accordance with ANSI Z89.1 – 1986, or, in Canada, ANSI Z89.1 – 1997, and ANSI Z89.1 – 2003, or CSA Z94.1 – 92 and marked as approved.
- 5.3.3 Hard hats shall be worn in accordance with the manufacturer’s instructions. An exception may be granted if the employee is using face / eye shield protection while burning, grinding, and welding, etc.
- 5.3.4 Hard hats shall be kept in good repair and in good sanitary condition. Hard hats should be inspected periodically.
- 5.3.5 Worn or damaged liners shall be replaced.
- 5.3.6 Cleaning/sanitizing should be accomplished using warm soapy water or solutions approved by the manufacturer.

NOTE: Solvents which are not approved may seriously deteriorate the structural integrity of the shell, thereby reducing afforded protection.
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- 5.3.7 Nothing shall be carried inside the helmet between the suspension and the shell. The shell shall not be modified, painted or altered in any way that might reduce their protective ability.



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- 5.3.8 Winter hard hat liners or elastic (insulating) bands which are designed to be used with a hard hat, may be worn when warranted by weather conditions. Employees exposed to hazards of flame or electric arc shall wear flame retardant liner only.
- 5.3.9 Chin straps may be used to hold the hard hats in place when exposed to high winds, or while bending over.

#### 5.4 Foot Protection

- 5.4.1 Minimum foot protection in all construction areas unless the task/job hazard analysis establishes otherwise is sturdy, above the ankle (6”), lace – up, impact - resistant toed, hard soled leather work boot with a defined heel. Foot protection for personnel who are involved in activities that have the potential for foot injuries due to falling or rolling objects, or objects piercing the sole and where such employees feet are exposed to electrical hazards, shall consist of safety shoes that comply with one of the following standards: (i) ASTM F-2412-2005, "Standard Test Methods for Foot Protection," and ASTM F-2413-2005, "Standard Specification for Performance Requirements for Protective Footwear," which are incorporated by reference in Sec. 1910.6; (ii) ANSI Z41-1999, "American National Standard for Personal Protection--Protective Footwear," which is incorporated by reference in Sec. 1910.6; or (iii) ANSI Z41-1991, "American National Standard for Personal Protection--Protective Footwear," which is incorporated by reference in Sec. 1910.6. ANSI Z41.1-1991. In addition, employees working on projects for particular customers may be required to wear ANSI Z41.1 or ASTM compliant safety shoes. Metatarsal guards may also be required in some facilities, e.g. metal manufacturing. Canadian operations are required to wear foot wear that meets the standards of CSA Z195-02 for Protective Footwear.
- 5.4.2 All footwear worn on projects shall be in a good state of repair.

#### 5.5 Hand Protection

- 5.5.1 The company will supply and employees are required to wear at all times appropriate hand protection when exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes. Gloves should be selected according to the specific work performed.
- 5.5.2 Proper hand protection such as cut resistant gloves (Kevlar®) shall be worn whenever you are working with any type of metal or exposure to sharp or jagged objects in the work area. Hand protection (gloves) should not be worn where their use may create a hazard (i.e., exposure to rotating shafts, gears, chains, etc.).
- 5.5.3 All personnel engaged in welding and burning operations must wear approved leather gauntlets and leather sleeves during the performance of their work.

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- 5.5.4 All personnel engaged in work requiring the moving and handling of equipment, materials, etc., where hand injuries could result must wear suitable, approved leather or equivalent work gloves.
- 5.5.5 Hand protection should be fitted properly and be kept in good repair and in a sanitary condition. Shared use of glove should be avoided.

5.6 Hearing Protection

- 5.6.1 Whenever employees are exposed to noises which exceed the OSHA permissible noise exposure limits as outlined below, hearing protection devices will be provided. Refer to Safety Directive 3.2, Hearing Conservation Program.

<u>Duration per Day, Hours</u>	<u>Sound Level, Decibels</u>
8 .....	90
6 .....	92
4 .....	95
3 .....	97
2 .....	100
1.5 .....	102
1 .....	105
1/2 .....	110
1/4 or less .....	115

- 5.6.2 Personnel entering posted noise areas must wear hearing protection equipment at all times. Exception: Signs may be covered and hearing protection waived during facility shutdown periods.
- 5.6.3 Hearing protection such as ear plugs and ear muffs will be available to all employees working at facilities where noise levels exceed 85 dBA.

5.7 Respiratory Protection

See Safety Directive 3.3, Respiratory Protection Program, for all requirements meeting the OSHA revised (January 8, 1998) respiratory standard, 29 CFR 1910.134.

5.8 Flame Resistant Clothing

- 5.8.1 Flame Resistant Clothing (FRC) shall be provided to and worn by all employees exposed to a flash fire or electrical equipment flash over and by all employees to whom the FRC is issued. All FRC shall be worn in its intended manner when working in FRC required areas. Long sleeves shall not be rolled up, etc.

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- 5.8.2 Site management shall ensure that all provided FRC is worn by employees along with all additional PPE appropriate to the task hazards as determined by the task hazard analyses. In specific situations, the additional PPE required by the task may need to be worn over FRC. Examples include welding leathers, personal flotation devices (life vests), and chemical resistant body suits (acid suits, etc.).
- 5.8.3 To be most effective FRC must be worn outside all other clothing. Clothing worn beneath FRC shall be constructed of natural fibers and/or flame resistant fabrics that will resist melting when exposed to elevated temperatures.

#### 5.9 Skin, Limb, and Body Protective Clothing

- 5.9.1 Chemical protective body coverings appropriate to the chemical hazards employees may be exposed to, including the duration and concentration of the chemical hazards, shall be issued to and worn by all potentially exposed employees.
- 5.9.2 Chemical protective clothing includes full body (and head potentially) suits, sleeves, aprons, foot protectors, etc. The chemical protective clothing shall be selected based on the hazard analysis and the hazard control decision process.
- 5.9.3 Properly fitted protective clothing and equipment necessary to protect workers from physical, chemical, or biological injury to the head, limbs, torso and appendages shall be identified in the hazard analyses related to each task and shall be provided and worn by the employees. The protective clothing and equipment shall be appropriate to the work, the work site, and the hazards identified and the proper use of these items shall be assured by site management personnel. Examples include metatarsal protectors, welders coveralls, electrically tested high voltage helmets and gloves, and face shields.

#### 5.10 Training

- 5.10.1 Prior to being allowed to perform work requiring the use of PPE, employees must be trained to know and are required to demonstrate an understanding of the following items:
- a) When PPE is necessary
  - b) What PPE is necessary
  - c) How to properly put on (don), take off (doff), adjust, maintain, and wear required PPE
  - d) The limitations of PPE, including identification of the effective work environment
  - e) The proper use, effective life, inspection and identification of defects/wear/damage, and maintenance and disposal methods for PPE
- 5.10.2 The Supervisors shall maintain records (rosters) of personnel trained.

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5.10.3 Retraining - Circumstances where retraining is required include, but are not limited to the following;

- a) Changes in the workplace which render previous training obsolete
- b) Changes in the types of PPE to be used render previous training obsolete
- c) Inadequacies in an affected employee's knowledge or use of assigned PPE indicate that the employee has not retained the requisite understanding or skill.

## 6 **RECORDKEEPING**

Employee training on PPE shall be kept for three (3) years.

## 7 **ATTACHMENTS**

None

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1 **PURPOSE AND SCOPE**

The Company will take all the necessary measures for establishing safe practices for employees exposed to occupational noise levels which may be hazardous to their health.

The Company shall administrate a continuing effective Hearing Conservation Program, 29 CFR 1910.95 Occupational Noise Exposure, whenever employee noise exposures equal or exceed an 8-hour time-weighted average (TWA) sound level of 85 decibels (dB) measured on the A-scale slow response or, equivalently, a noise dose of fifty per cent.

2 **REFERENCES**

2.1 OSHA 1910.95 - Noise

3 **DEFINITIONS**

None

4 **RESPONSIBILITIES**

4.1 Supervisors shall ensure all employees are included in the Hearing Conservation Program and enforce the wearing of hearing protection where required.

5 **PROCEDURE**

5.1 Exposure Monitoring

5.1.1 Sound level meters will be used to make an initial determination concerning the need for additional monitoring. When reasonable information indicates that any employee's exposure may exceed an 8-hour time-weighted average 85 dBA, we will obtain individual or representative exposure measurements for all employees who may be exposed at or above the level by use of individual noise dosimeters. During monitoring operations, we shall provide affected employees and their representatives with an opportunity to observe all measurements of employee noise exposure which are conducted pursuant to this standard.

5.1.2 Noise dosimeter or sound level meters which comply, as a minimum with the provisions of this standard, shall be used whenever employee exposures are evaluated for the purpose of complying with 29 CFR 1910.95 Occupational Noise Exposure.

- a) Dosimeter shall meet Class 2A-90/85-5 requirements of the American National Standard Specification for Personal Noise Dosimeter, S1.25-1978.
- b) Sound level meters shall meet the Type 2 requirement of the American National Standard Specification for Sound Level Meters, S1.41971 (R1976).

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- c) To ensure the calibration of all monitoring equipment, all dosimeters and sound level meters used to monitor employee noise exposure shall be calibrated before and after each day's use. Calibration will be conducted in accordance with prescribed procedures.
- d) Initial monitoring will be conducted in accordance with the provisions of this standard when an owner's program is not in place or when reasonable information indicates that any employee's exposure may exceed an 8-hour time-weighted average 85 dBA.
- e) Monitoring will be conducted in any areas where machines, processes, or work practices are changed, regardless of when this occurs.
- f) Annual monitoring will be conducted with the use of sound level meters to determine the feasibility of additional exposure monitoring.

## 5.2 Audiometric Testing

- 5.2.1 The Company shall establish and maintain a mandatory audiometric testing program, as provided for in 29 CFR 1910.95, for all employees whose exposure equals or exceeds an 8-hour time-weighted average of 85 dBA. This program shall be provided at no cost to the employee.
- 5.2.2 Audiometric tests shall be performed by a licensed or certified audiologist, otolaryngologist, or other qualified physician, or by a technician who is certified by the Council of Accreditation in Occupational Hearing Conservation.
- 5.2.3 When audiometric testing is required, it must be offered to the employee at a time and location which are convenient to the employee. The employee must also be informed as to the purpose of the audiometric testing and give an explanation of the test procedures and the effects of noise on hearing.
  - a) Baseline Audiogram - Prior to or within 6 months after an employee's first exposure to noise at or above a time-weighted average of 85 dBA, we shall establish for each employee so exposed, a valid baseline audiogram against which subsequent audiograms can be compared.
  - b) Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise.
  - c) Annual Audiogram - At least annually after obtaining the baseline audiogram, a new audiogram shall be obtained for each employee exposed at or above a time-weighted average of 85 dBA.
  - d) Evaluation of Audiogram - Each employee's annual audiogram shall be compared to the employee's baseline audiogram to determine if the audiogram is valid and if a significant threshold shift (STS) has occurred.
- 5.2.4 An audiologist, otolaryngologist, or other qualified physician shall review those audiograms which indicate a significant threshold shift to determine whether there is need for further evaluation. In order for the person performing the evaluation to

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make an accurate determination, it will be necessary to ensure that they have the following information within their possession:

- a) A copy of the standard, 29 CFR 1910.95;
- b) The baseline audiogram and the most recent audiogram of the employee;
- c) Measurements of background sound pressure levels in the audiometric test room used to obtain the audiogram;
- d) Records of the audiometer's calibrations as required by the Standard.

5.2.5 Follow-up - If a comparison of the annual audiogram to the baseline audiogram indicates a significant threshold shift, we shall ensure that the following steps are taken:

- a) Provide written notification to the affected employee within 21 days of the medical determination being made.
- b) Employees not using hearing protection shall be fitted with hearing protection, trained in their use and care, and required to use them;
- c) Employees already using hearing protection shall be refitted and retrained in the use of hearing protectors, and if necessary, provided with new protection having greater attenuation;
- d) Refer the employee, at no cost, for a clinical audiological evaluation or an otological examination, as appropriate, if additional testing is necessary or if we, the employer, suspect that a medical pathology of the ear, as defined in the standard, is caused or aggravated by the wearing of hearing protectors;
- e) Inform the employee of the need for an otological examination if a medical pathology of the ear is suspected to be totally unrelated to the use of hearing protectors.

5.2.6 Audiometric tests shall be conducted with equipment that meets the specifications of, and is maintained and used in accordance with American National Standards for Audiometers.

5.2.7 Audiometric tests shall be pure tone, air conduction, hearing threshold examinations, with test frequencies including as a minimum 500, 1000, 2000, 3000, 4000, and 6000 Hz. Tests at each frequency shall be taken separately for each ear.

5.2.8 Pulsed-tone and self-recording audiometers, if used, shall meet the requirements specified in the standard.

5.2.9 The functional operation of the audiometer shall be checked before each day's use by testing a person with known, stable hearing thresholds, and by listening to the audiometer's output to make sure that the output is free from distorted or unwanted sounds. Deviations of 10dB or greater shall require acoustic calibration.

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5.2.10 Audiometer calibration shall be checked acoustically at least annually in accordance with the requirements of the standard. Test frequencies below 500 and above 6000 HZ may be omitted from the check. Deviations of 15 dB or greater necessitate an exhaustive calibration.

5.2.11 An exhaustive calibration shall be performed at least every two years in accordance with the appropriate requirements of this standard and those applicable sections of the American National Standard Specification for Audiometers. Test frequencies below 500 and above 6000 Hz may be omitted from the calibration.

### 5.3 Noise Reduction

5.3.1 When employees are subjected or exposed to sounds exceeding permissible noise levels, then feasible administrative or engineering controls shall be utilized.

5.3.2 Administrative controls simply mean reducing the amount of time an employee is subject to or exposed to excessive noise. This can be done by several methods, one of which is dividing noisy jobs up among two or more employees, with each spending only a permissible amount of time exposed to the excessive noise. Another alternative is to perform high level noise operations at night so fewer employees may be expose.

5.3.3 Engineering controls, which are realistically at the heart of the matter, are usually more complex to deal with. The standard requires that our first approach to a noise problem must be to reduce the sound at its source through engineering designs and equipment innovations. Among the possible steps to accomplish this are several recommended by OSHA which should be given careful consideration:

- a) Making sure machines are in good repair, properly oiled, with all worn or unbalanced parts replaced.
- b) Mounting machines on rubber or plastic to reduce vibration and noise.
- c) Putting silencers or mufflers on noisy components.
- d) When feasible, substituting a quiet process for a noisy one.
- e) Confining the sound of a machine within an acoustical enclosure.
- f) Isolating the operator in an acoustical booth.

5.3.4 We will strictly adhere to noise management programs instituted at our customer sites where we typically have little to no control over noise reduction and noise management programs.

### 5.4 Hearing Protectors

5.4.1 While engineering controls are being developed to reduce excess noise, employee must wear personal protective equipment.



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- 5.4.2 Adequate hearing protectors must be made available, at no cost, to all employees exposed to a time-weighted average of 85 dB or greater.
- 5.4.3 Employees shall be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors provided by the Company.
- 5.4.4 All employees who are required to wear hearing protectors shall receive proper initial fitting and adequate supervision in the correct use of the hearing protector in accordance with the manufacturer's instruction.
- 5.4.5 Improper care of the hearing protector will reduce its effectiveness in attenuating noise. The manufacturer's instructions for the care and maintenance of the protector must be adequately explained to the employee and sufficient supervision provided to ensure the employee's compliance with these instructions.
- 5.4.6 Hearing protector attenuation must be evaluated for the specific noise environments in which the protector will be used to assure compliance with applicable U.S. and Canadian legislative and regulatory requirements. Any of the methods listed in Appendix G of the standard may be used for this purpose. The easiest method involves the use of the Noise Reduction Rating (NRR) which is listed by the manufacturer and printed on the hearing protector package.
- 5.4.7 If participation in the hearing conservation program has been indicated as a condition of employment, or if acceptance of the Company's Safety Program has been listed as a condition of the employee's employment, then not complying with the hearing conservation program is a violation of the employee's work agreement and appropriate disciplinary action should be taken and a written record of the action entered into the employee's file.

## 5.5 Training and Education

- 5.5.1 A training program shall be instituted for all employees who are exposed to noise at or above a TWA of 85 dB, and employee participation shall be ensured in such training program.
- 5.5.2 The training program shall be repeated annually for each employee included in the hearing conservation program. Information which is provided in the training program shall be updated to be consistent with changes in protective equipment and work processes.
- 5.5.3 The training program shall, as a minimum, include the following:
  - a) The effect of noise on hearing;

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- b) The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use and care of the protector;
- c) The purpose of audiometric testing and an explanation of the test procedures;
- d) The right of the employee to access his records as stated by the standard.

5.5.4 A copy of 29 CFR 1910.95 Occupational Noise Exposure as well as a copy of the Company's Hearing Conservation Program will be made available to any and all employees or their representatives who are affected by the standard. In addition, a copy of the standard and our program will be posted in the workplace.

5.5.5 Appropriate warning signs shall be posted at entrances to, or on the periphery of all well defined work areas in which employees may be exposed at or above 85 dBA.

5.5.6 Warning signs shall clearly indicate that the area is a high noise area and that hearing protectors shall be required.

5.5.7 Whenever warning signs are posted indicating that hearing protection is needed, these signs should be construed to a mandatory rather than advisory request for the wearing of hearing protectors.

## 6 **RECORDKEEPING**

6.1 An accurate record shall be maintained of all employee exposure measurements required by this standard.

6.2 A employee audiogram obtained pursuant to this stand shall be retained. These records shall include, but not limited to, the following:

- a) The name and job classification of the employee;
- b) The date of the audiogram;
- c) The examiner's name;
- d) The date of the last acoustic or exhaustive calibration of the audiometer; and,
- e) The employee's most recent noise exposure assessment.

6.3 Accurate records shall be maintained of the measurements of the background sound pressure levels in the audiometric test rooms.

6.4 All records required in this standard shall be retained for at least the following periods:

- a) Noise exposure measurement records shall be retained for two (2) years; and
- b) Audiometric test records shall be retained for the affected employee's employment.

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- 6.5 All records required by this standard shall be provided, upon request, to employee, former employees, representatives designated by the individual employee and the Occupational Safety and Health Administration. The provisions of 29 CFR 1910.95 also apply to access to records under this standard.
- 6.6 In the event that The Company should cease to do business, we will transfer to the successor employer all records required to be maintained by this standard, and the successor employer shall retain them for the remainder of the period prescribed by this standard.

## 7 ATTACHMENTS

None

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## 1 **PURPOSE AND SCOPE**

The purpose of this procedure is to establish respiratory protection requirements for the selection, issuance, use, inspection, cleaning, storage and repair of respiratory protection equipment used to control employee exposures to air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays or vapors.

Effective work practices, engineering controls and administrative controls will always be used to minimize occupational exposures to airborne hazards to the extent feasible. When effective control practices and procedures do not reduce airborne contaminants below applicable exposure levels, and while such control measures are being instituted, respiratory protection equipment will be used to supplement control measures and reduce exposure to below applicable levels. The company shall provide respiratory protective equipment that is applicable and suitable for the intended purpose.

Each affected employee shall be provided with the appropriate respiratory protection equipment at no cost and shall be trained in the proper use and care of that equipment. Each affected employee shall also be provided with medical surveillance at no cost and shall use and care for the equipment in accordance with this program.

The Respiratory Protection Program covers all employees whose job duties require the use of respiratory protection.

## 2 **REFERENCES**

- 2.1 Code of Federal Regulations - 29 CFR 1910.134, Respiratory Protection, Revised January 8, 1998
- 2.2 Code of Federal Regulations - 29 CFR 1910.1000, Air Contaminants
- 2.3 ANSI Z88.2-1992, American National Standard Practices for Respiratory Protection

## 3 **DEFINITIONS**

- 3.1 Airline Respirator - An atmosphere-supplying respirator in which the respirable gas is not designed to be carried by the wearer.
- 3.2 Air-Purifying Respirator - A respirator with an air-purifying filter, cartridge, or canister that removes specific air contaminants by passing ambient air through the air-purifying element.
- 3.3 Assigned Protection Factor - The workplace level of respiratory protection that a respirator or class of respirators is expected to provide to employees when the employer implements a continuing, effective respiratory protection program as specified by this section.

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- 3.4 Atmosphere-Supplying Respirator - A respirator that supplies the respirator user with breathing air from a source independent of the ambient atmosphere, and includes supplied-air respirators (SARs) and self-contained breathing apparatus (SCBA) units.
- 3.5 Canister or Cartridge - A container with a filter, sorbent, or catalyst, or combination of these items, which removes specific contaminants from the air passed through the container.
- 3.6 Emergency Situation - Any occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment that may or does result in an uncontrolled significant release of an airborne contaminant.
- 3.7 Employee Exposure – Exposure to a concentration of an airborne contaminant that would occur if the employee were not using respiratory protection.
- 3.8 End-of-service-life Indicator – A system that warns the respirator user of the approach of the end of adequate respiratory protection, for example, that the sorbent is approaching saturation or is no longer effective.
- 3.9 Filtering Facepiece (dust mask) - A negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium, e.g. 3M™ 8710 Dust/Mist Respirator.
- 3.10 Fit Factor - A quantitative estimate of the fit of a particular respirator to a specific individual, and typically estimates the ratio of the concentration of a substance in ambient air to its concentration inside the respirator when worn.
- 3.11 Fit Test – A protocol to qualitatively or quantitatively evaluate the fit of a respirator on an individual. (See also Qualitative fit test QLFT and Quantitative fit test QNFT.)
- 3.12 High-Efficiency Particulate Air (HEPA)Filter - A filter that is at least 99.97% efficient in removing monodisperse particles of 0.3 micrometers in diameter. The equivalent NIOSH 42 CFR 84 particulate filters are the N100, R100, and P100 filters.
- 3.13 Immediately Dangerous to Life or Health (IDLH) – An atmosphere that poses an immediate threat to life, would cause irreversible adverse health effects, or would impair an individual's ability to escape from a dangerous atmosphere.
- 3.14 Maximum Use Concentration (MUC) – The maximum atmospheric concentration of a hazardous substance from which an employee can be expected to be protected when wearing a respirator, and is determined by the assigned protection factor of the respirator or class of respirators and the exposure limit of the hazardous substance. The MUC can be determined mathematically by multiplying the assigned protection

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factor specified for a respirator by the required OSHA permissible exposure limit, short-term exposure limit, or ceiling limit.

- 3.15 Negative Pressure Respirator (tight fitting) - A respirator in which the air pressure inside the facepiece is negative during inhalation with respect to the ambient air pressure outside the respirator.
- 3.16 Oxygen Deficient Atmosphere – An atmosphere with an oxygen content below 19.5% by volume.
- 3.17 Permissible Exposure Limit (PEL) - When referring to airborne contaminants, the PEL is the allowable airborne concentration permitted for the substance which may not be exceeded, often averaged over a period of 8 hours. The PEL is a defined limit enforced by OSHA.
- 3.18 Powered Air Purifying Respirator (PAPR) – An air-purifying respirator that uses a blower to force the ambient air through air-purifying elements to the inlet covering.
- 3.19 Pressure Demand Respirator – A positive pressure atmosphere-supplying respirator that admits breathing air to the facepiece when the positive pressure is reduced inside the facepiece by inhalation.
- 3.20 User Seal Check - Actions conducted by the respirator user to confirm a negative and positive pressure seal between the respirator face piece and the wearer’s face. This is a field verification done each time the user puts the respirator on that the respirator is properly sealed to the face (See Attachment RP\_7.3).

#### 4 **RESPONSIBILITIES**

##### 4.1 Employees

- 4.1.1 The employee is responsible to wear and use the approved respiratory protection in accordance with the company written Respiratory Protection Program. NIOSH-approved respirators, training, medical clearance and fit testing when required will be provided at no cost to the employee
- 4.1.2 Employees are also responsible for the proper inspection, cleaning, maintenance, care and storage of the respiratory protective equipment issued to them for use.

##### 4.2 Supervisors

- 4.2.1 Supervisors shall ensure that all employees are trained and knowledgeable on the Company’s written Respiratory Protection Program (See Attachment 7.1 for Respirator Training Guidelines.)

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- 4.2.2 Supervisors shall assist employees with respirator selection, use, maintenance, care and storage.
- 4.2.3 Supervisors shall ensure all workers required to wear respirators are properly fit tested and that a written record of the fits tests is maintained as required by the Respiratory Protection Program.
- 4.2.4 Supervisors shall ensure all workers required to wear respirators receive medical surveillance prior to fit testing or wearing the respiratory protective equipment as required by the Respiratory Protection Program.
- 4.2.5 Supervisors shall ensure all records required by the Respiratory Protection Program are obtained, maintained and transmitted to Risk Management in Lancaster for long term retention.

4.3 Regional Safety Manager, Branch Manager, and Account Manager / Construction Manager

The Regional Safety Manager, Branch Manager, and Account Manager / Construction Manager shall assist Supervisors and employees in understanding and implementing the Respiratory Protection Program at the Branch office level to meet the requirements of this Safety Directive. The Branch Manager and Account Manager / Construction Manager serve as the Program Administrator in conjunction with the Regional Safety Manager at the Branch office level. The Regional Safety Manager is responsible to provide effective technical implementation guidance and support to each Branch office to ensure the program is communicated, understood, followed and documented. The Corporate Safety Director is responsible for the overall implementation of the Respiratory Protection Program Corporately and is the overall Program Administrator at this level.

All records defined by the program (e.g. training, fit tests, medical evaluations) are to be generated, maintained and transmitted to Risk Management (attention: Donna Ridinger) in Lancaster for long term retention. Medical surveillance examinations and related activities are to be coordinated and scheduled by the office. Questions regarding medical surveillance protocols or procedures are to be coordinated by the office with the Regional Safety Manager.

5 **PROCEDURE**

5.1 Respirator Selection Procedures and Criteria

The company uses respirators primarily to control potential exposures to airborne contaminants present as particulates (dusts, fumes, and mists) although it is reasonably foreseeable that protection against gases and vapors may become necessary. The primary contaminants the company uses respirators for include

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asbestos fibers, and inorganic lead dust or fumes, nuisance dusts (primarily man-made insulation materials), and nuisance dusts generated by general work activities in and around our work areas.

Procedures for respirator selection in atmospheres that are Immediately Dangerous to Life and Health (IDLH) are included here even though the company does not generally authorize work in these areas without specific written permission. This information is provided to support education and guidance sufficient to alert workers to recognize an IDLH situation so as to prevent entering into an IDLH atmosphere unknowingly and without the necessary planning, training, and communication.

- 5.1.1 In the control of those occupational diseases caused by breathing air contaminated with harmful dusts, fogs, fumes, mists, gases, smokes, sprays, or vapors, the primary objective is to prevent atmospheric contamination. This shall be accomplished as far as feasible by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respirators shall be used in accordance with this section and applicable regulatory and site requirements.
- 5.1.2 A respirator shall be provided to each employee when such equipment is necessary to protect the health of such employee. The company shall provide respirators that are applicable and suitable for the intended purpose. The company shall implement and maintain this respiratory protection program and it shall cover each employee required by this section to use a respirator.
- 5.1.3 General Requirements
  - 5.1.3.1 The company will select and provide appropriate respirators based on the respiratory hazard(s) that the workers may be exposed. Respirator selection will account for the workplace and user factors that affect respirator performance and reliability.
  - 5.1.3.2 NIOSH-certified respirator shall be selected and they shall be used in strict compliance with the conditions of the NIOSH certification. The company will select respirators from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
  - 5.1.3.3 The company will identify and evaluate the respiratory hazard(s) in the workplace, including developing a reasonable estimate of employee exposures to the respiratory hazard(s). The chemical state and physical form for each respiratory contaminant that is a hazard will also be identified as part of this assessment.
  - 5.1.3.4 IDLH conditions will be assumed to exist when a reasonable estimate of the employee's exposure cannot be established.



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5.1.3.5 Information and activities that provide objective data regarding the proper selection and use of respirators includes but is not limited to:

- Material Safety Data Sheets (MSDSs);
- Personal Protective Equipment (PPE) Hazard Assessments;
- Historical and current air monitoring results (direct reading instrumentation and laboratory analyses), i.e. exposure assessment data;
- Objective data published by manufacturers or other recognized subject matter experts;
- Established Permissible Exposure Limits as published in subpart Z of 29 CFR Part 1926.
- Historical data indicates respiratory protection is or may be required for the following substances and/or operations:
  - ✓ All asbestos operations;
  - ✓ All lead operations until exposure assessment data is generated;
  - ✓ Certain utility (power house) operations for arsenic and nuisance dust – Refer to Safety Directives 8.3 and 8.4 for additional information;
  - ✓ All mold operations;
  - ✓ Certain refinery operations for hydrogen sulfide and benzene until exposure assessment data is generated; and
  - ✓ All ceramicfiber installation and removal processes.

#### 5.1.4 Assigned Protection Factors

5.1.4.1 The company will use the assigned protection factors (APFs) listed in Table 1 below to select a respirator that meets or exceeds the required level of employee protection. When using a combination respirator (e.g., airline respirators with an air-purifying filter), ensure that the assigned protection factor is appropriate to the mode of operation in which the respirator is being used.

NOTE: - TABLE 1 PRESENTED ON FOLLOWING PAGE -

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<b>Type of respirator<sup>1,2</sup></b>	<b>Quarter mask</b>	<b>Half mask</b>	<b>Full facepiece</b>	<b>Helmet/hood</b>	<b>Loose-fitting facepiece</b>
1. Air-Purifying Respirator	5	<sup>3</sup> 10	50		
2. Powered Air-Purifying Respirator (PAPR)		50	1,000	<sup>4</sup> 25/1,000	25
3. Supplied-Air Respirator (SAR) or Airline Respirator					
• Demand mode		10	50		
• Continuous flow mode		50	1,000	<sup>4</sup> 25/1,000	25
• Pressure-demand or other positive-pressure mode		50	1,000		
4. Self-Contained Breathing Apparatus (SCBA)					
• Demand mode		10	50	50	
• Pressure-demand or other positive-pressure mode (e.g., open/closed circuit)			10,000	10,000	

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<b>Table 1 Notes:</b>
<sup>1</sup> Employees may select respirators assigned for use in higher workplace concentrations of a hazardous substance for use at lower concentrations of that substance, or when required respirator use is independent of concentration
<sup>2</sup> The assigned protection factors in Table 1 are only effective when implemented in conjunction with a continuing, effective respirator program as required by this section ( and 29 CFR 1910.134), including training, fit testing, maintenance, and use requirements.
<sup>3</sup> This APF category includes filtering facepieces, and half masks with elastomeric facepieces.
<sup>4</sup> Respirator manufacturer must have evidence that testing of these respirators demonstrates performance at a level of protection of 1,000 or greater to receive an APF of 1,000. This level of performance can best be demonstrated by performing a WPF or SWPF study or equivalent testing. Absent such testing, all other PAPRs and SARs with helmets/hoods are to be treated as loose-fitting facepiece respirators, and receive an APF of 25.
<sup>5</sup> These APFs do not apply to respirators used solely for escape. For escape respirators used in association with specific substances covered by 29 CFR 1910 subpart Z, refer to the appropriate substance-specific standards in that subpart. Escape respirators for other IDLH atmospheres are specified by 29 CFR 1910.134 (d)(2)(ii).

#### 5.1.5 Maximum Use Concentration

- 5.1.5.1 Only select a respirator for employee use that maintains the employee's exposure to the hazardous substance, when measured outside the respirator, at or below the MUC.
- 5.1.5.2 The application of MUCs to conditions that are immediately dangerous to life or health (IDLH) is prohibited. Use the respirators identified in Section 5.1.4 below instead.
- 5.1.5.3 When the calculated MUC exceeds the IDLH level for a hazardous substance, or the performance limits of the cartridge or canister, then the maximum MUC will be set at that lower limit.

#### 5.1.6 IDLH Respiratory and Procedure Requirements

- 5.1.6.1 All oxygen-deficient atmospheres shall be considered IDLH. Oxygen-enriched breathing air must be supplied when oxygen levels are below those identified in Table II to 29 CFR 1910.134 and always at elevations above 14,000 feet. In general, atmospheres containing less than 19.5% oxygen are defined as oxygen deficient (Table II provides additional detail depending on the work site elevation above mean sea level).
- 5.1.6.2 A full facepiece pressure demand SCBA certified by NIOSH for a minimum service life of thirty minutes, or
- 5.1.6.3 A combination full facepiece pressure demand supplied-air respirator (SAR) with auxiliary self-contained air supply.

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- 5.1.6.4 Respirators provided only for escape from IDLH atmospheres shall be NIOSH-certified for escape from the atmosphere in which they will be used.
- 5.1.6.5 One employee or, when needed, more than one employee shall be located outside the IDLH atmosphere;
- 5.1.6.6 Visual, voice, or signal line communication shall be maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;
- 5.1.6.7 The employee(s) located outside the IDLH atmosphere shall be trained and equipped to provide effective emergency rescue;
- 5.1.6.8 The supervisor or designee, as part of a written procedure, shall be notified before the employee(s) located outside the IDLH atmosphere enters the IDLH atmosphere to provide emergency rescue;
- 5.1.6.9 The supervisor or designee shall provide necessary assistance appropriate to the situation once notified an emergency rescue has been initiated;
- 5.1.6.10 Employee(s) located outside the IDLH atmosphere shall be equipped with:
  - Pressure demand or other positive pressure SCBAs, or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either
  - Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres or equivalent means for rescue.

5.1.7 Respiratory Protection for Particulates

- 5.1.7.1 Provide air-purifying respirators equipped with a filter certified by NIOSH under 30 CFR part 11 as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR part 84, or
- 5.1.7.2 Provide an atmosphere-supplying respirator.
- 5.1.7.3 For contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.
- 5.1.7.4 Comply with the respiratory protection requirements for specific contaminant standards, as applicable (e.g. asbestos, inorganic lead, arsenic, nuisance dust (refractory ceramic fiber)). Comply with APF and MUC limitations as outlined in this program, customer requirements, and applicable regulations. In all instances of conflicting requirements, the most stringent rule applies.
- 5.1.7.5

5.1.8 Respiratory Protection for Gases and Vapors

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- 5.1.8.1 Provide An atmosphere-supplying respirator, or
- 5.1.8.2 An air-purifying respirator that is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant, or
- 5.1.8.3 Develop and implement a change schedule for canisters and cartridges that is based on objective information or data that ensures that canisters and cartridges are changed before the end of their service life.
- 5.1.8.4 Appropriate respirator cartridges shall be selected by utilizing the manufacturer's cartridge selection guidelines. The employee or Supervisor shall consult with the Regional Safety Manager or Construction Manager for any questions regarding respirator selection.
- 5.1.8.5 Based on the relatively rare instances that the company uses air-purifying respirators to protect against exposure to gases and vapors, all such instances of use are required to be coordinated with the Corporate Safety Department to develop and implement effective and documented canister and cartridge change schedules prior to use.

#### 5.1.9 Continuing Respirator Effectiveness

- 5.1.9.1 Appropriate surveillance shall be maintained of work area conditions and the degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, the company shall reevaluate the continued effectiveness of the respirator.
- 5.1.9.2 Respirators shall be used according to manufacturer's instructions and only in their NIOSH approved configuration. Only those parts that are supplied by the manufacturer as part of the respirator's NIOSH approved configuration shall be used.
- 5.1.9.3 The company shall ensure that employees leave the respirator use area:
  - To wash their faces and respirator facepieces as necessary to prevent eye or skin irritation associated with respirator use; or
  - If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece; or
  - To replace the respirator or the filter, cartridge, or canister elements.
- 5.1.9.4 If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the facepiece, the company will replace or repair the respirator before allowing the employee to return to the work area.

## 5.2 Employee Qualifications For Respirator Use

### 5.2.1 Medical Evaluation

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Each employee assigned tasks requiring the use of respirators shall annually be provided with a medical evaluation to determine the employee's ability to use a respirator before the employee is fit tested or required to use the respirator in the workplace. The medical evaluation shall be conducted by a physician or other licensed health care provider (PLHCP) and shall use the medical questionnaire in Appendix C to 29 CFR 1910.134 (questions 1-8 in Section 2, Part A) and/or an initial medical examination to obtain the information from the questionnaire. The medical questionnaire and examinations shall be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire shall be administered in a manner that ensures that the employee understands its content.

The company shall ensure that a follow-up medical examination is provided for any employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix C or whose initial medical examination demonstrates the need for a follow-up medical examination. The follow-up medical examination shall include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

#### 5.2.1.1 Company Provided Information

The following information must be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

- The type and weight of the respirator to be used by the employee;
- The duration and frequency of respirator use (including use for rescue and escape);
- The expected physical work effort;
- Additional protective clothing and equipment to be worn; and
- Temperature and humidity extremes that may be encountered.

Supplemental information provided previously to the PLHCP regarding an employee need not be provided for a subsequent medical evaluation if the information and the PLHCP remain the same.

#### 5.2.1.2 Medical Determination

In establishing an employee's ability to use a respirator, the company shall:

- Obtain a written recommendation regarding the employee's ability to use the respirator from the PLHCP. The recommendation shall provide only the following information:

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- Any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;
  - The need, if any, for follow-up medical evaluations; and
  - A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.
- Additional medical evaluations that comply with the requirements of this section are required when:
    - An employee reports medical signs or symptoms that are related to the ability to use a respirator;
    - A PLHCP, supervisor, or the respirator program administrator determines that an employee needs to be reevaluated;
    - Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or
    - A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee.

### 5.2.2 Training

Each employee shall receive annual or more frequent training on the selection, use, maintenance, and limitations of the specific respirators to be used for controlling exposure to contaminated air. The training shall be conducted in a manner that is understandable to the employee, and upon completion each trained employee shall be able to demonstrate knowledge in:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator;
- What the limitations and capabilities of the respirator are;
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions;
- How to inspect, put on and remove, use, and check the seals of the respirator;
- What the procedures are for maintenance and storage of the respirator;
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators; and
- The general requirements of this section.

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This training shall be provided as part of initial and annual respiratory protection training. (See Attachment 7.1 for training content.) Retraining of employees shall also be performed when the following situations occur:

- a) There is a change in the workplace or type of respirator render the previous training obsolete;
- b) There are demonstrated inadequacies in the employee’s knowledge or use of the respirator that indicate that the employee has not retained the requisite understanding or skill; or
- c) Any other situation arises in which retraining appears necessary to ensure safe respirator use.

### 5.2.3 Fit Testing

Every employee using a negative or positive pressure tight-fitting facepiece respirator shall receive a qualitative (e.g., irritant smoke saccharin solution or isoamyl acetate banana oil) or quantitative fit test ( Porta-count<sup>®</sup> or Dynatech<sup>®</sup> Fit Testing Instruments) using the same make, model, style, and size of respirator that will be used in the course of work. Each such employee will also receive training and fitting instructions including demonstrations and practice in how the respirator should be worn, how to adjust it, and how to determine if it fits properly (user seal check). Each fit test shall be documented prior to initial use and at least annually thereafter. Additional fit testing is required if visual observations identify changes in the employee’s physical condition that could affect respirator fit (e.g. large increments of weight gain or loss, dental changes, facial scarring, etc). A Fit Test Record (Attachment 7.5) is to be used to document an employee’s qualitative fit test.

Fit testing of tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators shall be accomplished by performing quantitative or qualitative fit testing in the negative pressure mode by temporarily converting the respirator user's actual facepiece into a negative pressure respirator with appropriate filters, or by using an identical surrogate facepiece.

The fit test shall be administered using an OSHA-accepted QLFT or QNFT protocol. QLFT may only be used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less. If the fit factor, as determined through an OSHA-accepted QNFT protocol, is equal to or greater than 100 for tight-fitting half facepieces, or equal to or greater than 500 for tight-fitting full facepieces, the QNFT has been passed with that respirator. Refer to Attachment 7.8 for OSHA’s Fit Testing Procedures (Appendix A to 29 CFR 1910.134) for additional information.



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NOTE: Fit testing is not required for voluntary use of filtering facepiece respirators such as dust masks, e.g. 3M 8210 N95 Dust/Mist Particulate Respirator.

#### 5.2.4 Facepiece Seal Protection

Using tight-fitting facepiece respirators requires the wearer to be clean shaven, with no facial hair that interferes with the sealing surface of the facepiece, or the operation of inhalation or exhalation valves. All the company's respirator users shall be clean-shaven. No other condition that interferes with the face-to-facepiece seal or valve function is allowed.

Eyeglasses with temple bars that extend through the sealing surface of a full facepiece respirator shall not be worn with a full facepiece respirator, e.g. Powered Air Purifying Respirator (PAPR). Special corrective eye glass kits that mount inside the face piece are available from all respirator manufacturers. All personnel that need corrective lenses to correct vision shall use them while wearing respirators. The use of corrective lenses, goggles or other personal protective equipment shall be done in a manner that ensures it is worn in a manner that does not interfere with the seal of the facepiece to the face of the user.

For all tight-fitting respirators, the company shall ensure that employees perform a user seal check each time they put on the respirator using the procedures in Attachment 7.3 (identical to 29 CFR 1910.134, Appendix B-1) or procedures recommended by the respirator manufacturer.

#### 5.2.5 Personal Respirators

Employees shall not use any respirator that is not issued by the Company. Personal respirators owned by the employee are not authorized for use on company projects.

### 5.3 Respirator Use, Maintenance, and Care

#### 5.3.1 General Requirements

5.3.1.1 Each respirator user shall be provided with a respirator that is clean, sanitary, and in good working order. Ensure that respirators are cleaned and disinfected using the procedures in Attachment 7.2 (identical to 29 CFR 1910.134, Appendix B-2) or procedures recommended by the respirator manufacturer.

5.3.1.2 Respirators shall be cleaned and disinfected at the following intervals:

- Respirators issued for the exclusive use of an employee shall be cleaned and disinfected as often as necessary to be maintained in a sanitary condition;

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- Respirators issued to more than one employee shall be cleaned and disinfected before being worn by different individuals;
- Respirators maintained for emergency use shall be cleaned and disinfected after each use; and
- Respirators used in fit testing and training shall be cleaned and disinfected after each use.

5.3.1.3 Respirators shall be stored as follows:

- All respirators shall be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they shall be packed or stored to prevent deformation of the facepiece and exhalation valve.
- Emergency respirators shall be kept accessible to the work area, in marked containers or bins, and stored per the manufacturer's recommendations.

5.3.1.4 Respirators shall be inspected as follows:

- All respirators used in routine situations shall be inspected before each use and during cleaning;
- All emergency use respirators shall be inspected at least monthly and shall be checked for proper function before and after each use; and
- Emergency escape-only respirators shall be inspected before being carried into the workplace for use.
- Each inspection shall include a check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters or filters; and
- A check of elastomeric parts for pliability and signs of deterioration.
- Self-contained breathing apparatus shall be inspected monthly. Air and oxygen cylinders shall be maintained in a fully charged state and shall be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. Each inspection shall determine that the regulator and warning devices function properly.
- For respirators maintained for emergency use, certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator. All such inspections shall be documented and traceable.

5.3.1.5 Respirators that fail an inspection or are otherwise found to be defective shall be removed from service, and discarded or repaired or adjusted in accordance with the following procedures:

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- Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and shall use only the respirator manufacturer's NIOSH-approved parts designed for the respirator;
- Repairs shall be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and
- Reducing and admission valves, regulators, and alarms shall be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

5.3.1.6 Employees shall perform a 10 second negative pressure test and a 10 second positive pressure test before each use of negative pressure respirators. Refer to Attachment 7.3. Respirators that do not successfully pass this negative pressure or positive pressure field test shall not be used.

#### 5.4 Breathing Air For Supplied Air Respirators

Breathing air shall meet at least the requirements of the specification for Grade D breathing air as described in Compressed Gas Association Pamphlet G-7.1-1989.

##### 5.4.1 Breathing Air Quality

- a) All atmosphere-supplying respirators (supplied air and/or SCBA) shall provide breathing air of high purity that meet the following criteria:
  - Compressed and liquid oxygen shall meet the United States Pharmacopoeia requirements for medical or breathing oxygen;
  - Compressed breathing air shall meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989 to include:
    - Oxygen content (v/v) of 19.5-23.5%;
    - Hydrocarbon (condensed) content not in excess of 5 milligrams per cubic meter of air;
    - Carbon monoxide content not in excess of 10 parts per million (ppm);
    - Carbon dioxide content not in excess of 1,000 ppm; and
    - Be free of recognizable odor(s).
- b) Compressed oxygen is prohibited from use in atmosphere-supplying respirators previously used with compressed air.
- c) Supplied air oxygen concentrations greater than 23.5% shall only be used in equipment specifically designed and constructed for oxygen service or distribution.

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- d) Cylinders used to supply breathing air shall:
- Be tested and maintained per the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178);
  - Include a Certificate of Analysis from the supplier verifying the air meets Grade D breathing air specifications; and
  - Contain a moisture content not in excess of a dew point of -50° Fahrenheit (-45.6° Celsius) at 1 atmosphere pressure.
- e) Compressors used to supply breathing air shall:
- Prevent entry of contaminated air into the air-supply system;
  - Not produce a moisture content such that the dew point at 1 atmosphere pressure is 10° Fahrenheit (5.56° Celsius) below the ambient temperature;
  - Have suitable in-line air-purifying sorbent beds and filters to ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically, as evidenced by a signed, and dated tag affixed near or on the compressor.
  - Non oil-lubricated compressors shall limit carbon monoxide levels in the breathing air to less than 10 ppm.
  - Oil-lubricated compressors shall use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.
  - Breathing air couplings must be incompatible with outlets for nonrespirable worksite air or other gas systems. No asphyxiating substance shall be introduced into breathing air lines.
  - Breathing gas containers shall be marked in accordance with the NIOSH respirator certification standard, 42 CFR part 84.

## 5.5 Respirator Inspection

All respirators shall be inspected routinely before and after each use by the wearer. Respirator inspection shall include a check of the tightness of connections and the condition of all components, including but not limited to, the facepiece, headbands, valves, connection tubes, canisters, hoses and helmets. Rubber and elastomeric parts shall be inspected for pliability and signs of deterioration.

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## 5.6 Respirator Cleaning And Storage

- 5.6.1 Respirators shall be cleaned and disinfected after each use to insure that proper protection is provided for the wearer. Respirators shall be cleaned and disinfected according to instruction provided by the manufacturer. Refer to Attachment 7.2.
- 5.6.2 Each employee is responsible for ensuring that his/her respirator is cleaned, disinfected, and properly stored each day in accordance with the manufacturer's recommendations.

## 5.7 Respirator Repair

Replacement or repairs shall be done only by experienced persons with parts designed for the respirator. No attempt shall be made to replace components or to make adjustments or repairs beyond the manufacturer's recommendations. After repairs are made, respirators shall be cleaned, inspected and properly stored. Refer to Section 5.4.1.5 for additional information regarding respirator repair requirements.

## 5.8 Program Evaluation

- 5.8.1 Evaluations of the workplace will be conducted as necessary to ensure that the provisions of this written program are being effectively implemented and that it continues to be effective.
- 5.8.2 Employees required to use respirators shall be consulted regularly to assess their views on program effectiveness and to identify any problems. Problems identified during this assessment shall be corrected. Factors to be assessed include, but are not limited to:
- a) Respirator fit (including the ability to use the respirator without interfering with effective workplace performance);
  - b) Appropriate respirator selection for the hazards to which employees are exposed;
  - c) Proper respirator use under workplace conditions the employee encounters; and
  - d) Proper respirator maintenance.

## 6 RECORDKEEPING

- 6.1 The Account Manager / Construction Manager shall maintain the following respiratory protection records in accordance with the requirements of the standard and 29CFR 1910.1020:
- Employee fit test records, consisting of the employees name, the type, brand, model and size of the respirator fitted; date of fit test; and other test results where quantitative fit testing was performed.

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- Records of medical evaluations.
- Employee training records.
- Respirator Program.

Upon completion of each project where respiratory protection is required, the Account Manager / Construction Manager will transmit all such records to the IREX corporate office in Lancaster, Pennsylvania for long term retention in the corporate records facility.

## 7 **ATTACHMENTS**

- 7.1 Respirator Training Guidelines
- 7.2 Procedures For Cleaning Respirators
- 7.3 User Seal Check Procedure
- 7.4 Respirator Questionnaire
- 7.5 Fit Test Record
- 7.6 Respirator Voluntary Use Application
- 7.7 Pay Type Description Key
- 7.8 Respirator Fit Test Protocols

**GUIDELINES FOR TRAINING OF RESPIRATOR USERS**

For safe use of any respirator, it is essential that every user be properly instructed initially and retrained in its selection, use, limitations and maintenance on an annual basis.

Minimum training shall include the following:

1. Instruction in the nature, extent and effects of respiratory hazards to which the employee may be exposed.
2. Selecting the proper type of respirator for the particular purpose.
3. A discussion of the respirator's characteristics, capabilities and limitations.
4. Instruction in procedures for inspection, donning and removal, checking the fit and seals, and in the wearing of the respirator, including sufficient practice to enable the employee to become thoroughly familiar with, confident, and effective in performing these tasks.
5. Successful completion of a fit test.
6. Instruction in the care of the respirator, daily cleaning methods, inspection prior to use, changing cartridges and filters and proper storage.
7. Instruction and training in actual use of the respirator (especially a respirator for emergency use). Training shall provide the user an opportunity to handle the respirator, have it fitted properly, test its facepiece to face seal, wear it in normal air and to wear it in a test atmosphere.
8. A discussion of the contents of the Company's Respiratory Protection Procedure.

**PROCEDURES FOR CLEANING RESPIRATORS**

(OSHA Appendix B-2)

1. Remove filters, cartridges, or canisters. Disassemble facepiece by removing speaking diaphragms, demand and pressure-demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts.
2. Wash components in warm (110°F maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt.
3. Rinse components thoroughly in clean, warm (110°F maximum), preferably running water. Drain.
4. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following:
  - a) Hypochlorite solutions made by adding approximately one milliliter of laundry bleach to one liter of water at 110°F; or
  - b) Aqueous solution of iodine made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 110°F; or
  - c) Other commercially available cleaners of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer.
5. Rinse components thoroughly in clean, warm (110°F maximum), preferably running water. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed.
6. Components should be hand-dried with a clean lint-free cloth or air dried.
7. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary.
8. Test the respirator to ensure that all components work properly.



## USER SEAL CHECK PROCEDURES (OSHA Appendix B-1)

The individual who uses a tight-fitting respirator is to perform a user seal check to ensure that an adequate seal is achieved each time the respirator is put on. Either the positive and negative pressure checks listed below or the respirator manufacturer's recommended user seal check method shall be used.

Note: User seal checks are **not** substitutes for quantitative fit tests using the Portacount Test Instrument.

### Facepiece Positive and/or Negative Pressure Checks

Positive pressure check. Close off the exhalation valve and exhale gently into the facepiece. The face fit is considered satisfactory if a slight positive pressure can be built up inside the facepiece without any evidence of outward or outward leakage of air at the seal. For most respirators this method of leak testing requires the wearer to first remove the exhalation valve cover before closing off the exhalation valve and then carefully replacing it after the test.

Negative pressure check. Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the filter seal(s), inhale gently so that the facepiece collapses slightly, and hold the breath for ten seconds. The design of the inlet opening of some cartridges cannot be effectively covered with the palm of the hand. The test can be performed by covering the inlet opening of the cartridge with a thin latex or nitrile glove. If the facepiece remains in its slightly collapsed condition and no inward leakage of air is detected, the tightness of the respirator is considered satisfactory.

# RESPIRATOR QUESTIONNAIRE

Conforms to 1910.134, Appendix C

Company Name:

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Company Location:

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Administrator/Site Coordinator Name:

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Telephone Number:

(      )

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Account or Approval Number:

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## MANDATORY APPENDIX C 1910.134 OSHA RESPIRATOR MEDICAL EVALUATION

To the EMPLOYEE:

Can you read (*mark one*):

YES

NO

**Read and sign:**

Your employer must allow you to answer this questionnaire during normal working hours, or at a time and place that is convenient to you. To maintain your confidentiality, your employer or supervisor must not look at or review your answers, and your employer must tell you how to deliver or send this questionnaire to the health care professional who will review it.

I have read and understood, or have had explained to me, the instructions for completing this questionnaire and all responses given are accurate and complete.

Signature:

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Date:

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This questionnaire will be reviewed by:    Approved Occupational Clinic

**QUESTIONS? CALL YOUR OCCUPATIONAL CLINIC**



Questions 1-9 below must be answered by every employee who has been selected to use any type of respirator. (Please mark the circle if the response is **YES**. If the response is **YES**, please indicate date where specified. No mark implies that your response is **NO**.)

1.	Do you <b>currently</b> smoke tobacco, or have you smoked tobacco in the last month?	YES <input type="radio"/>	
2.	Have you <b>ever had</b> any of the following conditions? a. Seizures ( <b>fits</b> ) b. Diabetes ( <b>sugar disease</b> ) c. Allergic reactions that interfere with your breathing d. Claustrophobia ( <b>fear of closed-in places</b> ) e. Trouble smelling odors	YES <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	IF YES, DATE _____ _____ _____ _____ _____
3.	Have you <b>ever had</b> any of the following pulmonary or lung problems? a. Asbestosis b. Asthma c. Chronic bronchitis d. Emphysema e. Pneumonia f. Tuberculosis g. Silicosis h. Pneumothorax ( <b>collapsed lung</b> ) i. Lung cancer j. Broken ribs k. Any chest injuries or surgeries l. Any other lung problem that you've been told about	YES <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	IF YES, DATE _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____ _____
4.	Do you <b>currently</b> have any of the following symptoms of pulmonary or lung illness? a. Shortness of breath b. Shortness of breath when walking fast on level ground or walking up a slight hill or incline c. Shortness of breath when walking with other people at an ordinary pace or level ground d. Have to stop for breath when walking at your own pace on level ground e. Shortness of breath when washing or dressing yourself f. Shortness of breath that interferes with your job g. Coughing that produces phlegm ( <b>thick sputum</b> ) h. Coughing that wakes you early in the morning i. Coughing that occurs mostly when you are lying down j. Coughing up blood in the last month k. Wheezing l. Wheezing that interferes with your job m. Chest pain when you breathe deeply n. Any other symptoms that you think may be related to lung problems	YES <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	

**PART A., SECTION 2.**  
**Continued**

	YES	IF YES, DATE
5. Have you <b>ever had</b> any of the following cardiovascular or heart problems?		
a. Heart attack	<input type="radio"/>	_____
b. Stroke	<input type="radio"/>	_____
c. Angina	<input type="radio"/>	_____
d. Heart Failure	<input type="radio"/>	_____
e. Swelling in your legs or feet ( <b>not caused by walking</b> )	<input type="radio"/>	_____
f. Heart arrhythmia ( <b>heart beating irregularly</b> )	<input type="radio"/>	_____
g. High blood pressure	<input type="radio"/>	_____
h. Any other heart problem that you've been told about	<input type="radio"/>	_____
6. Have you <b>ever had</b> any of the following cardiovascular or heart symptoms?	YES	
a. Frequent pain or tightness in your chest	<input type="radio"/>	
b. Pain or tightness in your chest during physical activity	<input type="radio"/>	
c. Pain or tightness in your chest that interferes with your job	<input type="radio"/>	
d. In the past two years, have you noticed your heart skipping or missing a beat	<input type="radio"/>	
e. Heartburn or indigestion that is not related to eating	<input type="radio"/>	
f. Any other symptoms that you think may be related to heart or circulation problems	<input type="radio"/>	
7. Do you <b>currently</b> take medication for any of the following problems?	YES	
a. Breathing or lung problems	<input type="radio"/>	
b. Heart trouble	<input type="radio"/>	
c. Blood pressure	<input type="radio"/>	
d. Seizures ( <b>fits</b> )	<input type="radio"/>	
8. If you've used a respirator, have you <b>ever had</b> any of the following problems? ( <b>If you've never used a respirator, go to question 9</b> ).	YES	IF YES, DATE
a. Eye irritation	<input type="radio"/>	_____
b. Skin allergies or rashes	<input type="radio"/>	_____
c. Anxiety	<input type="radio"/>	_____
d. General weakness or fatigue	<input type="radio"/>	_____
e. Any other problem that interferes with your use of a respirator	<input type="radio"/>	_____
9.A. Would you like to talk to the health care professional who will review this questionnaire about your answers to this questionnaire?	YES <input type="radio"/>	
9.B. How often are you expected to use the respirator(s)? ( <b>Check YES for all answers that apply to you</b> )	YES	
1. Escape only ( <b>no rescue</b> )	<input type="radio"/>	
2. Emergency rescue only	<input type="radio"/>	
3. Less than 5 hours per week	<input type="radio"/>	
4. Less than 2 hours per day	<input type="radio"/>	
5. 2 to 4 hours per day	<input type="radio"/>	
6. Over 4 hours per day	<input type="radio"/>	
9.C. If you answered <b>YES</b> to any of the above questions, please provide any additional details here.		
_____		
_____		
9.D. All of my responses to Part A, Section 2, questions 1-9.C. are negative.	YES <input type="radio"/>	

**PART A., SECTION 2.**  
**Continued**

Questions 10-15 below must be answered by every employee who has been selected or has the potential to use **either** a full face piece respirator **or** a self-contained breathing apparatus. For employees who have been selected to use other types of respirators, answering these questions is voluntary.

	YES	IF YES, DATE
10. Have you <b>ever</b> lost vision in either eye ( <b>temporarily or permanently</b> )? If <b>YES</b> , is it permanent?	<input type="radio"/> <input type="radio"/>	
11. Do you <b>currently</b> have any of the following vision problems? a. Wear contact lenses b. Wear glasses c. Color blind d. Any other eye or vision problem	YES <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
12. Have you <b>ever</b> had any injury to your ears, including a broken ear drum?	YES <input type="radio"/>	
13. Do you <b>currently</b> have any of the following hearing problems? a. Difficulty hearing b. Wearing a hearing aid c. Any other hearing or ear problem	YES <input type="radio"/> <input type="radio"/> <input type="radio"/>	
14. Have you <b>ever</b> had a back injury?	YES <input type="radio"/>	
15. Do you <b>currently</b> have any of the following musculoskeletal problems? a. Weakness in any of your arms, hands, legs, or feet b. Back pain c. Difficulty fully moving your arms and legs d. Pain or stiffness when you lean forward or backward at the waist e. Difficulty fully moving your head up or down f. Difficulty fully moving your head side to side g. Difficulty bending at your knees h. Difficulty squatting to the ground i. Climbing a flight of stairs or a ladder carrying more than 25 lbs. j. Any other muscle or skeletal problem that interferes with using a respirator	YES <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/> <input type="radio"/>	
16. If you answered <b>YES</b> to any of the above questions, please provide any additional details here.  _____ _____ _____		
17. All of my responses to Part A, Section 2, questions 10-16 are negative.	YES <input type="radio"/>	

## PART B., SECTION 2.

Please complete this section. OSHA has provided the following questions to assist Continuum Healthcare's Occupational Physician in the evaluation of your ability to wear a respirator.

1.	At work or at home, have you ever been exposed to hazardous solvents, hazardous airborne chemicals ( <b>e.g. gases, fumes, or dust</b> ), or have you come into skin contact with hazardous chemicals?	YES <input type="radio"/>
	If <b>YES</b> , name the chemicals if you know them:	

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2.	Have you ever worked with any of the materials, or under any of the conditions listed below?	YES
	a. Asbestos	<input type="radio"/>
	b. Silica ( <b>e.g., in sandblasting</b> )	<input type="radio"/>
	c. Tungsten/cobalt ( <b>e.g., grinding or welding this material</b> )	<input type="radio"/>
	d. Beryllium	<input type="radio"/>
	e. Aluminum	<input type="radio"/>
	f. Coal ( <b>for example, mining</b> )	<input type="radio"/>
	g. Iron	<input type="radio"/>
	h. Tin	<input type="radio"/>
	i. Dusty environments	<input type="radio"/>
	j. Any other hazardous exposures	<input type="radio"/>

If **YES**, describe these exposures:

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3.	Have you been in the military service? If <b>YES</b> , were you exposed to biological or chemical agents ( <b>either in training or combat</b> )?	YES <input type="radio"/> <input type="radio"/>
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List materials, if known:

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4.	Have you ever worked on a HAZMAT team?	YES <input type="radio"/>
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If **YES**, please provide dates of service:

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**PART B., SECTION 2.**  
**Continued**

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5. Other than medications for breathing and lung problems, heart trouble, blood pressure, and seizures mentioned earlier in this questionnaire, are you taking any other medications for any reason (**including over-the-counter medications**)?

YES

If **YES**, name the medications:

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6. Will you be working under hot conditions (**temperature exceeding 77°F**)?  
If **YES**, will you be wearing an impervious suit as part of your routine work?  
If **YES**, how many hours per day? \_\_\_\_\_ hrs/day

YES

7. Will you be working under humid conditions?

YES

8. All of my responses to Part B, Section 2, questions 1-7, are negative.

YES

9. Describe the work you'll be doing while you're using your respirator(s):

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10. Describe any special or hazardous conditions you might encounter when you're using your respirator(s) (**for example, confined spaces, life-threatening gases**).

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**PART B., SECTION 2.**  
**Continued**

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11. Describe any special responsibilities you'll have while using your respirator(s) that may affect the safety and well-being of others (*for example, rescue, security*).

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12. List any second jobs or side businesses you have:

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13. List your previous occupations with dates of service:

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14. List your current and previous hobbies.

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**Respiratory Protection Fit Test Record**

Respirator Type:	<u>Half-Face</u>	<u>Full-Face</u>	<u>PAPR</u>	
Manufacturer:	_____	_____	_____	Fill-In
Model Number:	_____	_____	_____	Fill-In
Size:	_____	_____	_____	Fill-In
Negative Pressure Check:	Pass / Fail	Pass / Fail	Pass / Fail	Circle
Positive Pressure Check:	Pass / Fail	Pass / Fail	Pass / Fail	Circle
<b>Complete Respirator Test:</b>	<b>Pass / Fail</b>	<b>Pass / Fail</b>	<b>Pass / Fail</b>	Circle

Check Qualitative Fit Test Protocol Used Below (Reference 29 CFR Part 1910.134 Appendix A)

- Bitrex Solution Aerosol  Isoamyl Acetate  Saccharin Solution Aerosol  Irritant Smoke

The test subject shall perform the following exercises in the order prescribed for each respirator type. CHECK EACH AS APPLICABLE

<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Normal Breathing	In a normal standing position, without talking, the subject shall breathe normally.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Deep Breathing	In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Turning Head Side- To-Side	Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at extreme momentarily so the subject can inhale at each side.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Moving Head Up & Down	Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Talking	The subject shall talk out loud slowly and loud enough so as to be heard clearly the by the test conductor. The subject can read from a prepared text such as the Rainbow Passage (see reverse page), count backward from 100, or recite a memorized poem or song.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Grimace	The test subject shall grimace by smiling or frowning. <b>(QNFT ONLY.)</b>
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Bending Over	The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as a shroud type QLFT or QNFT units that do not permit bending over at the waist.
<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Normal Breathing	Same as First Exercise

NOTE: Perform each QLFT test exercise for 1 minute. Confirm respirator comfort at completion of the protocol. If comfort has become unacceptable, an alternative respirator shall be tried. The respirator may not be adjusted once the fit test exercises begin or the test is void and must be repeated.

Employee trained on fundamental principles of respiratory protection, use, limitations, assigned protection factors (APFs), inspection, cleaning, maintenance, and storage of equipment: \_\_\_\_\_ Yes \_\_\_\_\_ No

Corrective lenses required for normal work tasks: \_\_\_\_\_ Yes \_\_\_\_\_ No

If yes, which does employee use?  prescription safety glasses  prescription safety goggles  respirator spectacles

Facial characteristics preventing seal (beard, missing dentures, etc.): \_\_\_\_\_ Yes \_\_\_\_\_ No

Medical restrictions on respirator use: \_\_\_\_\_ Yes \_\_\_\_\_ No

I hereby certify that the subject employee has been fit tested in accordance with the *OSHA Respiratory Protection Standard 29 CFR 1910.34, Appendix A "Fit Testing Procedures", (Rev 1998/2004)*. The results of the test(s) indicated that the subject employee is accepted (\_\_\_) / rejected (\_\_\_) for work assignments requiring specified respiratory protection devices.

\_\_\_\_\_  
Employee (Print Name) (Signature) (Date)

\_\_\_\_\_  
Test Conductor (Print Name) (Signature) (Date)

## Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.

**RESPIRATOR VOLUNTARY USE  
APPLICATION: USED FOR PARTICULATE DUST MASK ONLY  
(filtering face pieces, e.g. 3M 8210 (N95) -formerly 3M 8710, or equivalent)**

(Information for Employees Using Respirators When Not Required Under the Standard)  
(OSHA Appendix D)

The Company provides employees with NIOSH approved dust respirators such as the 3M 8210 (N95) for voluntary use against solid particulates, including but not limited to, fiber glass and coal dust. Respirator use is encouraged, even when exposures to particulate dust are below the exposure limit, to provide an additional level of comfort and protection for our employees. There are no medical limitations on the use of this type of respirator and therefore no medical evaluation is necessary. However, the Company must ensure that dust masks are not dirty or contaminated, their use does not interfere with the employee’s ability to work safely and the employee adheres to the following precautions to be sure the respirator itself does not present a hazard.

1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator limitations.
2. Use only the NIOSH approved respirator provided to you by the Company. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you.
3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, the N95 dust respirator will not protect you against gases, vapors or very small solid particles of fume or smoke.
4. Keep track of your respirator so that you do not mistakenly use someone else’s respirator. All used dust particulate respirators, (filtering facepieces - e.g. 3M 8210 N95) must be properly disposed of no later than the end of the shift. These respirators are considered maintenance-free.

**NOTE:** If you have any questions, please see your supervisor.

**ACKNOWLEDGEMENT**

I have read, understand and will abide by the precautions necessary for voluntary use of a dust particulate respirator.

\_\_\_\_\_  
Employee Name (print)

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

### Pay Type Description Key

#### Time Entry Codes

#### Cost Code 33 or 39

10	Regular	Non-Respirator Labor
12	Time & ½	Non-Respirator Labor
14	Double	Non-Respirator Labor
16	Triple	Non-Respirator Labor
18	Time & ¼	Non-Respirator Labor

#### Cost Code 34

20	Regular	Required Respirator Labor
22	Time & ½	Required Respirator Labor
24	Double	Required Respirator Labor
26	Triple	Required Respirator Labor
28	Time & ¼	Required Respirator Labor

**FIT TESTING PROCEDURES**

Appendix A to § 1910.134: Fit Testing Procedures (General Requirements & Irritant Smoke Test Protocols)

Part I. OSHA-Accepted Fit Test Protocols

A. Fit Testing Procedures -- General Requirements

The employer shall conduct fit testing using the following procedures. The requirements in this appendix apply to all OSHA-accepted fit test methods, both QLFT and QNFT.

1. The test subject shall be allowed to pick the most acceptable respirator from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.
2. Prior to the selection process, the test subject shall be shown how to put on a respirator, how it should be positioned on the face, how to set strap tension and how to determine an acceptable fit. A mirror shall be available to assist the subject in evaluating the fit and positioning of the respirator. This instruction may not constitute the subject's formal training on respirator use, because it is only a review.
3. The test subject shall be informed that he/she is being asked to select the respirator that provides the most acceptable fit. Each respirator represents a different size and shape, and if fitted and used properly, will provide adequate protection.
4. The test subject shall be instructed to hold each chosen facepiece up to the face and eliminate those that obviously do not give an acceptable fit.
5. The more acceptable facepieces are noted in case the one selected proves unacceptable; the most comfortable mask is donned and worn at least five minutes to assess comfort. Assistance in assessing comfort can be given by discussing the points in the following item A.6. If the test subject is not familiar with using a particular respirator, the test subject shall be directed to don the mask several times and to adjust the straps each time to become adept at setting proper tension on the straps.
6. Assessment of comfort shall include a review of the following points with the test subject and allowing the test subject adequate time to determine the comfort of the respirator:

- (a) Position of the mask on the nose
  - (b) Room for eye protection
  - (c) Room to talk
  - (d) Position of mask on face and cheeks
7. The following criteria shall be used to help determine the adequacy of the respirator fit:
- (a) Chin properly placed;
  - (b) Adequate strap tension, not overly tightened;
  - (c) Fit across nose bridge;
  - (d) Respirator of proper size to span distance from nose to chin;
  - (e) Tendency of respirator to slip;
  - (f) Self-observation in mirror to evaluate fit and respirator position.
8. The test subject shall conduct a user seal check, either the negative and positive pressure seal checks described in Appendix B-1 of this section or those recommended by the respirator manufacturer which provide equivalent protection to the procedures in Appendix B-1. Before conducting the negative and positive pressure checks, the subject shall be told to seat the mask on the face by moving the head from side-to-side and up and down slowly while taking in a few slow deep breaths. Another facepiece shall be selected and retested if the test subject fails the user seal check tests.
9. The test shall not be conducted if there is any hair growth between the skin and the facepiece sealing surface, such as stubble beard growth, beard, mustache or sideburns which cross the respirator sealing surface. Any type of apparel which interferes with a satisfactory fit shall be altered or removed.
10. If a test subject exhibits difficulty in breathing during the tests, she or he shall be referred to a physician or other licensed health care professional, as appropriate, to determine whether the test subject can wear a respirator while performing her or his duties.
11. If the employee finds the fit of the respirator unacceptable, the test subject shall be given the opportunity to select a different respirator and to be retested.

12. Exercise regimen. Prior to the commencement of the fit test, the test subject shall be given a description of the fit test and the test subject's responsibilities during the test procedure. The description of the process shall include a description of the test exercises that the subject will be performing. The respirator to be tested shall be worn for at least 5 minutes before the start of the fit test.
13. The fit test shall be performed while the test subject is wearing any applicable safety equipment that may be worn during actual respirator use which could interfere with respirator fit.
14. Test Exercises.
  - (a) The following test exercises are to be performed for all fit testing methods prescribed in this appendix, except for the CNP method. A separate fit testing exercise regimen is contained in the CNP protocol. The test subject shall perform exercises, in the test environment, in the following manner:
    - (1) Normal breathing. In a normal standing position, without talking, the subject shall breathe normally.
    - (2) Deep breathing. In a normal standing position, the subject shall breathe slowly and deeply, taking caution so as not to hyperventilate.
    - (3) Turning head side to side. Standing in place, the subject shall slowly turn his/her head from side to side between the extreme positions on each side. The head shall be held at each extreme momentarily so the subject can inhale at each side.
    - (4) Moving head up and down. Standing in place, the subject shall slowly move his/her head up and down. The subject shall be instructed to inhale in the up position (i.e., when looking toward the ceiling).
    - (5) Talking. The subject shall talk out loud slowly and loud enough so as to be heard clearly by the test conductor. The subject can read from a prepared text such as the Rainbow Passage, count backward from 100, or recite a memorized poem or song.

#### Rainbow Passage

When the sunlight strikes raindrops in the air, they act like a prism and form a rainbow. The rainbow is a division of white light into many beautiful colors. These take the shape of a long round arch, with its path high above, and its two ends apparently beyond the horizon. There is, according to legend, a boiling pot of gold at one end. People look, but no one ever finds it. When a man looks for something beyond reach, his friends say he is looking for the pot of gold at the end of the rainbow.



- (6) Grimace. The test subject shall grimace by smiling or frowning. (This applies only to QNFT testing; it is not performed for QLFT)
- (7) Bending over. The test subject shall bend at the waist as if he/she were to touch his/her toes. Jogging in place shall be substituted for this exercise in those test environments such as shroud type QNFT or QLFT units that do not permit bending over at the waist. (8) Normal breathing. Same as exercise (1). (b) Each test exercise shall be performed for one minute except for the grimace exercise which shall be performed for 15 seconds. The test subject shall be questioned by the test conductor regarding the comfort of the respirator upon completion of the protocol. If it has become unacceptable, another model of respirator shall be tried. The respirator shall not be adjusted once the fit test exercises begin. Any adjustment voids the test, and the fit test must be repeated.

## B. Qualitative Fit Test (QLFT) Protocols

### 1. General

- (a) The employer shall ensure that persons administering QLFT are able to prepare test solutions, calibrate equipment and perform tests properly, recognize invalid tests, and ensure that test equipment is in proper working order.
- (b) The employer shall ensure that QLFT equipment is kept clean and well maintained so as to operate within the parameters for which it was designed.

### 1. Irritant Smoke (Stannic Chloride) Protocol

This qualitative fit test uses a person's response to the irritating chemicals released in the "smoke" produced by a stannic chloride ventilation smoke tube to detect leakage into the respirator.

#### (a) General Requirements and Precautions

- (1) The respirator to be tested shall be equipped with high efficiency particulate air (HEPA) or P100 series filter(s).
- (2) Only stannic chloride smoke tubes shall be used for this protocol.
- (3) No form of test enclosure or hood for the test subject shall be used.
- (4) The smoke can be irritating to the eyes, lungs, and nasal passages. The test conductor shall take precautions to minimize the test subject's exposure to irritant smoke. Sensitivity varies, and certain individuals may respond to a greater degree to irritant smoke. Care shall be taken when

performing the sensitivity screening checks that determine whether the test subject can detect irritant smoke to use only the minimum amount of smoke necessary to elicit a response from the test subject.

(5) The fit test shall be performed in an area with adequate ventilation to prevent exposure of the person conducting the fit test or the build-up of irritant smoke in the general atmosphere.

**(b) Sensitivity Screening Check**

The person to be tested must demonstrate his or her ability to detect a weak concentration of the irritant smoke.

(1) The test operator shall break both ends of a ventilation smoke tube containing stannic chloride, and attach one end of the smoke tube to a low flow air pump set to deliver 200 milliliters per minute, or an aspirator squeeze bulb. The test operator shall cover the other end of the smoke tube with a short piece of tubing to prevent potential injury from the jagged end of the smoke tube.

(2) The test operator shall advise the test subject that the smoke can be irritating to the eyes, lungs, and nasal passages and instruct the subject to keep his/her eyes closed while the test is performed.

(3) The test subject shall be allowed to smell a weak concentration of the irritant smoke before the respirator is donned to become familiar with its irritating properties and to determine if he/she can detect the irritating properties of the smoke. The test operator shall carefully direct a small amount of the irritant smoke in the test subject's direction to determine that he/she can detect it.

**(c) Irritant Smoke Fit Test Procedure**

(1) The person being fit tested shall don the respirator without assistance, and perform the required user seal check(s).

(2) The test subject shall be instructed to keep his/her eyes closed.

(3) The test operator shall direct the stream of irritant smoke from the smoke tube toward the face seal area of the test subject, using the low flow pump or the squeeze bulb. The test operator shall begin at least 12 inches from the facepiece and move the smoke stream around the whole perimeter of the mask. The operator shall gradually make two more passes around the perimeter of the mask, moving to within six inches of the respirator.

- (4) If the person being tested has not had an involuntary response and/or detected the irritant smoke, proceed with the test exercises.
- (5) The exercises identified in section I.A. 14. of this appendix shall be performed by the test subject while the respirator seal is being continually challenged by the smoke, directed around the perimeter of the respirator at a distance of six inches.
- (6) If the person being fit tested reports detecting the irritant smoke at any time, the test is failed. The person being retested must repeat the entire sensitivity check and fit test procedure.
- (7) Each test subject passing the irritant smoke test without evidence of a response (involuntary cough, irritation) shall be given a second sensitivity screening check, with the smoke from the same smoke tube used during the fit test, once the respirator has been removed, to determine whether he/she still reacts to the smoke. Failure to evoke a response shall void the fit test.
- (8) If a response is produced during this second sensitivity check, then the fit test is passed.

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## 1 **PURPOSE AND SCOPE**

To provide guidelines for the proper handling of material and equipment commonly used to lift, hoist, or transport materials, other than by powered industrial equipment. The Company will take all precautions to prevent injury and property damage caused by unsafe material handling and/or storage methods. Each employee, particularly the warehouse and truck drivers will be trained in the proper methods of moving and storing materials in the warehouse and field operations. Refer to the Forklift Safety Directive No.4.2 for operation of powered industrial equipment.

## 2 **REFERENCES**

- 2.1 OSHA 29 CFR 1910.176 - Handling Materials - General
- 2.2 OSHA 29 CFR 1926.250 - Materials Handling, Storage, Use and Disposal

## 3 **DEFINITIONS**

None

## 4 **RESPONSIBILITIES**

- 4.1 Supervisors shall assure material handling is performed in a safe manner and that tools and equipment are maintained in good working order.
- 4.2 Construction Managers shall perform periodic inspections involving material handling activities and initiate appropriate corrective actions when necessary.
- 4.3 Construction Managers and the Safety Department shall ensure that workers who may be exposed to the possibility of musculoskeletal injury are trained in specific measures to eliminate or reduce that possibility. The training shall include: (a) identification of factors that could lead to a musculoskeletal injury, (b) the early signs and symptoms of musculoskeletal injury and their potential health effects, and (c) preventive measures including, where applicable, the use of altered work procedures, mechanical aids, and personal protective equipment.

## 5 **PROCEDURE**

### 5.1 **General**

- 5.1.1 Safe clearances shall be maintained at all sides and overhead of walkways door openings, aisles and corridors.
  - a. Permanent aisles/passageways should marked and kept unobstructed

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- b. Low clearances shall be identified.
- c. Aisles and passageways shall be kept in good repair, with no tripping hazards/obstructions present.

- 5.1.2 Aisle and passageways shall be adequately illuminated.
- 5.1.3 Storage areas must be kept free of all accumulations of materials which constitute hazards such as tripping, fire, explosion, or harboring pest.
- 5.1.4 Material handling should be performed with mechanical equipment whenever possible.
- 5.1.5 The company shall provide, where reasonably practicable, appropriate equipment for lifting, lowering, pushing, pulling, carrying, handling, securing or transporting heavy and/or awkward loads.
- 5.1.6 Heavy and awkward loads shall be adapted to minimize manual handling by employees by using mechanized equipment (fork trucks, hoists, cranes, etc.) to separate the load into smaller, more manageable components.
- 5.1.7 Materials must be stacked, racked, or blocked, or otherwise secured to prevent sliding, tipping or collapse.
- 5.1.8 All storage platforms or upper floors inside warehouses must be labeled to indicate the maximum load limit. This limit must never be exceeded.
- 5.1.9 Materials must not be stored on scaffolds or similar work surfaces except those needed for immediate use.
- 5.1.10 Any storage platform above 4 feet must have a hand rail.
- 5.1.11 Proper personal protective equipment shall be used by employees when required.
- 5.1.12 Equipment, including rigging material, shall be capable of safely supporting the intended load. The site superintendent shall ensure rigging is not subjected to loads more than outlined in legislative requirements. The maximum load rating of all rigging shall be recorded, documented and provided to all workers at the work site involved in hoisting and rigging operations.
- 5.1.13 Manual material handling accessories should be used where possible.

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5.1.14 Proper material handling equipment should be used during the handling, storage or transport of material. Job-made devices shall not be used unless approved by the Regional Safety and Health Manager.

5.1.15 All reports of musculoskeletal symptoms and injury shall be investigated by the Regional Safety Manager, and the specific activities of the affected worker and similar workers shall be reviewed to evaluate the potential for work related causes of the symptoms or injury. If work-related causes are identified, corrective actions shall be implemented and communicated to avoid further injuries.

## 5.2 Manual Lifting

5.2.1 Prior to lifting any material manually, the following precautions should be taken.

- a. Inspect the route of travel for obstructions, tripping and slipping hazards. When noted, remove or otherwise isolate such hazards.
- b. Check all clearances - overhead and all sides.
- c. Inspect load for jagged, sharp or splintered edges.
- d. Check the load for hand tools.
- e. Check the load for size and weight along with proper positioning (i.e., “*This side up*”).
- f. Check the contents for type of container (glass, cardboard, wooden, plastic, etc.).
- g. Check contents to determine potential hazards (chemical, flammable, combustible or explosive, etc.) and implement proper precautions.
- h. Inspect the load for wet, oily or greasy surfaces; ensure surfaces are clean and dry to obtain a firm grip.
- i. Team lifting should be used for heavy (>50 lbs.), large or awkward loads only if mechanical equipment is unavailable.

5.2.2 The following lifting technique is considered the proper method to be used while lifting a load.

**Feet** - Feet should be comfortably spread (for stability) with one foot along side the object being lifted, and one foot behind the object. The rear foot is in position for the upward thrust of the lift.

**Back** - The sit-down position should be used, keeping the back straight, spine, back muscles, and organs of the body in correct alignment.

**Arms and Elbows** - The load should be drawn close to the body with the elbows tucked into the sides of the body, keeping the body weight centered and maintaining power and strength in the arms.

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**Palm** - The Palmer Grip is one of the most important elements of correct lifting. The fingers and hand are extended around the object being lifted, using the full palm to lift the load.

**Chin** - Tuck the chin in, so the head and neck are in line with the back, keeping the spine straight and firm.

**Body Weight** - Position the body so it's weight is centered over the feet, providing a more powerful line of thrust, and ensuring greater balance. Start the lift with the rear foot.

5.2.3 Team lifting should be used for heavy, large or awkward loads only if mechanical equipment is not available.

5.2.4 Employees shall not carry loads which block their vision.

5.2.5 Barrels and drums should be handled properly. Drum dollies are to be used where ever possible.

5.2.6 The following precautions should be followed prior to and during transport of barrels and drums:

- a. Determine weight of drum prior to moving it.
- b. Ensure clamps, plugs and bungs are properly tightened.
- c. Inspect the drum for jagged metal or punctures.
- d. Using a lifting bar or other commercial lifting devices.
- e. Barrels should be rolled by pushing on the sides with the hands. Change of direction should be accomplished by gripping the chime. Barrels or drums should not be kicked.

### 5.3 Rigging Equipment/Mechanical Lifting

5.3.1 Rigging equipment for material handling shall be inspected prior to use and on each shift and as necessary during its use to ensure that it is safe.

5.3.2 Proper methods shall be used during mechanical lifting of materials. Defective equipment shall not be used and should be removed from service immediately. All rigging and related parts that indicate excess wear, prior impact loading, distortion, or the effects of exposure to corrosive environments or excessive heat shall be rejected for use in lifting or hoisting operations. All items meeting the rejection criteria for rigging and associated parts shall be immediately and prominently tagged as such and shall be removed from service until repaired or discarded.

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- 5.3.3 Rigging shall be used at all times. When not in use, rigging equipment must be removed from the immediate work area and stored in a manner and environment that will prevent degradation or other adverse impacts to the equipment.
- 5.3.4 Rigging equipment shall be designed to safely lift and support the intended load. Equipment should not be loaded in excess of recommended safe working load as outlined in OSHA 1926.251, Tables H1 - H20. The load identification shall be attached to the rigging. All wire rope, alloy steel chain, synthetic fiber rope, metal mesh slings shall meet the requirements of ASME Standard B30.9-1996, Slings.
- 5.3.5 All lifting devices shall legibly show the manufacturer's rated load capacity, the manufacturer's name, and the model, serial number and the year of manufacture or shipment date.
- 5.3.6 All lifting devices are to be operated only by a competent worker authorized by the employer (internal or external) to operate the equipment. At the site supervisor's request, an operator, before operating a lifting device, must be able to demonstrate that the operator is competent in the equipment's operation and load charts and in the code of signals for hoisting operations. Copies of the operator's training certifications and/or qualifications are to be maintained in the project file.
- 5.3.7 A log book is to be maintained with all powered mechanical lifting devices that details the complete history of the device. The log book shall identify the manufacturer, manufacturer's rated load capacity for the device, and the model, serial number and the year of manufacture or shipment date. The log book shall identify all repair and maintenance work done to the device since its acquisition to include the name of the company and individual conducting the repair or maintenance operation, the date of service, identification of all repair or maintenance replacement parts and written certification that the repair or maintenance operations were completed with knowledge of and adherence to all manufacturer requirements, instructions and technical bulletins. The log book shall also be updated with any relevant operator notes identifying device operations or external actions that could affect the device's operation, performance or safety.
- 5.3.8 No worker other than the competent worker authorized by the employer may operate a lifting device. Before operating a particular lifting device, the operator must be familiar with all recent entries in the device's log book, the proper and safe means of operating the device, the full nature of the operation to be conducted, existing and anticipated weather conditions, all relevant physical characteristics of loads to be lifted, the means of communication between the operator and the individual responsible for attaching the load and communicating with the operator, and all external site activities that are expected to take place on the site that may impact the planned activities. The operator of the device is prohibited from lifting



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any load until he/she has received direct communication from the ground person responsible for attaching the load that it is safe to initiate the lifting operation.

5.3.9 Tag lines shall be used unless their use creates an unsafe condition.

5.3.10 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.

5.3.11 Proper equipment shall be used to lift the material.

5.3.12 Proper methods shall be instituted to protect the materials and rigging equipment from damage. Such methods shall include the use of wooden or leather “buffer” pads or other acceptable means.

5.3.13 Proper barricades should be erected or a safety (look-out) person posted to prevent personnel from entering the lifting area. All employees shall be kept clear of loads about to be lifted and of suspended loads. If it is not feasible to lift the loads without passing over site work areas and workers, then both the operator and all potentially affected workers are to be briefed of the nature of the operations, the expected duration of the activity, and the potential hazards associated with working beneath or around suspended loads. The full perimeter of the area where the lift is to take place shall be demarcated with a physical barrier (tape, barricades, etc.) and warning signs sufficiently spaced to communicate the nature of the overhead hazards.

5.3.14 Proper signals shall be used to direct lifting activities.

5.3.15 All suspended loads shall be placed on or as close to the destination surface as feasible prior to unloading.

#### 5.4 Securement of Loads

5.4.1 Materials shall be properly secured at all times while being lifted and/or transported.

5.4.2 Loads may be secured using rope, chain, binders, etc., to prevent the load from shifting.

#### 5.5 Transporting Materials

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5.5.1 Materials shall be transported safely using approved methods. Consideration shall be given to potential hazards created while transporting hazardous materials (i.e., chemicals, flammable liquids, toxic materials, etc.).

5.5.2 Hazardous materials transported on public highways shall comply with all applicable codes and regulations.

#### 5.6 Two-Wheeled Carts

5.6.1 Two-wheeled carts are to be used for their designed purpose and are not to be overloaded.

5.6.2 Two-wheeled carts are to be properly stored.

#### 5.7 Four-Wheeled Truck

5.7.1 Four-wheeled trucks shall be properly loaded to prevent them from tipping.  
a. Heavy materials shall be placed at the bottom and light materials at the top.  
b. Material shall be evenly distributed.

5.7.2 Four-wheeled trucks are to be properly stored.

5.7.3 Four-wheeled trucks are not to be left unattended on ramps or other grades.

#### 5.8 Pallets

5.8.1 Pallets are to be used wherever possible to store/transport material.

5.8.2 Pallets shall be maintained in good condition; those which become damaged shall be removed from service and repaired or scrapped.

5.8.3 Loads shall be evenly distributed and properly secured during hoisting, lifting or transporting activities.

5.8.4 Pallets shall be properly stored to prevent a tripping or fire hazard. Pallets shall be stacked in a manner to prevent them from becoming unstable.

#### 5.9 Rollers

5.9.1 Rollers may be used to transport materials and/or equipment providing they can sufficiently support the load and are properly placed.

5.9.2 Rollers should extend slightly beyond the load.

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5.9.3 Rollers shall be properly removed using jacks, bars, or other suitable means. They are not to be removed by kicking them with the feet or by pulling them with the hands.

#### 5.10 Material Storage and Disposal

5.10.1 Chemical substances shall be stored in proper containers to minimize the potential for a spill or other uncontrolled release. All chemicals shall be kept in closed containers except when adding or removing materials in order to minimize the potential for exposure to storm water. Incompatible materials shall not be stored together. An example of incompatible material storage is storing acids with bases.

5.10.2 Chemical storage and use areas shall be kept in a clean and orderly fashion at all times. The areas shall be neat, organized and all containers shall be properly labeled. Where required by regulation or customer policy, all chemical container storage areas shall be constructed with or otherwise have an appropriately sized secondary containment system capable of containing the single largest container plus ten percent.

5.10.3 Spill kits appropriate to the materials that may be spilled or released shall be stored in close proximity to chemical storage areas. The spill kits shall be specific to the type of chemical materials stored and shall be appropriate in size and number to respond to the volume of stored material.

5.10.4 Workers who work with or around the chemicals in storage shall be trained on the proper spill response procedures for spilled materials. The training shall include:

- Instruction on the hazards associated with the stored materials;
- Identification of the proper PPE required to handle the materials;
- Explanation of the proper sequence and numbers to communicate that a spill or uncontrolled release has occurred; and
- Specific instruction on the requirements related to containerization, labeling, storage and disposal of the released material and spill clean up wastes.

The spill response communication protocol shall be specific to the nature and quantity of the spill or release and shall be coordinated with the customer. Refer to Safety Directive 2.1, Fire Protection and Emergency Response Procedures for additional information regarding the requirements related to responding to chemical emergencies.

5.10.5 All scrap insulation, lumber, waste material and rubbish must be removed as the work progresses. Arrangements for this disposal should be made with the customer for determining responsibility.

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5.10.6 All solvent waste, oily rags, and flammable liquids shall be kept in a fire resistant covered container until removed from the work site.

5.10.7 Whenever debris is dropped from higher levels, appropriate chutes or barricades must be installed to prevent employee access to below areas.

## 6 **RECORDKEEPING**

Employee training records shall be kept for three years.

## 7 **ATTACHMENTS**

None

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## 1 **PURPOSE AND SCOPE**

This directive provides the minimum safety requirements relating to fire protection, design, maintenance and use of powered industrial lift trucks (fork trucks) and other mobile equipment.

## 2 **REFERENCES**

*Department of Labor 29 CFR 1910.178 - Powered Industrial Trucks*

*Department of Labor 29 CFR 1926 Subpart O – Motor Vehicles, Mechanized Equipment, and Marine Operations*

## 3. **DEFINITIONS**

3.1 “Approved Truck” or “Approved Industrial Truck” - A truck that is listed or approved, for fire safety purposed, by a nationally recognized testing laboratory, and which meets the applicable requirements of design, construction, stability, inspection, testing, maintenance and operation defined in paragraph 421 of the American National Standards Institute (ANSI) B56.1-1996, Safety Standards for Powered Industrial Trucks.

3.2 Truck - For the purpose of this section, shall mean a powered industrial truck, fork truck or forklift or other mobile equipment used for material handling purposes.

## 4 **RESPONSIBILITIES**

4.1 Supervisors shall ensure powered industrial trucks are operated by qualified personnel, in a safe manner and are maintained in a safe operating condition. This includes the performance of required inspections.

4.2 Operators shall perform a daily inspection of any powered industrial truck in their use.

4.3 The Construction Manager shall assure scheduled maintenance inspections are performed by qualified personnel. Repairs are to be accomplished using approved parts.

## 5 **PROCEDURE**

### 5.1 General

5.1.1 Powered industrial trucks used at job sites, including attachments, shall be designed for their intended use. The operator shall not use or attempt to use any vehicle in any manner or for any purpose other than that it was designed for.

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- 5.1.2 Only “approved trucks” shall be used in a hazardous environment. (Attachment 7.1).
- 5.1.3 Powered industrial trucks shall bear a label or similar identification, indicating type of truck, load capacity and, where applicable, approval code for use in a hazardous environment. Such identification shall be conspicuously located and legible.
- 5.1.4 Powered industrial trucks shall not be altered or modified without approval by the Construction Manager. Conditions which affect load capacity or safe operation of the truck shall be approved by the Construction Manager only with the written approval of the manufacturer. Load capacity changes shall be reflected on the name plate, tags and decals.
- 5.1.5 Powered industrial trucks found to be defective or damaged shall be reported to the Supervisor. Those affecting safe operation of the equipment shall warrant the tagging and removal of the fork truck from service.
- 5.1.6 The operator shall only access or dismount the equipment by the means provided by the manufacturer of the equipment. Do not jump to the ground from the equipment.
- 5.1.7 The operator shall connect, adjust and wear the equipment seat belt prior to starting the equipment and throughout equipment use.
- 5.1.8 The operator shall be the only person permitted to ride on the truck, unless additional safe seating is provided by the manufacturer.
- 5.1.9 Personnel shall not ride on the forks or the load.
- 5.1.10 Horse play, speeding, or other unsafe acts involving the use of powered industrial trucks shall not be permitted.
- 5.1.11 Personnel shall not walk or stand under the elevated forks of the truck.
- 5.1.12 Powered industrial trucks shall not be left unattended while the engine is running.
  - a. Loads shall be lowered, the engine turned off and brakes set prior to leaving the equipment.
  - b. Trucks left standing on any grade shall have their wheels chocked, in addition to 5.1.12.a.

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5.1.13 Protective enclosures may be installed on powered industrial trucks providing such enclosures do not affect the operator's vision (especially overhead) or safety. Protective enclosures shall not jeopardize the safe operation of the truck. No operator shall operate mobile equipment without the protection of an enclosed cab or approved eye protection.

5.1.14 Powered industrial trucks shall not be used in an area which may create an oxygen deficient atmosphere or increase the levels of carbon monoxide.

## 5.2 Fire Protection/Prevention

5.2.1 Storage areas containing fuels for powered industrial trucks shall be controlled in accordance OSHA requirements.

5.2.2 Personal protective equipment shall be used while performing repairs and during refueling and charging operations.

5.2.3 Gasoline or diesel powered industrial trucks shall be fueled in an area designated for that purpose. A minimum of 5 lb ABC fire extinguisher shall be attached to the frame of the gasoline powered industrial truck and inspected monthly.

a) The engine shall be turned off and allowed to cool (warm to touch) prior to commencing refueling activities.

b) Smoking, spark producing operations, and open flames of any kind shall be prohibited within refueling areas. Refueling areas shall be conspicuously posted as *No Smoking, Matches or Open Flame*.

c) Spillage shall be cleaned up and properly disposed of prior to restarting the equipment. This includes any spillage on the engine or other parts of the equipment.

5.2.4 Battery powered industrial trucks shall be charged in areas designated for that purpose.

a) Charging areas shall be conspicuously posted as *No Smoking, Matches, or Open Flame*.

b) Personnel performing charging activities shall be sufficiently trained in the charging operation.

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- c) Battery charging areas shall be equipped with emergency eye wash/shower facilities.
- d) Proper ventilation shall be provided for the removal of fumes created from charging activities.
- e) Appropriate means for neutralizing/controlling spilled electrolyte shall be provided.
- f) Batteries (including electrolyte) shall be properly handled and stored.
- g) The following personal protective equipment shall be worn by employees handling acids and batteries: 1) Face shield 2) Apron 3) Rubber gloves.
- h) Batteries shall be properly installed and secured in the truck.
- i) Non-sparking tools shall be used while connecting batteries. Exposed terminals should be protected against accidental contact with metallic objects.

5.2.5 Powered industrial trucks which are fueled by liquid propane gas (LPG or LP) shall be refueled in a safe manner.

- a) Cylinders containing LP gas shall be stored in a designated area.
- b) Smoking shall be prohibited while charging cylinders. Ignition sources shall be eliminated.
- c) Cylinders shall be properly secured in place on each truck. Make-shift securing devices shall not be permitted.
- d) Cylinders shall not be handled carelessly or dropped.
- e) Cylinders, valves, gages, fuel lines and connections shall not exhibit leaks. Oil shall not be used to loosen or lubricate such items.
- f) Frozen or stuck valves shall not be struck with items to loosen them.

5.2.6 Powered industrial trucks fueled by LPG shall have the cylinder valve in the closed position when not in use.



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### 5.3 Loads

- 5.3.1 No equipment shall be loaded beyond its established load limit. Loads shall be placed on a pallet or other acceptable item, and shall be centered and secured prior to being raised or transported. Loads shall be adequately secured against displacement in any direction (horizontally, laterally or vertically).
- 5.3.2 Loads shall be kept as close to the floor as possible during transit.
- 5.3.3 Suitable shielding shall be installed overhead to protect the operator from falling material. **Note:** Shielding will not necessarily protect the operator against a falling capacity load.
- 5.3.4 A load back rest extension shall be used to prevent the load from falling backwards.

### 5.4 Traveling

- 5.4.1 Traffic rules shall be followed at all times.
- 5.4.2 Powered industrial trucks shall be properly controlled at all times. Horseplay, careless or reckless operation of a powered industrial truck shall not be permitted.
- 5.4.3 Cross aisles, blind spots and corners shall be approached cautiously. The operator shall slow down and sound the horn.
- 5.4.4 Pedestrians shall be given the right-of-way. When following pedestrians, a safe distance shall be maintained.
- 5.4.5 Where the operator's vision is blocked by material being transported, the truck shall be driven with the load trailing.
- 5.4.6 Grades shall be ascended/descended slowly. Steep grades shall be descended with the load upgrade.
- 5.4.7 Loads shall be kept as close to the floor as possible with forks tilted back slightly. Empty forks shall be kept as close to the floor as possible.
- 5.4.8 Dock boards and bridge plates shall be properly secured prior to driving onto them. Floor coverings such as plate or other material shall be capable of supporting the entire combined weight of the fork truck and the load. Such coverings shall be secured from displacement.

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5.4.9 Powered industrial trucks should cross railroad tracks diagonally where possible.

5.4.10 Trucks (highway), trailers, and railroad cars shall have their brakes set and wheel chocked while being loaded/unloaded.

#### 5.5 Safety Devices

5.5.1 Powered industrial trucks shall be equipped with a roll-over-protective-structure (ROPS) along with suitable shielding (overhead) to protect the operator from falling objects. **Note:** Shielding may not necessarily protect the operator from a falling capacity load.

5.5.2 Powered industrial trucks shall be equipped with a back-up alarm or light which automatically activates while moving in the reverse direction.

5.5.3 Lighting devices shall be maintained in an operable condition. Powered industrial trucks used at night or within darkened areas shall have operable lighting.

5.5.4 Powered industrial trucks shall have an operable horn.

#### 5.6 Attachments

5.6.1 Front end attachments shall be designed for use by the manufacturer for the truck on which they are to be installed.

5.6.2 The use of personnel platform attachments shall be approved by the Manager of Safety and Health.

5.6.3 While using a personnel platform, precautions shall be instituted as follows:

- a) The platform shall be firmly secured to the lifting carriage or forks of the truck.
- b) A positive means of shutting down power to the platform shall be provided at the platform.
- c) Handrail protection shall be installed on the platform, consisting of a handrail, midrail and toe board. Overhead protection shall be provided as necessary.
- d) Personnel shall wear safety belts while using the platform. Lanyards shall be secured to the handrail or sufficient anchorage. Securement to objects outside the platform shall not be permitted.

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- e) Personnel shall not ride the platform while the truck is traveling unless authorized by Manager Safety and Health.
- f) The use of ladders, planking or scaffold within the platform, to gain additional height, shall not be permitted, unless approved by Manager Safety and Health.

## 5.7 Maintenance and Inspection

- 5.7.1 An effective maintenance program shall be instituted to detect and initiate proper corrective action(s) assuring the safe operating condition of powered industrial trucks.
  - a) Prior to use, the operator shall perform a general inspection (visual) to identify obvious deficiencies. Deficiencies shall be reported to the Supervisor.
  - b) Deficiencies which present a serious injury potential or may cause considerable damage to the equipment or materials through equipment failure, shall warrant immediate corrective action. In such a case, the truck shall be tagged and removed from service.
- 5.7.2 Repairs to powered industrial trucks shall be made by qualified persons. Repairs shall be made in accordance with the manufacturer's recommendations.
- 5.7.3 Powered industrial trucks shall be maintained in a safe operating condition with a daily visual safety inspection performed prior to being placed into service.
  - a. Fuel supply shall not leak.
  - b. Control mechanisms shall operate smoothly, as designated by the manufacturer.
  - c. Lights shall function properly.  
Horns and back-up alarms shall be operable.
  - d. Tires shall be in good condition.
  - e. Exhaust systems shall be kept in good repair, including any anti-pollution/noise reduction device(s).
  - f. Signs, plates, decals and warning labels shall be visible at all times.
  - g. Steering mechanisms shall function properly. Steering knobs (ball) shall not be permitted, unless provided by the manufacturer.
  - h. Hydraulic systems shall be free of leakage and shall not drift when loaded.
  - i. Roll-over-protection-systems (ROPS) shall be in good repair, free of excessive rust, missing bolts and damaged members.
  - j. Brakes shall sufficiently stop the truck when applied.
  - k. The emergency brake shall hold the truck in place when applied.

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5.7.4 A monthly inspection shall be performed on each powered industrial truck. Monthly inspections shall be kept on file by the Construction Manager. See Attachment 7.2 Powered Industrial Truck Monthly Inspection Checklist.

## 5.8 Training

5.8.1 Only trained and authorized personnel shall operate a powered industrial truck. Operators of lift trucks shall be qualified as to visual, auditory, physical and mental ability to operate equipment safely.

5.8.2 Operators of powered industrial trucks shall be trained in the safe operation of the equipment.

5.8.3 Training shall consist of a combination of formal instruction, practical training (hands-on), and evaluation of the operator's performance in the workplace.

5.8.4 All operator training shall be conducted by persons who have the documented knowledge, training, and experience to train powered industrial truck operators and evaluate their competency.

### 5.8.5 Training Content – Initial Training

In addition to communicating the training requirements of the OSHA standard contained in 29 CFR 1910.178, the operator training program must be documented and include the following truck-related and workplace-related topics:

#### Truck-Related

- a) Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate;
- b) Differences between the truck and the automobile;
- c) Truck controls and instrumentation: where they are located, what they do, and how they work;
- d) Engine or motor operation, steering and maneuvering, and visibility;
- e) Fork and attachment adaptation, operation, and use limitations;
- f) Vehicle capacity, stability and operating limitations;
- g) Any vehicle inspection and maintenance that the operator will be required to perform;
- h) Refueling and/or charging and recharging of batteries; and
- i) Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.

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Workplace-Related

- a) Surface conditions where the vehicle will be operated;
- b) Composition of loads to be carried and load stability;
- c) Load manipulation, stacking, and unstacking;
- d) Pedestrian traffic in areas where the vehicle will be operated;
- e) Narrow aisles and other restricted places where the vehicle will be operated;
- f) Hazardous (classified) locations where the vehicle will be operated;
- g) Ramps and other sloped surfaces that could affect the vehicle's stability;
- h) Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust; and
- i) Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

5.8.6 Refresher training in relevant topics shall be provided to the operator when:

- a) The operator has been observed to operate the vehicle in an unsafe manner;
- b) The operator has been involved in an accident or near-miss incident;
- c) The operator has received an evaluation that reveals that the operator is not operating the truck safely;
- d) The operator is assigned to drive a different type of truck; or
- e) A condition in the workplace changes in a manner that could affect safe operation of the truck.
- f) Oral, written and operational performance tests and evaluations during and at the completion of the course.
- g) Refresher courses for periodic operator evaluation.

5.8.7 An evaluation of each powered industrial truck operator's performance shall be conducted at least once every three years.

## 6 RECORDS

- 6.1 Employee training record showing employee is "certified" by the company to operate the specific type of industrial truck and operating environment shall be kept for three (3) years. The certification shall include the name of the operator, the date of the training, the date of the evaluation, the identity of the person(s) performing the training or evaluation, and each industrial truck make and model number the employee is certified to operate.
- 6.2 Powered Industrial Truck Monthly Inspection Checklist shall be kept on file by the Construction Manager.

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7 **ATTACHMENTS**

- 7.1 Power Industrial Trucks - Designations For Use
- 7.2 Powered Industrial Truck Monthly Inspection Checklist

## DESIGNATIONS FOR USE

<u>Designation</u>	<u>Description</u>
D	Units powered by a diesel engine
DS	Units powered by a diesel engine but have additional safeguards to the exhaust, fuel, and electrical systems (may be used in some locations where “D” unit may not be considered suitable)
DY	Diesel powered units having all the safeguards of a “DS” unit but do not have any electrical equipment (including the ignition) and are equipped with temperature limitation features.
E	Electrically powered units having minimal acceptable safeguards against inherent fire hazards.
ES	Electrically powered units which have additional safeguards to the electrical system to prevent emission of hazardous sparks and to limit surface temperatures (may be used in some locations where “E” type units may not be considered suitable).
EE	Electrically powered units having all the additional items identified in E and ES and have the electric motor and all other electrical equipment completely enclosed (may be used in some locations where E or ES types are not suitable).
EX	Electrically powered units which, unlike the type E,ES, and EE units, have the electrical fittings and equipment so designated, constructed and assembled so that the units may be used in certain atmospheres containing flammable vapors or dusts.
G	Gasoline powered units having minimal acceptable safeguards against inherent fire hazards.
GS	Gasoline powered units which are provided with additional safeguards to the exhaust, fuel and electrical systems (may be used in some locations where the use of a “G” unit may not be considered suitable).
LP	Powered by liquid petroleum gas instead of gasoline and similar to the “G” unit.
LPS	Powered by liquid petroleum gas and are provided with additional safeguards to the exhaust , fuel, and electrical systems (may be used in some locations where the use of an LP unit may not be considered suitable).

**Industrial Powered Truck Monthly Inspection Checklist  
Gas and Electric**

Job Site \_\_\_\_\_

Vehicle - Make \_\_\_\_\_ Equipment No. \_\_\_\_\_

Note: Explain Unsatisfactory conditions under comments

Horn	Satisfactory	Unsatisfactory	
Brakes	Satisfactory	Unsatisfactory	
Tires	Satisfactory	Unsatisfactory	
Gas	Satisfactory	Unsatisfactory	NA
Water	Satisfactory	Unsatisfactory	NA
Engine Oil	Satisfactory	Unsatisfactory	NA
Hydraulic Oil	Satisfactory	Unsatisfactory	NA
Hoist Cylinder	Satisfactory	Unsatisfactory	
Tilt Cylinder	Satisfactory	Unsatisfactory	
Air Cleaner	Satisfactory	Unsatisfactory	NA
Oil Pressure	Satisfactory	Unsatisfactory	NA
Forks	Satisfactory	Unsatisfactory	
Battery	Satisfactory	Unsatisfactory	
Fire Extinguisher	Satisfactory	Unsatisfactory	
Operator Training	Satisfactory	Unsatisfactory	

Comments:

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Inspection by: \_\_\_\_\_ Date: \_\_\_\_\_

Name



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## 1 **PURPOSE AND SCOPE**

The purpose of this procedure is to provide requirements for the safe use of mechanical elevating and rotating equipment. This procedure applies to aerial devices such as JLG's and scissor lifts used to elevate personnel to a work area. Only safe equipment, proper job procedures, and qualified operators will be used in the operation of mechanical elevating and rotating equipment.

## 2 **REFERENCES**

- 2.1 *Department of Labor 29 CFR 1926.453 Aerial Lifts*
- 2.2 *Department of Labor 29 CFR 1910.67; Vehicle-mounted elevating and rotating work platforms*

## 3. **DEFINITIONS**

- 3.1 Aerial Device - Any powered vertical or extensible (articulating boom or telescopic boom) aerial platform such as JLG's and scissor lifts which are used to position personnel.
- 3.2 Platform - A personnel-carrying device (basket or bucket) which is a component of an aerial device.

## 4 **RESPONSIBILITIES**

- 4.1 Supervisors shall ensure aerial work platforms are operated by qualified personnel, in a safe manner and are maintained in a safe operating condition. This includes the performance of required inspections.
- 4.2 Operators shall perform a daily inspection of any aerial work platforms in their use.
- 4.3 The Construction Manager shall assure scheduled maintenance inspections are performed by qualified personnel.

## 5 **PROCEDURE**

### 5.1 Operator /Equipment Qualification

- 5.1.1 Prior to operating aerial mounted work platforms employees shall be qualified through on-site training. Operating instructions shall be provided by the Supervisors or Equipment Rental Company.
- 5.1.2 Each Supervisor shall provide training and practice in operating machines used by employees under his/her jurisdiction.

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- 5.1.3 Upon completion of operational training, a performance test (written or verbal) will be given to the employee by the employee's Supervisor.
- 5.1.4 Aerial lifts shall be designed and constructed in conformance with the applicable requirements of the American National Standards Institute for "*Vehicle Mounted Elevating and Rotating Work Platforms,*" ANSI A92.2.
- 5.1.5 Modifications to the equipment must be certified in writing by the manufacturer. Aerial lifts may be "field modified" for use other than those intended by the manufacturer provided the modification had been certified in writing by the manufacturer or by any equivalent entity.

## 5.2 General Rules

- 5.2.1 Survey the Job Site - A survey shall be made of the job site for hazards such as untamped earth fills, debris, high tension wire, unguarded opening, etc. Remember the machine should only be operated in a firm and level position.
- 5.2.2 Inspect All Equipment Before Using - Never use any equipment which has an obvious defect.
- 5.2.3 Never use equipment for purposes or in ways for which it was not intended.
- 5.2.4 The equipment must have a working back-up alarm audible above the surrounding noise level or the equipment is backed up only when an observer signals that it is safe to do so.
- 5.2.5 When **our** aerial lift is provided to another contractor for their use, the "Equipment Use Agreement" (Attachment 7.6) shall be completed by an officer of the contractor and returned to our Construction Manager. Our company shall be named as an additional insured.

## 5.3 Operating Rules

- 5.3.1 Read the manufacturer's operating instruction manual and follow the recommended procedures. The operating instruction manual should be stored on the equipment itself. All equipment rented should come with the manual.
- 5.3.2 Wear a full-body harness and attached lanyard as required when in the platform or basket. The lanyard must be attached to the boom or basket when working from an aerial lift. (See Safety Manual, Fall Protection).
- 5.3.3 A safety check sheet shall be made available to operators of all equipment and shall be used to check equipment prior to operating equipment to verify all critical components are operational (see Attachment 7.1).

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- 5.3.4 The maximum load limit and other design limitations of the equipment shall not be exceeded.
- 5.3.5 The platform shall be covered with a non-combustible material during any hot work operations.
- 5.3.6 Personnel shall stand firmly on the floor of the platform and not sit or climb on the railing of the platform.
- 5.3.7 Barricades shall be placed around work areas located in pedestrian or motor vehicle traffic lanes or work areas.
- 5.3.8 While traversing between work sites, the boom shall be lowered, retracted, and locked down if provided.
- 5.3.9 The machine shall not be in motion while work is being performed.
- 5.3.10 Units shall be used only on level ground unless the aerial lift is adjusted to a firm level plane.
- 5.3.11 The basket and ground controls shall be tested and equipment visually inspected each day before use to ensure safe working condition.
- 5.3.12 The platform or basket shall be cleaned out upon completion of job.
- 5.3.13 Fuel gas cylinders shall not be allowed on the platform.
- 5.3.14 If equipment has an obstructed view to the rear, it must be equipped with a reverse signal alarm, or backed-up and used only when a designated employee signals that it is safe to do so.
- 5.3.15 Rubber-tired equipment shall be equipped with roll-over protective structures meeting the requirements of 29 CFR 1926, Subpart W.
- 5.3.16 Outriggers, if provided, shall be extended and firmly set prior to equipment operation, unless the work area or terrain is not conducive to outrigger use.
- 5.3.17 Outriggers shall not be extended or retracted when outside of the operators view unless a designated employee signals that the area is clear of employees, equipment and hazards.
- 5.3.18 General Safety Rules for Aerial Work Platform Operators presented in Attachment 7.2 can be used as handouts during operator training.

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#### 5.4 Operations Near Energized Lines and Equipment

- 5.4.1 Equipment shall be operated so that the minimum safe approach distances to energized (exposed or insulated) power lines and parts are maintained.  
M.S.A.D. = Minimum Safe Approach Distance

VOLTAGE RANGE (Phase to Phase)	Minimum Safe Approach Distance	
	(Feet)	(Meters)
0 to 300 V	Avoid Contact	
Over 300 V to 50 KV	10	3.05
Over 50 KV to 200 KV	15	4.60
Over 200KV to 350 KV	20	6.10
Over 350 KV to 500 KV	25	7.62
Over 500 KV to 750 KV	35	10.67
Over 750 KV to 1000 KV	45	13.72

- 5.4.2 A designated employee shall be on standby observing operations to monitor approach distances and warn the operator before the minimum approach distance is reached.
- 5.4.3 DO NOT maneuver machine or personnel inside PROHIBITED ZONE. Assume all electrical parts and wiring are ENERGIZED unless known otherwise.

#### 5.5 Maintenance and Inspection

- 5.5.1 An effective maintenance program shall be instituted to detect and initiate proper corrective action(s) assuring the safe operating condition of aerial work platforms.
- a) Prior to each shift, the operator shall perform a general inspection (visual) to identify obvious deficiencies. Attachment 7.3 can be used. Deficiencies shall be reported to the Supervisor.
  - b) Deficiencies which present a serious injury potential or may cause considerable damage to the equipment or materials through equipment failure, shall warrant immediate corrective action. In such a case, the aerial work platform shall be tagged and removed from service.
- 5.5.2 Repairs to aerial work platforms shall be made by qualified persons. Repairs shall be made in accordance with the manufacturer's recommendations.

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## 5.6 Training

- 5.6.1 Only trained and authorized personnel shall operate an aerial work platform. Operators of aerial work platforms shall be qualified as to visual, auditory, physical and mental ability to operate equipment safely.
- 5.6.2 Operators of aerial lift platforms shall be trained in the safe operation of the equipment preferably the Construction Superintendent/Project Manager.
- 5.6.3 An operator training program must be documented and shall consist of the following:
- a) Careful selection of the operator;
  - b) Safety rules (See Attachment 7.2 - “Safety Rules for Operators”);
  - c) Basic fundamentals of aerial lift platform and component design as related to safety;
  - d) Introduction to equipment, control locations and functions, an explanation of how they work when used properly and problems when used improperly;
  - e) Supervised practice sessions;
  - f) Oral, written and operational performance tests and evaluations during and at the completion of the course.
  - g) Refresher courses for periodic operator evaluation.
- 5.6.4 See Attachment 7.5 Aerial Work Platform Training Documentation Form. A quiz on Aerial Work Platforms is included in Attachment 7.6 and can be used as **one** measure (not the only criteria) for qualifying operators.

## 6 **RECORDS**

- 6.1 Aerial Work Platform Monthly Inspection Checklists (Scissors Lift and/or JLG’s) and Qualified Operator training shall be kept on file by the Construction Manager.

## 7 **ATTACHMENTS**

- 7.1 Aerial Work Platform Safety Checklist
- 7.2 Safety Rules For Aerial Work Platform Operators
- 7.3 Mechanical Lift Inspection Checklist
- 7.4 Boom Lift Monthly Inspection Checklist
- 7.5 Aerial Work Platform Training Record
- 7.6 Aerial Work Platform Quiz
- 7.7 Equipment Use Agreement – English & SP

**AERIAL WORK PLATFORM SAFETY CHECK SHEET**

1. Check fuel, oil and tires
2. Check ground controls and emergency controls
3. Check all basket controls
4. Plan move
5. Check head and side clearance
6. Be alert for obstacles
7. Do not overload basket capacity
8. Use only on firm level ground
9. Consider emergency help
10. Inspect structural members and hydraulic hoses
11. Do not leave motor running unattended
12. Do not travel on grades greater than five (5) degrees slope

**SAFE CONDITIONS**

1. Full-body harness and lanyard as required.
2. Is Hot Work Procedure needed?
3. Is portable eyewash or safety shower needed?
4. Is respirator needed?

**SAFETY RULES  
FOR AERIAL WORK PLATFORM OPERATORS**

**KNOW YOUR AERIAL WORK PLATFORM & AUXILIARY EQUIPMENT**

Operator must be trained, qualified and authorized.  
Inspect aerial work platform prior to use. Report damage or faulty operation immediately.  
Do not operate aerial work platform until damage or faulty operation is corrected.  
Lift control shall be tested daily.

**KNOW YOUR LOADS & LIFT THEM PROPERLY**

Observe the following safe lifting procedures:  
Lift loads within rated capacity shown on the machine.  
Distribute load evenly on platform.  
Do not use boom as a crane.  
Care must be taken in storing loose material on/in platform such as pipe, rope, wire and miscellaneous boxes. If it is necessary to store such items on platform, they must be stored in such a way as to prevent walking or tripping over such items.

**KNOW YOUR OPERATING AREA**

Know critical clearance areas and location of pipes, wiring, etc.  
Do not operate near energized electrical conductors. These are non-insulated aerial work platforms.  
Maintain a clearance of at least 10 feet between any part of the machine and any electrical power line.  
Travel with boom raised only enough to clear ground or obstacles. Watch floor strength everywhere especially in old buildings and trailers.  
The aerial work platform must not be operated on terrain with more than five (5) degrees slope. Extreme uneven sloping or soft terrain must be avoided.

**PROTECT OTHER WORKERS AND YOURSELF**

Always wear your safety hard hat.  
Always wear safety harness. Be sure the lanyard is firmly attached to "D" ring on platform.  
Keep arms and legs inside platform railings.  
Do not operate aerial work platform with anyone between machine and a stationary object.  
Avoid hitting anything if it appears that it could fall on the operator or a bystander.  
Do not allow overhanging loads on work platform that could fall off platform.  
Do not use ladders, planks or other devices to extend or increase work position from platform.  
Do not sit or climb on platform railings.  
Keep both feet on platform floor at all times.  
Do not operate aerial work platform unless the access opening (gate entrance chains or side bar) is closed.

**IF YOU CAN'T SEE, DON'T GO**

Always keep a proper lookout in direction of travel.  
Inspect area of travel before lifting, extending or rotating the turret of an aerial work platform.  
Remove debris in area of travel.  
If equipped; sound horn at cross aisles and other areas where you can't see.  
Watch clearances, especially turret tail swing on construction models.

**USE GOOD SENSE WHEN OPERATING**

Move control lever slowly from neutral to start movement and return to neutral slowly.  
Do not move lever across neutral without stopping  
Do not jerk control lever.  
Keep your eyes and mind on the function your hand is directing the aerial work platform to perform.  
Do not use open flame to check fuel level or battery acid level.  
Never use the boom as a ram to push with or as a jack to raise wheels.

**USE GOOD SENSE WHEN OPERATING (Continued)**

Under no circumstances should horseplay be tolerated. Report any foolishness or misuse of equipment to your Supervisor.

Never take chances. Do not work on platform if your physical condition is such that you feel dizzy or unsteady in any way.

Do not operate when the wind velocity exceeds 22 mph.

Do not lean over platform railing to perform work.

**SAFETY & RESPONSIBILITY**

The self-propelled aerial platform is a personnel lifting device and it is essential that it is properly maintained and operated to perform all functions with maximum safety and efficiency.

The operation of any new and unfamiliar equipment can be hazardous in the hands of untrained operators. It is the responsibility of the owner to be familiar with the manufacturer’s manual and to follow all recommendations made.

It is the responsibility of the owner to instruct the operator with the safety requirements made by the manufacturer, various safety boards in your area, as well as requirements set by OSHA and ANSI.

**A TRAINED OPERATOR IS THE GREATEST SAFETY DEVICE AVAILABLE.**

**AERIAL WORK PLATFORM “SAFE”TY REMINDERS**

Safe Parking

Park your machine in a designated area or out-of-traffic, preferably on level ground.

It parking on a slope or incline, position the machine at right angles to the slope and block the wheels.

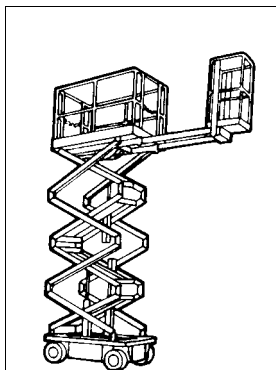
Safe Shutdown

Correct shutdown is important to safe operation. Refer to the manufacturer’s manuals. Follow these general steps.

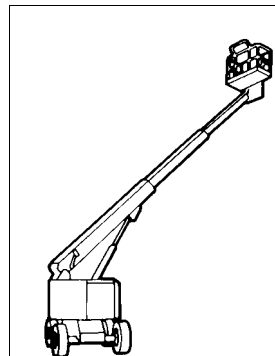
- Place platform in stowed position.
- Travel to a suitable parking area.
- Come to a full stop.
- Place controls in neutral.
- Idle engine for gradual cooling.
- Shut off engine or electrical power.
- Remove key(s).
- Lock anti-vandalism cover and closures.
- Block wheels if on a slope or incline.

Safe Dismounting

Never dismount from a moving machine. Observe proper shutdown practices before dismounting. Dismount carefully using three point contact and face the machine. Check for slippery steps. Keep your feet and hands away from the controls. NEVER jump off the machine.



**Safety First**  
**A Way of Life**







Project No. \_\_\_\_\_

### Mechanical Lift Inspection Checklist

Item	Item	Item
Platform	Axle extend / Outriggers	Brakes
Platform support and rotary valve	Hydraulic lines & fittings	Tires
Boom	Hydraulic swivel	Fire extinguisher
Boom chain	Swing manual lock	Gear boxes
Boom pads	Oil leaks	Rotek / Turntable
Capacity indicator & tape	Cylinder & holding valves	Structural welds
Controls and control markings	Fluid levels	Manual overrides
Control seats	Engine	Warning labels- legible/secure
Auxiliary power	Gauges and meters	Directional decals
Limit & access switches	Radiator inside and out	General appearance
Safety pins	Hydraulic hoses	Grease points
Safety harness & lanyard	Operator's Manual	

### Mechanized Work Platform Daily Test Tag

DO NOT USE IF LIFT HAS NOT BEEN TESTED

Month/Year: _____						Lift S/N: _____					
1	6	11	16	21	26	31					
2	7	12	17	22	27						
3	8	13	18	23	28						
4	9	14	19	24	29						
5	10	15	20	25	30						

First operator each day to test lift controls and perform walk around inspection for visible defects, serious oil leaks and conditions noted on the checklist. Do not use if defects are identified. Tag out lift and notify superintendent immediately. If machine is acceptable, sign your initials on the date after the inspection so others know the lift was tested.

**Boom Lift (JLG's) Inspection Checklist**

Job Site \_\_\_\_\_

Vehicle - Make \_\_\_\_\_ Equipment No. \_\_\_\_\_

Note: Explain Unsatisfactory conditions under comments

Battery	Satisfactory	Unsatisfactory
Brakes	Satisfactory	Unsatisfactory
Tires	Satisfactory	Unsatisfactory
Engine Oil and Fluid Levels	Satisfactory	Unsatisfactory
Tilt Alarm working properly	Satisfactory	Unsatisfactory
Platform Controls	Satisfactory	Unsatisfactory
Ground Controls	Satisfactory	Unsatisfactory
Boom	Satisfactory	Unsatisfactory
Welds (broken)	Satisfactory	Unsatisfactory
Platform rails & Gate Latch	Satisfactory	Unsatisfactory
Pivot Pins	Satisfactory	Unsatisfactory
Safety Harness & Lanyard	Satisfactory	Unsatisfactory
Hydraulic Fluid	Satisfactory	Unsatisfactory
All hoses and cables	Satisfactory	Unsatisfactory
Warning & Instruction Labels (legible/secure)	Satisfactory	Unsatisfactory
Fire Extinguisher	Satisfactory	Unsatisfactory
Operator Training	Satisfactory	Unsatisfactory
Operator's Manual	Satisfactory	Unsatisfactory

Comments:

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Inspection by: \_\_\_\_\_ Date: \_\_\_\_\_

Name

## Aerial Work Platform - Qualified Operator Training Record

The employee named below has been trained and is qualified to operate the type of aerial work platform indicated and is familiar with the general safety rules associated with that piece of equipment.

Aerial Work Platform Type: Scissor Lift \_\_\_\_\_  
Boom Lift \_\_\_\_\_  
Other (specify) \_\_\_\_\_  
\_\_\_\_\_

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

Name - Print \_\_\_\_\_

Date \_\_\_\_\_

Name of Representative who conducted training \_\_\_\_\_

Date \_\_\_\_\_

Title \_\_\_\_\_

**AERIAL LIFT - Operator Training Review**

Name \_\_\_\_\_

Date \_\_\_\_\_

1. A pre-operation inspection must be performed:
  - A. every 100 labor-hours
  - B. monthly
  - C. before each shift
  - D. None of the above
  
2. Untrained operators can use an aerial lift device if they do not extend the platform beyond 15 feet.
  - A. True
  - B. False
  
3. Before the unit is brought to the work site, the area must be evaluated for:
  - A. holes, drop-offs, and weak ground surfaces
  - B. overhead clearance from obstacles
  - C. clearance from electrical hazards
  - D. All of the above
  
4. Most self-propelled platforms are not insulated against electrical hazards.
  - A. True
  - B. False
  
5. An aerial platform can be elevated:
  - A. on a five degree slope
  - B. on any incline
  - C. only on a flat level surface unless otherwise specified in the applicable operation instruction manual.
  
6. Falls are the leading cause of construction workplace fatalities.
  - A. True
  - B. False
  
7. The dead man's foot pedal protects you against unintentional movement.
  - A. True
  - B. False
  
8. Additional height can safely be achieved by using a ladder from a platform, as long as it is tied off.
  - A. True
  - B. False

9. If a platform is caught between electrical lines and a worker is injured, you should:
- A. turn the platform to ground position and bring the worker down
  - B. contact medical help and proper personnel to de-energize the line. Do not touch the unit.
  - C. use the emergency pump system.
  - D. None of the above.
10. A damaged or malfunctioning machine can be used:
- A. if you are careful
  - B. only after all repairs have been completed by a qualified service technician
  - C. if operated by ground controls.
11. Hands and parts of the body must be kept \_\_\_\_\_ the platform/basket when maneuvering the platform/basket and machine:
- A. under
  - B. over
  - C. outside
  - D. inside
12. Before swinging the boom, the \_\_\_\_\_ must be checked around the entire turntable.
- A. tires
  - B. frame
  - C. clearances
  - D. lubrication
13. The \_\_\_\_\_ must be locked when the machine is towed.
- A. switch
  - B. turntable
  - C. platform/basket
  - D. brakes
14. Watch out for overhead \_\_\_\_\_.
- A. pipes
  - B. building steel
  - C. obstructions
  - D. All of the above
15. Shut off \_\_\_\_\_ before leaving the machine unattended.
- A. all valves
  - B. all controls
  - C. all power
  - D. all gas

16. Keep oil, mud, grease, and like slippery substances cleaned from your footwear and the platform/basket \_\_\_\_\_.
- A. turntable
  - B. floor/deck
  - C. boom
  - D. frame
17. Do not operate a machine if the instructions, caution and warning \_\_\_\_\_ are missing or defaced.
- A. signs
  - B. decals
  - C. placards
  - D. All of the above
18. Do not remove or disable the \_\_\_\_\_ switch by blocking or any other means.
- A. ignition
  - B. foot
  - C. tilt
  - D. choke
19. Do not operate the machine when wind conditions exceed \_\_\_\_\_ mph.
- A. 10
  - B. 15
  - C. 22
  - D. 30
20. Do not use an aerial platform to \_\_\_\_\_ equipment.
- A. lower
  - B. lift
  - C. push
  - D. All of the above
21. Do not operate the machine with less than \_\_\_\_\_ clearance from energized power lines up to 50,000 volts.
- A. 5 ft.
  - B. 10 ft.
  - C. 15 ft.
  - D. 20 ft.

Answers 1) c 2) b 3) d 4) a 5) a 6) a 7) a 8) b 9) b 10) b  
11) d 12) c 13) b 14) d 15) c 16) b 17) a 18) b 19) c 20) d 21) b

## EQUIPMENT USE AGREEMENT

WHEREAS, the Company ( \_\_\_\_\_ ) has supplied, for its own use and convenience, one or more scaffolds, ladders, lifts or other equipment (“Equipment”) in connection with work performed or to be performed at all locations where Contractor is performing work for the Company from (dates) \_\_\_\_\_ to \_\_\_\_\_ at \_\_\_\_\_ (the “Locations”).

WHEREAS, \_\_\_\_\_ (“Contractor”) desires to use the Equipment to perform work at the Locations;

NOW THEREFORE, in considerations of the promises and undertakings set forth herein, and intending to be legally bound hereby, the Company and Contractor agree as follows:

1. The Company will allow Contractor to use the Equipment for Contractor’s work at the Locations, provided that such use by Contractor will not interfere in any way with the Company’s use of the Equipment.
2. Contractor will use the Equipment only in accordance with the Manufacturer’s operating instructions and will employ all necessary safety procedures concerning use of the Equipment. Contractor will not allow any individual to use the Equipment who has not been properly trained in accordance with OSHA regulations and proper safety procedures.
3. Contractor assumes all risk of loss or damage to the Equipment while being used by Contractor or in the custody or control of contractor. Contractor shall defend, indemnify and hold harmless the Company, its parent, subsidiary and affiliated companies, and their directors, officers, employees, successors and assigns from and against any and all claims, demands, actions, causes of action, losses, liabilities, damages, costs and expenses (including attorneys’ fees) arising in whole or in part, directly or indirectly from the use, operation, custody, control, maintenance, storage or repair of the Equipment by Contractor, provided, however, that Contractor shall not be responsible to indemnify and hold harmless the Company for Company’s sole negligence. Contractor shall fully repair or replace any Equipment damaged or destroyed during or as a result of Contractor’s use.

4. The Company makes no warranty of any kind concerning the Equipment. Contractor's use of the Equipment will constitute acknowledgment that the Equipment have been checked and found to be in good and safe condition and fit for the use intended. In no event will the Company be liable for any claim or damages resulting from Contractor's use of the Equipment, from any inability of Contractor to use the Equipment, or from any delay or limitation on Contractor's access for the Equipment.
  
5. Contractor shall maintain, at its sole cost and expense, property insurance insuring against loss or damage to the Equipment in an amount not less than the replacements value of the Equipment, and liability insurance insuring against claims for bodily injury and property damage arising from the Equipment or use thereof in the minimum amounts of \$1 million per occurrence bodily injury and \$500,000 per occurrence property damage. Contractor will name the Company as an additional insured on such policies, and provide the Company's certificates of insurance evidencing the coverage.

The Company

\_\_\_\_\_ (Contractor)

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

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

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

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



## ACUERDO PARA EL USO DE EQUIPO

POR CUANTO, la Compañía ( \_\_\_\_\_ ) ha suministrado, para su propio uso y conveniencia, uno o más andamios, escaleras, montacargas u otros equipos ("Equipo") en conexión con el trabajo realizado, o que será realizado, en todos los Locales donde el Contratista esta realizando trabajo para la Compañía desde (fechas) \_\_\_\_\_ al \_\_\_\_\_ en \_\_\_\_\_ (los "Locales").

POR CUANTO, \_\_\_\_\_ (el "Contratista") desea utilizar el Equipo para realizar trabajo en los Locales;

POR LO TANTO, en consideración de las promesas y compromisos establecidos en el presente documento, y con la intención de quedar legalmente obligados por el presente documento, la Compañía y el Contratista acuerdan lo siguiente:

1. La Compañía permitirá al Contratista utilizar el Equipo para el trabajo del Contratista en los Locales, siempre que dicho uso del Contratista no interfiera de ninguna manera con el uso del equipo realizado por la Compañía.
2. El Contratista utilizará el Equipo sólo de acuerdo con las instrucciones de funcionamiento del Fabricante y empleará todos los procedimientos de seguridad necesarios conectados con el uso del Equipo. El Contratista no permitirá que utilice el Equipo ningún individuo que no haya sido apropiadamente entrenado de acuerdo a los reglamentos de OSHA y a los procedimientos de seguridad.
3. El Contratista asume todo riesgo por la pérdida o el daño del Equipo mientras éste esté siendo usado o esté bajo la custodia o el control de dicho Contratista. El Contratista defenderá, indemnizará y eximirá de responsabilidad a la Compañía, sus compañías principales, subsidiarias o afiliadas, y a sus directores, oficiales, empleados, sucesores y cesionarios de y contra cualquier y todo reclamo, demanda, derecho de acción, pérdida, responsabilidad, daño y perjuicio, costo y expensa (incluyendo honorarios de abogado) que surja en su totalidad o en parte, directa o indirectamente, de cualquier uso, funcionamiento, custodia, control, mantenimiento, almacenamiento o reparación del Equipo realizado por el Contratista, sin embargo, el Contratista no será responsable de indemnizar y eximir de responsabilidad a la Compañía por la negligencia en totalidad de la Compañía. El Contratista reemplazara o reparara totalmente cualquier Equipo dañado o destruido durante o como resultado del uso del Contratista

- 4. La Compañía no extiende ninguna garantía por el Equipo. Al usar el Equipo el Contratista reconoce que el mismo ha sido revisado y que fue encontrado en buena condición, funciona bien y es apropiado para el uso propuesto. En ningún momento se hará a la Compañía responsable por ningún reclamo o daño y perjuicio que surja del uso del Equipo, por ninguna incapacidad del Contratista para usar el Equipo, ni por ningún retraso o limitación del Contratista en el acceso al Equipo.
  
- 5. El Contratista tendrá, a cuenta y costo suyo, seguro de propiedad que asegure el Equipo contra cualquier pérdida o daño por un monto no menor al valor de reemplazo de dicho Equipo, y seguro contra terceros que cubra contra demandas por daño corporal, o daño a la propiedad que puedan surgir por el uso del Equipo, por un monto mínimo de \$ 1 millón por incidente de daño corporal y \$ 500,000 por incidente de daño a la propiedad. El Contratista nombrará a la Compañía como asegurado adicional en dichas pólizas, y suministrará a la Compañía certificados de seguro para evidenciar dicha cobertura.

\_\_\_\_\_ (Compañía)

\_\_\_\_\_ (Contratista)

Por: \_\_\_\_\_

Por: \_\_\_\_\_

Fecha: \_\_\_\_\_

Fecha: \_\_\_\_\_

<b>Handling Stainless Steel</b>	Issue Date: June 2006 Revised: October 2006 Issued By: Safety Dept.
Safety Directive No. 4.4	Page 1 of 2

## 1 PURPOSE AND SCOPE

Improper handling of light gauge (.010 and .016) stainless steel cladding has created numerous lacerations primarily to the hands and other body parts. This procedure was developed to prevent worker injuries when handling and storing stainless steel.

## 2 REFERENCES

2.1 Company Safety Manual 2006

## 3 DEFINITIONS

3.1 Approved glove – Kevlar™ (10 gauge) rubber coated palm Towa Kev Power Grab or a glove approved by the ICG Safety Department for handling stainless steel.

## 4 RESPONSIBILITIES

4.1 Project supervisors/foreman shall ensure workers have been trained in the handling of stainless steel and enforce the wearing of “approved” Kevlar™ gloves are available and worn.

## 5. PROCEDURE

### 5.1 Project Planning

5.1.1. From a safety perspective, light gauge .016 stainless steel cladding is preferred over the razor edge of .010 which creates a greater potential for lacerations. When possible, light gauge .016 should be ordered.

5.1.2. Safety edge should be on all metal including end caps. Fabrication in a shop area is preferred over fabrication in the work area. Plan to minimize fabrication in the work area.

5.1.3. All workers must be trained to this procedure when handling stainless steel and training documented. Safe work practices will be reviewed during TSAs and Tool Box Safety Talks.

5.1.4. **All workers must wear an approved Kevlar glove at all times – (NO EXCEPTIONS.)** See Attachment 7.1 for illustration.

<b>Handling Stainless Steel</b>	Issue Date: June 2006
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## 5.2 Safe Handling

- 5.2.1. The linear lap of every piece of cladding must have a safety edge including all bead and crimp end caps. Lock formed end caps will include face collar and circumferential safety edges. A Pittsburgh seam on large items plus safety edge.
- 5.2.2. Stainless steel banding is to cover all the circumferential lapping edges and should be pop riveted to prevent movement of the band and subsequent edge exposure. Stainless steel banding must always be cut off flush at the wing clip prior to hammering down the wings.
- 5.2.3. Stainless steeling cladding must be installed with a minimum of ¼” clearance around electrical heating tracing.
- 5.2.4. When exposed edges such as cutouts cannot be otherwise safeguarded, silicone caulking must be applied to cover edges.
- 5.2.5. When removing cladding, only full sections are to be stripped. No torn edges are to remain after stripping: factory or safety edges exposed only.
- 5.2.6. Never pull on metal unless you have determined that the piece is free and clear and can be removed without excessive force.
- 5.2.7. When cutting a rolled piece of stainless cladding, clamp the metal down on a table or plywood. Put banding on rollers. Utilize screws where bands cannot be used.
- 5.2.8. Use only Special Aviation Snips (off-set snips) designed for cutting stainless steel and are curved to raise your hand to prevent contacting the cutting edge. See Illustration Attachment 7.2
- 5.2.9. Place metal in boxes on the job site or under a table to minimize other workers’ exposure.
- 5.2.10. Place scrap immediately in a box.

## 6 **RECORDKEEPING**

None

## 7. **ATTACHMENTS**

7.1 Examples of Proper Hand Protection

7.2 Example Special Aviation Snip (Off-set Snip)

Approved Glove for Handling Stainless Steel

Towa Kev Power Grab (10 gauge)



### Offset Snips

Offset Snip models pictured below keep the user's hand above the material being cut and flow material away from the blade for ease of cut.

<p><b>Special Hardness</b></p> <p>These models are specially treated for cutting hardened sheet metals such as stainless steel, inconel, and titanium. They have a capacity of cutting 22 ga. stainless steel sheet metal.</p>		SSP6510-L (Offset Left)	1-1/4" (31.8mm)
		SSP6510-R (Offset Right)	1-1/4" (31.8mm)

These products exceed all ASME Standards as minimum quality requirements.  
[www.midwestsnips.com](http://www.midwestsnips.com)



<b>Cranes and Derricks in Construction</b>	Issue Date: May 2007 Revised: April, 2011 Issued By: Safety Dept. _poh
Safety Directive No. 4.5	Page 1 of 21

## 1. **PURPOSE AND SCOPE**

The company will provide adequate requirements for the use, maintenance, and inspection of all cranes and associated crane equipment, as defined by 29 CFR 1926.1400. To assure through updated maintenance records and inspection logs that all mobile cranes used on site meet the requirements of this procedure, and that all personnel who operate mobile cranes are trained in the use of the equipment.

## 2. **REFERENCES**

- 2.1 OSHA 29 CFR 1910.180; Crawler locomotive and truck cranes
- 2.2 OSHA 29 CFR 1926.1400; Cranes and Derricks in Construction
- 2.3 ANSI B30.5 - 1994

## 3. **DEFINITIONS**

- 3.1 A/D director (Assembly/Disassembly director) – Means an individual who meets this subpart’s requirements for an A/D director, irrespective of the person’s formal job title or whether the person is non-management or management personnel.
- 3.2 Assembly/Disassembly – Means the assembly and/or disassembly of equipment covered under this standard. With regard to tower cranes, “erecting and climbing” replaces the term “assembly,” and “dismantling” replaces the term “disassembly.” Regardless of whether the crane is initially erected to its full height or is climbed in stages, the process of increasing the height of the crane is an erection process.
- 3.3 Assist Crane – Means a crane used to assist in assembling or disassembling a crane.
- 3.4 Attachments – Means any device that expands the range of tasks that can be done by the equipment. Examples include, but are not limited to: an auger, drill, magnet, pile-driver, and boom-attached personnel platform.
- 3.5 Blocking (also referred to as “cribbing”) – Means wood or other material used to support equipment or a component and distribute loads to the ground. It is typically used to support lattice boom sections during assembly/ disassembly and under outrigger and stabilizer floats.
- 3.6 Boom (equipment other than tower crane) – Means an inclined spar, strut, or other long structural member which supports the upper hoisting tackle on a crane or derrick. Typically, the length and vertical angle of the boom can be varied to achieve increased height or height and reach when lifting loads. Booms can usually be grouped into general categories of hydraulically extendible, cantilevered type, latticed section, cable supported type or articulating type.

<b>Cranes and Derricks in Construction</b>	Issue Date: May 2007
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- 3.7 Boom (tower cranes) – On tower cranes, if the “boom” (i.e., principal horizontal structure) is fixed, it is referred to as a jib; if it is moveable up and down, it is referred to as a boom.
- 3.8 Boom Angle Indicator – Means a device which measure the angle of the boom relative to horizontal.
- 3.9 Boom Stop – Includes boom stops, (belly straps with struts/standoff), telescoping boom stops, attachment boom stops, and backstops. These devices restrict the boom from moving above a certain maximum angle and toppling over backward.
- 3.10 Boom Suspension System – Means a system of pendants, running ropes, sheaves, and other hardware which supports the boom tip and controls the boom angle.
- 3.11 Builder – Means the builder/constructor of equipment.
- 3.12 Competent Person – For the purpose of this safety directive, one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them; further, this is an individual who, through training and experience, demonstrates an in-depth knowledge of the regulations which govern the use of cranes and derricks.
- 3.13 Controlled Load Lowering – Means lowering a load by means of a mechanical hoist drum device that allows a hoisted load to be lowered with maximum control using the gear train or hydraulic components of the hoist mechanism. Controlled load lowering requires the use of the hoist drive motor, rather than the load hoist brake, to lower the load.
- 3.14 Controlling Entity – Means an employer that is a prime contractor, general contractor, construction manager or any other legal entity which has the overall responsibility for the construction of the project – its planning, quality and completion.
- 3.15 Counterweight – Means a weight used to supplement the weight of equipment in providing stability for lifting loads by counterbalancing those loads.
- 3.16 Crane / Derrick – Includes all equipment covered by the standard, i.e., 29 CFR 1926.1400 (a.k.a.Subpart CC).
- 3.17 Crawler Crain – Means equipment that has a type of base mounting which incorporates a continuous belt of sprocket driven track.



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- 3.18 Dedicated Spotter (power lines) – To be considered a dedicated spotter, the requirements of § 1926.1428 (Signal person qualifications) must be met and his/her sole responsibility is to watch the separation between the power line and: the equipment, load line and load (including rigging and lifting accessories), and ensure through communication with the operator that the applicable minimum approach distance is not breached.
- 3.19 Directly Under the Load – Means a part or all of an employee is directly beneath the load.
- 3.20 Dismantling – Includes partial dismantling (such as dismantling to shorten a boom or substitute a different component).
- 3.21 Drum Rotation Indicator – Means a device on a crane or hoist which indicates in which direction and at what relative speed a particular hoist drum is turning.
- 3.22 Electrical Contact – Means when a person, object, or equipment makes contact or comes in close proximity with an energized conductor or equipment that allows the passage of current.
- 3.23 Encroachment – Means where any part of the crane, load line or load (including rigging and lifting accessories) breaches a minimum clearance distance that this subpart (Subpart CC) requires to be maintained from a power line.
- 3.24 Fall Zone – Means the area (including but not limited to the area directly beneath the load) in which it is reasonably foreseeable that partially or completely suspended materials could fall in the event of an accident.
- 3.25 Free Fall (of the load line) – Means that only the brake is used to regulate the descent of the load line (the drive mechanism is not used to drive the load down faster or retard its lowering).
- 3.26 Hoist – Means a mechanical device for lifting and lowering loads by winding a line onto or off a drum.
- 3.27 Hoisting – Means the act of raising, lowering or otherwise moving a load in the air with equipment covered by this standard. As used in this standard, “hoisting” can be done by means other than wire rope/ hoist drum equipment.
- 3.28 Holding Brake – A brake that automatically prevents motion/movement when power is off.
- 3.29 Jib – An extension device, attached to the end of a boom, providing additional length to the boom.

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- 3.30 Jib stop (also referred to as a jib backstop) – Means the same type of device as a boom stop but is for a fixed or luffing jib.
- 3.31 Land Crane / Derrick – Means equipment not originally designed by the manufacturer for marine use by permanent attachment to barges, pontoons, vessels, or other means of floatation.
- 3.32 Load – Means the object(s) being hoisted and/or the weight of the object(s); both uses refer to the object(s) and the load-attaching equipment, such as, the load block, ropes, slings, shackles, and any other ancillary attachment (e.g. baskets, pallets, platforms, etc).
- 3.33 Load Block – The assembly, suspended by the hoisting ropes, inclusive of hook, shackle, swivel, sheaves, pins and frames.
- 3.34 Load Moment (or rated capacity) Indicator – Means a system which aids the equipment operator by sensing (directly or indirectly) the overturning moment on the equipment, i.e., load multiplied by radius. It compares this lifting condition to the equipment's rated capacity, and indicates to the operator the percentage of capacity at which the equipment is working. Lights, bells, or buzzers may be incorporated as a warning of an approaching overload condition.
- 3.35 Load Moment (or rated capacity) Limiter – Means a system which aids the equipment operator by sensing (directly or indirectly) the overturning moment on the equipment, i.e., load multiplied by radius. It compares this lifting condition to the equipment's rated capacity, and when the rated capacity is reached, it shuts off power to those equipment functions which can increase the severity of loading on the equipment, e.g., hoisting, telescoping out, or luffing out. Typically, those functions which decrease the severity of loading on the equipment remain operational, e.g., lowering, telescoping in, or luffing in.
- 3.36 Load Rating – Load capacities assigned to the crane by the manufacturer.
- 3.37 Locomotive Crane – Means a crane mounted on a base or car equipped for travel on a railroad track.
- 3.38 Mobile Crane – a lifting device incorporating a cable suspended latticed boom or hydraulic telescopic boom designed to be moved between operating locations by transport over the road; may be powered by wheels, tracks or a combination of both.
- 3.39 Multi-Purpose Machine – Means a machine that is designed to be configured in various ways, at least one of which allows it to hoist (by means of a winch or hook) and horizontally move a suspended load. For example, a machine that can

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rotate and can be configured with removable forks/tongs (for use as a forklift) or with a winch pack, jib (with a hook at the end) or jib used in conjunction with a winch. When configured with the forks/tongs, it is not covered by this subpart. When configured with a winch pack, jib (with a hook at the end) or jib used in conjunction with a winch, it is covered by this subpart.

- 3.40 Nationally Recognized Accrediting Agency – Means organization that, due to its independence and expertise, is widely recognized as competent to accredit testing organizations. Examples of such accrediting agencies include, but are not limited to, the National Commission for Certifying Agencies and the American National Standards Institute.
- 3.41 Operator – Means the person who is operating the equipment.
- 3.42 Outriggers – Extendible/fixed metal support structures, attached to the mounting base, which are used along the hydraulic systems to stabilize the crane; may rest on stable ground, as defined by the standard, or upon constructed bases or cribbing that spread the weight transferred to the outrigger pad and underlying stable ground.
- 3.43 Overhead and Gantry Cranes – Means overhead/bridge cranes, semi-gantry, cantilever gantry, wall cranes, storage bridge cranes, launching gantry cranes, and similar equipment, irrespective of whether it travels on tracks, wheels, or other means.
- 3.44 Portal Crane – Means a type of crane consisting of a rotating upperstructure, hoist machinery, and boom mounted on top of a structural gantry which may be fixed in one location or have travel capability. The gantry legs or columns usually have portal openings in between to allow passage of traffic beneath the gantry.
- 3.45 Power Lines – Means electric transmission and distribution lines.
- 3.46 Procedures – Include, but are not limited to: instructions, diagrams, recommendations, warnings, specifications, protocols and limitations.
- 3.47 Proximity Alarm – Means a device that provides a warning of proximity to a power line and that has been listed, labeled, or accepted by a Nationally Recognized Testing Laboratory in accordance with 29 CFR 1910.7.
- 3.48 Qualified Evaluator (not a third party) – Means a person employed by the signal person’s employer who has demonstrated that he/she is competent in accurately assessing whether individuals meet the Qualification Requirements in this subpart (subpart CC) for a signal person.

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- 3.49 Qualified Evaluator (third party) – Means an entity that, due to its independence and expertise, has demonstrated that it is competent in accurately assessing whether individuals meet the Qualification Requirements in this subpart (subpart CC) for a signal person.
- 3.50 Qualified Person – Means a person who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training and experience, successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project.
- 3.51 Qualified Rigger – Means a rigger who meets the criteria for a qualified person.
- 3.52 Range Control Limit Device – Means a device that can be set by an equipment operator to limit movement of the boom or jib tip to a plane or multiple planes.
- 3.53 Range Control Warning Device – Means a device that can be set by an equipment operator to warn that the boom or jib tip is at a plane or multiple planes.
- 3.54 Rated Capacity – Means the maximum working load permitted by the manufacturer under specified working conditions. Such working conditions typically include a specific combination of factors such as equipment configuration, radii, boom length, and other parameters of use.
- 3.55 Reeving – The system in which the ropes travel around drums and sheaves.
- 3.56 Running Wire Rope – Means a wire rope that moves over sheaves or drums.
- 3.57 Runway – Means a firm, level surface designed, prepared and designated as a path of travel for the weight and configuration of the crane being used to lift and travel with the crane suspended platform. An existing surface may be used as long as it meets these criteria.
- 3.58 Sideboom Crane – Means a track-type or wheel-type tractor having a boom mounted on the side of the tractor, used for lifting, lowering or transporting a load suspended on the load hook. The boom or hook can be lifted or lowered in a vertical direction only.
- 3.59 Side Loading – Any load applied to the boom at an angle other than vertical. Any sideways pull, such as dragging a load.
- 3.60 Special Hazard Warnings – Means warnings of site-specific hazards (for example, proximity of power lines).
- 3.61 Standby Crane – A crane which is not used on a regular basis; one which is used occasionally or intermittently.

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- 3.62 Swing Radius – Means accessible areas within the swing radius of the rear of the rotating superstructure of a crane, either permanently or temporarily mounted; such areas must be barricaded to prevent an employee from being struck or crushed by the crane; barricades are defined as a device that delineates and warns of a boundary that is not to be crossed. Its purpose is to mark the boundaries of the danger area caused by the crane’s swing radius and warn employees to stay out. The use of caution tape is permissible to meet the OSHA barricade requirement.
- 3.63 Tagline – Means a rope (usually fiber) attached to a lifted load for purposes of controlling load spinning and pendular motions or used to stabilize a bucket or magnet during material handling operations.
- 3.64 Tower Crane – Means a type of lifting structure which utilizes a vertical mast or tower to support a working boom (jib) in an elevated position. Loads are suspended from the working boom. While the working boom may be of the fixed type (horizontal or angled) or have luffing capability, it can always rotate to swing loads, either by rotating on the top of the tower (top slewing) or by the rotation of the tower (bottom slewing). The tower base may be fixed in one location or ballasted and moveable between locations. Mobile cranes that are configured with luffing jib and/or tower attachments are not considered tower cranes under this section.
- 3.65 Unavailable Procedures – Means procedures that are no longer available from the manufacturer, or have never been available, from the manufacturer.
- 3.66 Upperworks (also frequently called the Superstructure or Upperstructure) – Means the revolving frame of equipment on which the operating machinery (and many cases the engine) are mounted along with the operator’s cab. The counterweight is typically supported on the rear of the upperstructure and the boom or other front end attachment is mounted on the front.
- 3.67 Whip Line (Auxiliary Hoist) – A separate rope used for light loads. This system travels at higher speeds than the main load block.
- 3.68 Wire Rope – Means a flexible rope constructed by laying steel wires into various patterns of multi-wired strands around a core system to produce a helically wound rope.

#### **4. RESPONSIBILITIES**

- 4.1 All employees working with or around cranes shall be familiar with this procedure to the full extent necessary to identify real and potential hazards and to mitigate them.

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- 4.2 Supervisors will communicate with and instruct all affected employees in the nature of the hazards involved, the necessary precautions to be taken when working with or around cranes and ensure all personnel are properly trained in the operation, inspection, hazard assessment, signaling, or rigging of cranes used on our job sites.
- 4.3 The Supervisor shall monitor compliance with and enforce this Cranes and Derricks in Construction procedure and take appropriate actions when the procedures are not followed.

## 5. **PROCEDURES**

### 5.1 General

- 5.1.1 The company and all personnel shall comply with the manufacturer's specifications and limitations applicable to the operation of any and all cranes and derricks. Where manufacturer's specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a qualified engineer competent in this field and such determinations will be appropriately documented and recorded. Attachments used with cranes shall not exceed the capacity, rating, or scope recommended by the manufacturer.
- 5.1.2 No cranes shall be altered or modified, unless authorized and/or performed by or under the direct supervision of the manufacturer or a crane qualified Licensed, Registered Professional Engineer who is qualified with respect to the equipment involved. Modifications or additions which affect the safe operation of the equipment may only be made with the manufacturer's written approval or that of the engineer described herein, and any modifications or additions shall be verified and documented by the engineer to meet or exceed the original equipment safety factor(s).
- 5.1.3 The crane and/or derrick operator shall have access to procedures applicable to the safe operation of the equipment. Examples of procedures include the rated capacities (load charts), recommended operating speeds, special hazard warnings, instructions, the operator's manual, etc.
- 5.1.4 Crane and derrick equipment shall be assembled and used solely on ground conditions that are able to support the equipment and any supporting materials in full compliance with the manufacturer's written instructions. The ground shall be firm, drained, graded to a sufficient extent so that, in conjunction (if needed) with the use of supporting materials, the equipment manufacturer's specifications for adequate

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support and degree of level of the equipment are met or exceeded at all times.

- 5.1.5 The manufacturer's instructions and prohibitions shall be followed at all times when assembling, disassembling, servicing or modifying any crane, derrick or associated equipment covered by this standard (29 CFR 1926.1400).
- 5.1.6 All crane and derrick assembly, disassembly, servicing, or modification shall be done under the direct supervision of competent and qualified persons as defined herein.
- 5.1.7 Rated load capacities, and recommended operating speeds, special hazard warnings, or instruction, shall be conspicuously posted on all equipment. Instructions or warnings shall be visible to the operator while he is at his control station. A substantial and durable chart with clearly legible letters and figures shall be provided with each crane and securely fixed to the crane cab in a location easily visible to the operator while seated at this control station.
- 5.1.8 Hand signals to crane operators shall be those prescribed by the applicable ANSI standard for the type of crane in use. An illustration of the signals shall be posted at the job site. Refer to Attachment 7.1 Hand Signals Chart.
- 5.1.9 The Company shall designate a competent person who shall inspect all machinery and equipment prior to each shift or use, and during use, to make sure it is in safe operating condition and free from apparent deficiencies. Examples of inspection items include but are not limited to control mechanisms, pressurized lines, hooks and latches, wire rope, electrical apparatus, tires (when part of the equipment), and ground conditions throughout the area of intended operation. Any deficiencies shall be repaired, or defective parts replaced, before continued use. The designated person most often will be a qualified and competent subcontract person.
- 5.1.10 A thorough monthly inspection of all crane and derrick equipment and components shall be conducted by a competent person and shall be documented in writing. All monthly inspection records shall be maintained for at least 3 months and shall include the items listed below at a minimum:
  - 1) Specific identification of the crane or derrick the inspection was conducted on;

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- 2) An itemized list of all crane and/or derrick components and systems checked as a part of the inspection;
- 3) The results of the inspection;
- 4) The name (printed), date and signature of the inspector.

Documentation evidencing a thorough inspection was conducted within the prior month on any crane or derrick equipment used by the company or any subcontractor to the company in any capacity on any company job site shall be reviewed and copies retained in the project file prior to the use of the equipment.

- 5.1.11 The operator and/or competent person shall verify that all safety devices be inspected and tested prior to operations starting. Examples of safety devices include, but are not limited to crane level indicator(s), boom and/or jib stops, foot pedal brake locks, horns, blocking and/or cribbing, etc.
- 5.1.12 The crane operator has the sole authority and responsibility to suspend crane operations and refuse to handle loads, lifts, etc. whenever they have a safety related concern regarding the crane operations until such time as their concerns are corrected, either by them or under the direction of a qualified/competent person.
- 5.1.13 Sudden starts and/or stops (shock loading) shall not be permitted while hoisting/lowering a load, or while rotating the superstructure.
- 5.1.14 Superstructures shall not be rotated in such a manner so as to allow the load to swing beyond its swing radius.
- 5.1.15 Where cranes are operated at a fixed radius, the boom shall be locked in position using the boom-hoist pawl or equivalent means.
- 5.1.16 Proper barriers shall be erected to prevent personnel from entering a potentially hazardous area while the crane is in operation. A pre-operation hazard assessment of the entire working radius of the crane shall be conducted prior to the start of operations and barrier identification/protection shall be installed to identify and/or isolate the full working area of the crane operation(s) such that personnel are not struck or subjected to pinch/crush hazards associated with the operation.
- 5.1.17 Where close quarters exist during activities at buildings or other structures and equipment, additional precautions shall be instituted to prevent personnel from entering the area, where exposure to a crushing hazard may exist.



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- 5.1.18 Mobile cranes shall not travel in such a manner, with or without load, such that the boom may bounce back over the cab.
- 5.1.19 Exhaust systems shall not emit excessive noise or airborne pollution, therefore redirection or treatment of exhaust streams may be required.
- 5.1.20 Sufficient air testing shall be instituted where mobile cranes, powered by internal combustion engines, are used within confined/enclosed areas, to determine the presence of toxic gases (e.g., carbon monoxide) and/or oxygen deficiencies.
- 5.1.21 Power Line Safety - A pre-operation hazard assessment to identify the work zone and determine if any part of the equipment could reach closer than 20 feet to any power line shall be performed prior to the start of any work. The work zone shall be identified and the boundaries of it demarcated with flagging, range limiting devices, or related items. The work zone can also be defined as including a 360 degree area around the equipment to include up to the maximum working (vertical and horizontal) distance. Three options are available to mitigate the potential hazardous energy and proceed with the work:
- 1) All equipment shall be maintained beyond a minimum of 20 feet from any power line;
  - 2) The power line(s) shall be de-energized (written verification) and equipment grounded; or
  - 3) Positively determine and verify line(s) voltage and comply with the minimum working distances shown in Table A – Clearance below:

**Table A – Minimum Clearance Distances**

Voltage (nominal, kV, alternating current)	Minimum clearance distance (feet)
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1,000	45
over 1,000 (as established by the utility owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution).	

Note: The value that follows “to” is up to and includes that value. For example, over50 to 200 means up to and including 200kV.

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5.1.22 When encroachment precautions are used (option 1 or option 3 above), all of the requirements below shall be met:

- 1) Conduct a planning meeting with the operator and the other workers who will be in the area of the equipment or load to review the location of the power line(s), and the steps that will be implemented to prevent encroachment/electrocution;
- 2) If tag lines are used, they shall be non-conductive;
- 3) Erect and maintain an elevated warning line, barricade, or line of signs, in view of the operator, equipped with flags or similar high-visibility markings, at 20 feet from the power line (if using Option (1) of this section) or at the minimum approach distance under Table A (see § 1926.1408) (if using Option (3) of this section). If the operator is unable to see the elevated warning line, a dedicated spotter must be used as described in § 1926.1408(b)(4)(ii) in addition to implementing one of the measures described in § § 1926.1 408(b)(4)(i), (iii), (iv) and (v);
- 4) Implement at least one of the following measures:
  - a. A proximity alarm set to give the operator sufficient warning to prevent encroachment.
  - b. A dedicated spotter who is in continuous contact with the operator. Where this measure is selected, the dedicated spotter must:
    - i. Be equipped with a visual aid to assist in identifying the minimum clearance distance. Examples of a visual aid include, but are not limited to: a clearly visible line painted on the ground; a clearly visible line of stanchions; a set of clearly visible line-of-sight landmarks (such as a fence post behind the dedicated spotter and a building corner ahead of the dedicated spotter).
    - ii. Be positioned to effectively gauge the clearance distance.
    - iii. Where necessary, use equipment that enables the dedicated spotter to communicate directly with the operator.
    - iv. Give timely information to the operator so that the required clearance distance can be maintained.
  - c. Use a device that automatically warns the operator when to stop movement, such as a range control warning device. Such a device must be set to give the operator sufficient warning to prevent encroachment.
  - d. Use a device that automatically limits range of movement, set to prevent hazardous encroachment.

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- e. Use an insulating link/device, as defined in 29 CFR 1926.1401, installed at a point between the end of the load line (or below) and the load.
- 5) No part of the equipment, load line, or load (including rigging and lifting accessories) is allowed below a power line unless the employer has confirmed that the utility owner/operator has de-energized and (at the worksite) visibly grounded the power line, except where one of the exceptions in 29 CFR 1926.141408(d)(2) applies.
  - 6) All power lines shall be assumed to be energized unless the utility owner/operator confirms that the power line has been and continues to be de-energized and visibly grounded at the worksite.
  - 7) All power lines are presumed to be uninsulated unless the utility owner/operator or a registered engineer who is a qualified person with respect to electrical power transmission and distribution confirms that a line is insulated.
- 5.1.23 When working near transmitter/communication towers where the equipment is close enough for an electrical charge to be induced in the equipment or materials being handled, the transmitter must be de-energized or the following precautions must be taken:
- 1) The equipment must be provided with an electrical ground.
  - 2) If tag lines are used, they must be non-conductive.
- 5.1.24 Mobile cranes (in transit, with no load) shall have their boom lowered while traveling below overhead power lines. Where direct visual observation of clearances cannot be maintained by the operator, a competent person shall be assigned to observe the operation, ensuring safe clearances are maintained. All mobile cranes shall be properly grounded while performing operations near overhead power lines, or any activity in which electrical hazards are present.

## 5.2 Power Line Safety - Worker Training

5.2.1 Each operator and crew member assigned to work with the equipment described above shall be trained prior to the start of work on all of the following:

- 1) The procedures to be followed in the event of electrical contact with a power line, including, but not limited to:

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- 2) Information regarding the danger of electrocution from the operator simultaneously touching the equipment and the ground.
- 3) The importance to the operator's safety of remaining inside the cab except where there is an imminent danger of fire, explosion, or other emergency that necessitates leaving the cab.
- 4) The safest means of evacuating from equipment that may be energized.
- 5) The danger of the potentially energized zone around the equipment (step potential).
- 6) The need for crew in the area to avoid approaching or touching the equipment and the load.
- 7) Safe clearance distance from power lines.

### 5.3 Loads

- 5.3.1 No crane shall be loaded beyond its rated load capacity, except for load testing purposes conducted by or on behalf of the manufacturer under the direction of a Licensed Professional Engineer. The Company shall keep and maintain written reports on rated load tests showing the test procedures and confirming the adequacy of any repairs or alterations.
- 5.3.2 Rate loads and mobile crane operating speeds shall be conspicuously posted, clearly visible to the operator at all times, and strictly adhered to.
- 5.3.3 No cranes shall be re-rated (exceeding or lowering the original rating) unless all rating changes are approved by and conducted under the direction of the manufacturer. All rating changes shall be conspicuously posted.
- 5.3.4 The total weight of the load and external forces of the lift shall be determined prior to making a lift. The total weight shall consist of the material being hoisted (inclusive of pallets, platform, etc.) the load block, and all necessary rigging. Lifting forces imparted by wind, lifting angles, etc. shall be accounted for.
- 5.3.5 No load shall be left suspended from a crane while the operator is not at the controls.
- 5.3.6 Personnel shall not be permitted to stand, walk or be directly under any load.

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5.3.7 Personnel shall not be permitted to ride on a load, hook, or the crane itself.

#### 5.4 Outriggers

5.4.1 Outriggers shall operate properly at all times, and shall be capable of supporting the maximum intended load.

5.4.2 All outriggers shall be equipped with sufficient base pads, and shall be placed on a stable foundation, which can safely support the crane and its load without settling, collapse or displacement. Cribbing and/or additional supporting base materials shall be used as directed by the manufacturer and the site conditions to ensure proper spreading of the load forces sufficient for the lift.

5.4.3 Outriggers shall be placed at a safe distance from the edge of any trench, excavation, or other unstable surface or subsurface conditions.

5.4.4 Where necessary, proper cribbing shall be used to prevent undue settling of outriggers and/or damage to surfaces (e.g., pavement, vinyl tile, concrete, etc.). All personnel shall evaluate the area the lift will take place in and ensure a stable surface and substrate is present, free of voids or other weakening materials, and compliant with the stable ground requirements of the standard.

#### 5.5 Cab and Accessories

5.5.1 All items stored within the cab, inclusive of personal belongings, tools, oil cans, fuses, etc., shall be properly stowed so as not to interfere with the operators vision and/or the safe operation of the crane. Adequate housekeeping practices shall be maintained within the cab.

5.5.2 All windows shall be of safety glass and shall be free of cracks or extensive scratches which may interfere with the operator's vision.

5.5.3 All mirrors shall be maintained in good condition and properly adjusted.

5.5.4 An accessible fire extinguisher of 5BC rating, or higher, shall be available at all operator stations or cabs of equipment. A CO<sub>2</sub> or dry chemical fire extinguisher shall be kept in the crane cab or vicinity of the crane.

5.5.5 Window wipers/washers shall function properly without streaking/smearing.

5.5.6 Access to cab shall be free of slipping/tripping hazards.

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- 5.5.7 All lights shall operate as intended by the manufacturer.
- 5.5.8 All mobile cranes shall be equipped with an operable horn.
- 5.5.9 *All mobile cranes* shall be equipped with an operable back-up alarm.
- 5.5.10 Steering knobs shall not be permitted, unless as provided by the manufacturer.

## 5.6 Load Test

- 5.6.1 Load tests shall be performed in accordance with manufacturer's procedures.
- 5.6.2 Load tests shall be properly documented and maintained by the Crane Operator/General Contractor.

## 5.7 Wire Rope

- 5.7.1 Running ropes shall be inspected by a competent person with appropriate records of such inspections maintained and made available upon request. The Company shall keep and maintain certification record(s) which include the date(s) of inspection & the signature of person(s) who performed inspection. The same records must be kept on inspections of all other ropes.
- 5.7.2 Any deterioration which results in appreciable loss of original strength shall be investigated with a final determination made by a competent person or manufacturer as to whether further use of the rope constitutes a hazard.

## 5.8 Inspections

- 5.8.1 All cranes shall be accompanied by written load capacity and inspection certificates upon receipt at site.
- 5.8.2 All cranes shall be inspected in accordance with manufacturing procedures by or under the direct supervision of a competent person. All inspections shall be properly documented and made available upon request.
- 5.8.3 Cranes shall be inspected prior to being put into service when new, after being altered/modified (as authorized by the manufacturer) and after the completion of major repairs. Precautions must be taken before repairs are started by the placement of "Warning or Out of Order signs on the crane."

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5.8.4 Regular inspections as well as preventive maintenance shall be performed by the corresponding contractor/vendor, or under the direct supervision of a competent person, in accordance with manufacturer's procedures.

## 5.9 Rigging

5.9.1 Adequate rigging shall be used to hoist/lower any load. All rigging shall meet the requirements specified in Section 4.07, Rigging Equipment of this manual.

5.9.2 Rigging activities shall be performed by, or under the direction of a competent person.

5.9.3 Tag lines shall be used to guide loads being hoisted/transported in excess of three feet off the ground/floor. Tag lines shall be of non-conductive material.

## 5.10 Operator Qualifications

5.10.1 All crane and/or derrick equipment shall be operated only by qualified persons evidenced by sufficient training, experience and/or education or by successfully participating in a formal qualification program or process that is validated by possession of a license, certificate or related official documentation.

5.10.2 Where required due to statute, contract, ordinance or rule, all operators shall have and maintain current local, state, job site, or customer licenses for any equipment they operate. As stated above and where required, operators must meet certain physical criteria, be able to pass a physical and/or written examination, and be capable of demonstrating understanding of each crane they operate including using load charts, making load calculations, etc.

5.10.3 No later than November 8, 2014, all operators shall provide evidence of qualification/certification by one of the methods below:

- 1) Certification by an accredited (as defined in 29 CFR 1926.1400) crane operator testing organization;
- 2) Qualification by an audited employer program;
- 3) Qualification by an organization of the United States military; or
- 4) Licensing by an entity of the United States government.

5.10.4 Crane operators shall be qualified to operate all crane or derrick equipment they are assigned to use and must demonstrate the capability of operating

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all such equipment in a safe manner. Operators shall be trained in safe work standards including the proper use of fire extinguishers.

#### 5.11 Signal Person

5.11.1 A signal person shall be provided in the following circumstances:

- 1) The point of operation is not in full view of the operator at all times throughout the lifting operations;
- 2) The view of the operator is obstructed when the equipment is travelling;
- 3) The operator or the competent person with primary responsibility for the lift (load) determines one or more signal persons are necessary to safely complete the operation due to site specific concerns or issues.

5.11.2 The signal person shall be knowledgeable of signals used for mobile cranes. Standard signals are shown in Attachment 7.1.

5.11.3 Crane signals may be given verbally using two-way radios, telephone or voice activated communication systems.

5.11.4 Crane hand signals may be modified to suit the activity, providing all concerned parties are aware of the change and understand the modified signals.

5.11.5 Where necessary, due to structural configurations/equipment, additional signal persons may be required. All signal persons shall understand the method of signaling.

5.11.6 The signal person shall fully understand the nature of the lift, inclusive of type of material hoisted, rigging, hazards involved and any other information pertinent to the lift.

5.11.7 The signal person shall be readily identifiable to the operator at all times. This may be accomplished through the use of highly visible vests or equivalent.

5.11.8 The signal person shall not leave the area during a lift, nor shall signaling responsibilities be transferred during a lift.

5.11.9 Where two or more cranes are used to lift one load, each crane shall be independently identified so that appropriate communication can be accomplished. A competent signal person shall be assigned to direct the lift.



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## 5.12 Guards

5.12.1 All exhaust systems shall be sufficiently guarded or insulated against physical contact.

5.12.2 Employees shall be properly protected against injury from exposed parts, inclusive of gears, pulleys, sprockets, drums, fly wheels, chains, etc.

5.12.3 All guards shall be properly installed and maintained.

## 5.13 Fire Protection

5.13.1 A fire extinguisher shall be readily accessible to the operator at all times.

5.13.2 Refueling shall be accomplished with engine turned off.

5.13.3 Where portable containers are used for refueling, they shall be of an approved "safety can" quality.

5.13.4 Smoking, matches or open flames shall not be permitted during fueling activities which take place outside the perimeter of the non-smoking area.

## 5.14 Hooks and Hoist Chains

5.14.1 Hooks installed on mobile cranes (main and auxiliary hoist) shall be inspected monthly by a competent person and records kept of all hooks with deformation or cracks. The certification record must include: 1) Date of inspection. 2) Signature of person performing inspection. 3) The serial number of other identifier of hook. Appropriate records shall be maintained for all inspections.

5.14.2 All hooks shall be visually examined for the following items:

5.14.2.1 Distortion, twisting, increased throat opening and/or bending

5.14.2.2 Excessive wear - beyond manufacturer's recommendations

5.14.2.3 Gouges, nicks (severe) and/or cracks

5.14.2.4 Securement to block and/or wire rope

5.14.3 Any hook having one or more of the following deficiencies shall require the hook to be removed from service and repaired/replaced (as permitted).

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- 5.14.3.1 Crack(s)
- 5.14.3.2 Where exceeding 10 percent of the original diameter (or as otherwise recommended by the manufacturer)
- 5.14.3.3 Any bend or twist exceeding 10 degrees from the unbent plane
- 5.14.3.4 An increase of 15 percent in the throat opening

5.14.4 Any repair made to a hook shall be as specified by the manufacturer.

5.14.5 The Company shall make a monthly inspection and keep a record of hoist chains (including end connections) for (A) excessive wear, (B) twist, (C) distorted links interfering with proper function, and (D) stretch beyond manufacturer's recommendation. The certification records must include; (1) Date of inspection, (2) Signature of person performing inspection (3) the specific identification of each chain inspected.

## 5.15 Slings

5.15.1 Specific safe work practices for slings shall be followed which include:

- 5.15.1.1 Use within their rated capacity and installed in a manner which provides control of the load.
- 5.15.1.2 Slings shall not be lengthened, shortened, repaired or otherwise connected using bolts, rods, wire or knotting.
- 5.15.1.3 Shock loading of slings shall not be permitted.
- 5.15.1.4 Slings shall be visually inspected by the user prior to each days use.

5.15.2 Each sling shall be inspected before being used. Each sling, fastenings, and all attachments shall be inspected by a designated competent person by the Company.

5.15.3 Alloy steel chain slings, wire rope slings, metal mesh slings, natural and synthetic fiber rope slings and synthetic web slings shall meet the manufacturer and testing requirements. Each of the above items shall be permanently marked by the manufacturer with the rated capacity and type of material. The same requirements for inspection and testing shall apply to these slings as noted for equipment in this section.

## 6.0 RECORDS

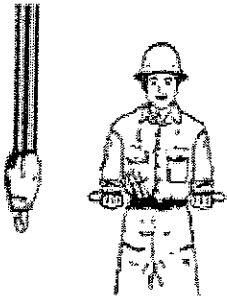
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- 6.1 Records shall be maintained by the Supervisor relating to required maintenance and inspections on Project mobile cranes we are using and made readily available upon request. All crawler, truck, or locomotive cranes in use shall meet the applicable requirements for design, inspection, construction, testing, maintenance and operation as prescribed in the ANSI B30.5-1968, Safety Code for Crawler, Locomotive and Truck Cranes. However, the written, dated, and signed inspection reports and records of the monthly inspection of critical items prescribed in section 5-2.1.5 of the ANSI B30.5-1968 standard are not required. Instead, the employer shall prepare a certification record which includes the date the crane items were inspected; the signature of the person who inspected the crane items; and a serial number, or other identifier, for the crane inspected.
- 6.2 Records shall be maintained by the Contractor/Vendor relating to required maintenance and inspections performed on each mobile crane brought onto site and made available upon request.

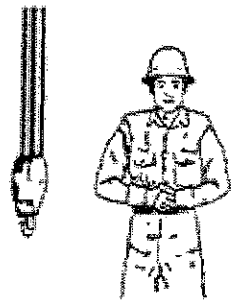
## **7.0 ATTACHMENTS**

- 7.1 Hand Signal Chart.

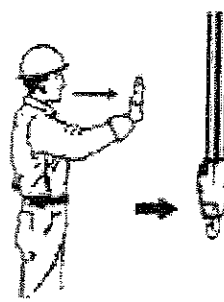
HAND SIGNALS



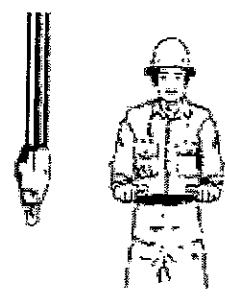
EXTEND BOOM



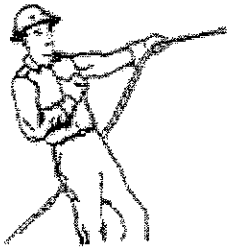
DOG EVERYTHING



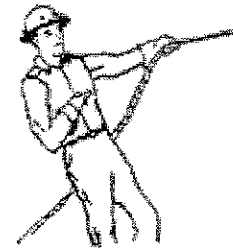
TRAVEL



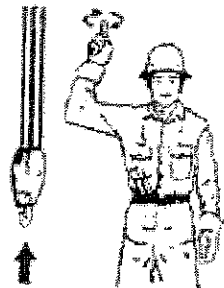
RETRACT BOOM



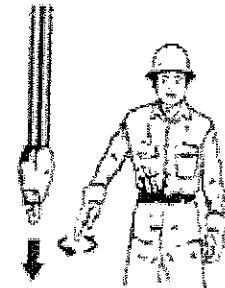
EXTEND BOOM  
(ONE HAND)



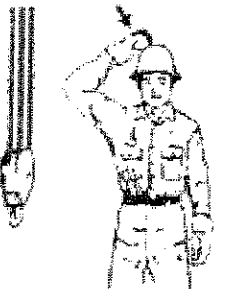
RETRACT BOOM  
(ONE HAND)



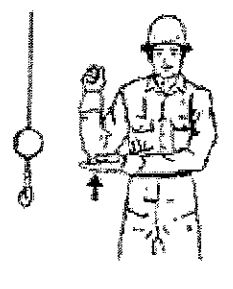
HOIST



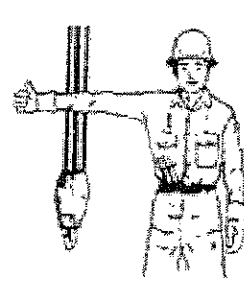
LOWER



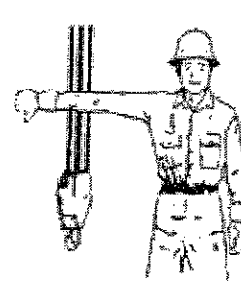
USE MAIN HOIST



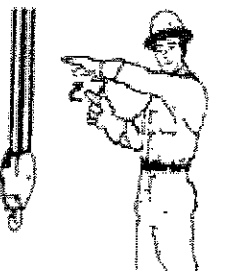
USE WHIP LINE



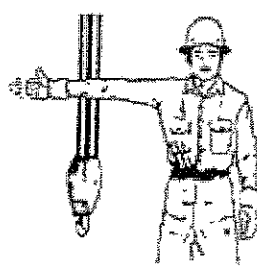
RAISE BOOM



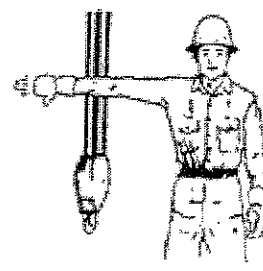
LOWER BOOM



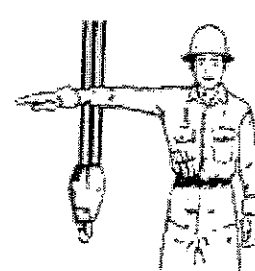
MOVE SLOWLY



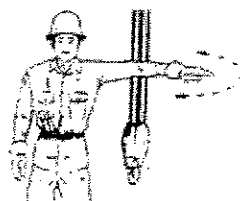
RAISE THE BOOM &  
LOWER THE LOAD



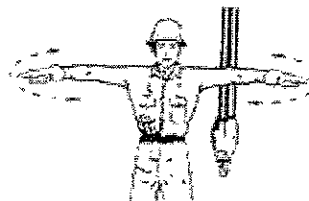
LOWER THE BOOM &  
RAISE THE LOAD



SWING



STOP



EMERGENCY STOP

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## 1 **PURPOSE AND SCOPE**

To establish ladder safety requirements at industrial, commercial and construction sites for safe access to each elevation of the work area whether the ladders are purchased or rented.

This procedure is applicable to all Company employees, subcontractors, and vendors.

## 2 **REFERENCES**

2.1 Department of Labor 29 CFR 1926.Subpart X – Stairways and Ladders

## 3 **DEFINITIONS**

None

## 4 **RESPONSIBILITIES**

4.1 Supervisors shall ensure their employees or contractors are trained to this directive and adhere to these procedures and guidelines.

4.2 The location site shall obtain and store all necessary hardware to comply with this procedure.

4.3 Construction Managers shall have the authority to make any additional recommendations and administer this procedure.

## 5 **PROCEDURE**

### 5.1 General

Ladders shall be used to give safe access to all elevations that are not supplied with permanent or temporary stairways or suitable platforms, ramps, or runways. Ladders shall not be used in the horizontal position as a platform, runway, or scaffold. Ladders shall not be used as guys, braces, or skids, or for other than their intended purposes.

Ladders of all metal construction shall not be used except where specifically authorized in writing by the Corporate Safety Department. 100% non-conductive ladders are required for use around energized or potentially energized electrical equipment or outside during storm events. The use of a ladder as a gin pole is prohibited.

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The only portable ladders authorized for company use are non-conductive type 1A ladders manufactured in accordance with CSA Standard CAN3-Z11-M81, ANSI Standard A14.1-2000, ANSI Standard A14.2-2000 or ANSI Standard A14.5-2000 dependant on the ladder to be used. Wooden ladders are not authorized for use without specific need and written authorization from the Corporate Safety Department. This specifically includes Job Made ladders. Wooden ladders, if authorized for a specific situational use, shall not be painted or otherwise covered with an opaque material.

A Ladder Safety Checklist is presented in Attachment 7.1

#### 5.2 Damaged Ladders

Ladder users shall inspect the Ladder before use and if a defect is found or suspected, report it to the supervisor in charge of the job. The use of Ladders with broken or missing rungs or steps, broken or split side rails, or other faulty or defective construction is prohibited. When ladders with such defect are discovered, they shall be immediately withdrawn from service and properly tagged with a DO NOT USE tag.

#### 5.3 Ladder Base

The Ladder base must be placed with a secure footing. Portable Ladder feet shall be placed on a substantial base, and the area around the top and bottom of the Ladder shall be kept clear. All step Ladders shall have safety feet and/or safety treads. Ladders shall not be placed on boxes, barrels, or other unstable bases to obtain additional height. The Ladder shall be properly placed to prevent slipping, or it shall be lashed or held in position by another employee. Step Ladders are not to be used as a leaning Ladder. The step Ladder center locking mechanism shall be locked in place before the Ladder is used and its four legs placed on a level surface.

#### 5.4 Ascending or Descending

When ascending or descending, the climber must face the Ladder with hips within the side rails. The ladder user should not lean outside the ladder side rails. Move the ladder instead. Each rung shall be used. Always use both hands to climb up and down so you can control your center of gravity and won't fall. Never carry anything in your hands while you go up or down a ladder. Carry tools in a tool belt or transfer tools in a bucket with a tag-line to the working level.

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### 5.5 Top of Ladders

An employee shall not work from higher than the fifth rung from the top of a straight ladder, nor from the top or top step of a portable step ladder, or as specified by the ladder manufacturer.

### 5.6 Ladder Placement

Ladders shall not be placed in passageways, doorways, driveways, or any location where they may be displaced by activities being conducted on any other work, unless protected by barricades or guards. Portable ladders shall not be placed in front of doors opening toward the ladder unless the door is blocked open, locked, or guarded and the ladder is protected against pedestrian and vehicle traffic. When ladders must be used near doorways, aisles, or corners where pedestrian or vehicle traffic is likely, there shall be a warning sign posted warn others. Where fire doors must be blocked open, a fire watch must be provided, as required by site procedures.

### 5.7 One Person On A Ladder

Ladders should not be used by more than one person at a time unless they are designed otherwise. The bracing on the back legs of step ladders is designed solely for increasing stability and not for climbing.

### 5.8 Working From A Ladder

Once a ladder is properly set to perform work, the following safety precautions shall be taken by the ladder user:

- a. Never overreach on a ladder. Reaching farther than you should moves the center of gravity and may cause the ladder or the ladder user to fall.
- b. Match the ladder to the job to be performed. If the job requires frequent movement of the ladder, maybe a mobile ladder, manlift or scaffold would be more appropriate.
- c. The ladder shall have the correct load capacity for task. Ladders shall not be loaded beyond the maximum intended load for which they were built, nor beyond the manufacturer's rated capacity.
- d. Ladders shall be used only for the purpose for which they were designed.
- e. Do not carry anything in your hands that could cause injury in case of fall and to face the ladder when ascending or descending.
- f. When working from a ladder where your feet are 6 feet or higher above the lower working surface, you must be tied off if doing any work that exerts pressure against an elevated object (e.g. cutting with a sawzall) or are otherwise working outside of the rails of the ladder, or are doing any other type of work

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that can adversely impact the safe use of the ladder. Where it is not feasible to tie off, utilize a scaffold or safe means.

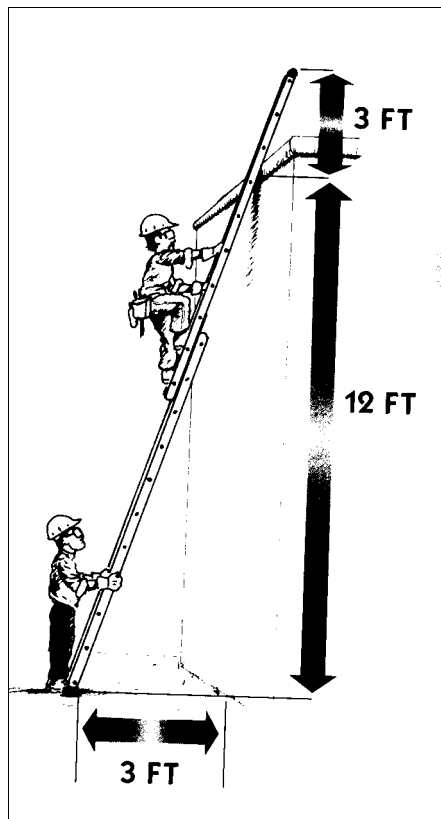
- g. An employee should not work from higher than the fifth rung from the top of a straight or extension ladder.
- h. An employee should not work from the top or top step of a step ladder.
- i. Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced, when the ladder is in position for use.

## 5.9 Extension and Section Ladders

Setting up large extension ladders is a 2-person job. In addition to the above general requirements, the following apply to extension and section ladders.

- 5.9.1 When extending or lowering extension ladders, keep hands and fingers outside the side rails. Never use the rungs to adjust the length of the ladder.
- 5.9.2 Raise extension ladders to the vertical position or against a wall before extending them. When accessing the top of an extension ladder to tie it off, a helper should hold the base of the ladder and foot the ladder.
- 5.9.3 A simple rule for setting up a ladder at the proper angle is to place the base a distance from the vertical wall 1/4 the working length of the ladder (see diagram next page). If the foot of the ladder must be placed considerably closer than this distance, it shall **be securely held or tied at the top and bottom before commencing work**. Extension ladders and straight ladders should be tied off at the top even with the plane the ladder rests against when in position. Care should be exercised to ensure the ladder is tied to a secure, immovable object. Conduit shall not be used to secure a ladder.
- 5.9.4 For through-step or side-step fixed ladders, the side rails shall extend not less than 42 inches above the landing, roof or platform to provide an adequate hand hold. When this is not practical, grab rails, which provide a secure grip for an employee to and from the point of access, shall be installed.
- 5.9.5 The minimum sectional overlap on extension ladders shall be 3 feet for all ladders up to 38 feet and 4 feet for 44 feet ladders. All section locks must be fully engaged before ascending the ladder.



**6 RECORDKEEPING**

Employee training records shall be kept for three (3) years.

**7 ATTACHMENTS**

7.1 Ladder Safety Checklist

Project Name / No. \_\_\_\_\_ Date \_\_\_\_\_

**Ladder Safety Checklist**

Use the following checklist as a guide, first for inspecting all work site ladders prior to use, and second for ensuring that the proper safety precautions are taken when using a ladder.

**Ladder Inspection**

- Is the ladder a fiberglass Type 1A (300 lbs) or Type 1 AA (350 lbs)?
- Are all rungs, cleats, or steps in good condition?
- Are the side rails intact without any cracks, bends, or breaks?
- Do the rungs, cleats or steps fit snugly into the side rails?
- Is the ladder free of corrosion?
- Are the side rails and steps free of oil or grease?
- Are the ladder's hardware and fittings secure and undamaged?
- Do moveable parts operate freely without binding or excessive play? Spreader bars, extension locks?
- Are the ropes on extension ladders intact without fraying or excessive wear?
- Are damaged ladders removed from service and marked "Do Not Use" or destroyed/discarded?

**Safe Ladder Procedures**

- Did you select a ladder with adequate length and load limits?
- Are you using the ladder for its intended purpose?
- Did you set up the ladder on a firm, solid surface?
  - Don't place a ladder on boxes or blocks to make it taller.
  - Don't set up a ladder on a scaffold to gain extra height.
  - Don't set up a ladder on a slippery or icy surface.
  - Don't lean a step ladder.
- Are you securing or barricading the ladder to protect it from being bumped when you have to work in doorways, passageways, or driveways?
- Is the area around the top and bottom of the ladder clear?

- Is your stepladder fully opened with the spreaders locked to keep the ladder stable?
- Have you set up your extension ladder using the 4 to 1 rule (1 ft from the wall for each 4 ft of ladder length)?
- Have you set up your straight ladder so the rails are supported equally at the top?
- Is the straight ladder set up so the top extends at least 3 ft above the support point?
- Did you tie-off the top of the ladder?
- Do you stay off the top and top step of a stepladder?
- Do you stay off the top 4 rungs of a straight ladder?
- Is only one person allowed on the ladder at a time?
- Do you face the ladder when ascending or descending?
- Do you check your shoes for mud, grease etc?
- Do you hoist tools or other materials up to you after you've reached the top of the ladder?
- Do you wear a tool belt to help you manage tools while you're working on a ladder?
- Do you secure all of your tools or use tool lanyards?
- Do you use both hands to grip the side rails whenever possible? Always use at least one hand to grasp the ladder when climbing, and don't carry any object or load that could cause you to lose your balance.
- Do you always maintain at least 3-points of contact when ascending or descending the ladder?
- Do you work within the side rails?
  - If your belt buckle goes past the side rail, you are leaning too far.
  - Descend and move the ladder or use fall protection that protects you for the fall distance to the next lower working surface or level (fall limiter, etc).
- Do you use fall protection if over 6' or applying excess pressure?

<b>Fall Protection</b>	Issue Date: January 2001 Revised: December 2007 Issued By: Safety Dept.
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## 1 **PURPOSE AND SCOPE**

To establish fall protection requirements at industrial, commercial and construction job sites. This procedure is applicable to all employees working on site including contractors. Basic fall safety principles have been incorporated into this directive including hazard survey, hazard elimination and control, and education and training. The intent is to ensure a proactive approach to fall protection.

Policy Statement: Employees shall use effective fall protection systems when working in any situation that presents a foreseeable exposure to a fall hazard.

## 2 **REFERENCES**

- 2.1 *Department of Labor 29 CFR 1926.105 - Safety Nets*
- 2.2 *Department of Labor 29 CFR 1910.269(g)(2) - Fall Protection*
- 2.3 *Department of Labor 29 CFR 1926.500 - Subpart M - Fall Protection*
- 2.4 *American National Standards Institute (ANSI) and American Society of Safety Engineers (ASSE) Z359.2-2007 - Minimum Requirements for a Comprehensive Managed Fall Protection Plan.*

## 3 **DEFINITIONS**

- 3.1 **Anchorage** - A secure point of attachment for Lifelines, Lanyards or Deceleration Devices.
- 3.2 **Body Belt** - A belt worn around the waist for climbing, work positioning or as a device to restrain an individual from reaching a fall hazard. *A body belt shall not be used in a Personal Fall Arrest System and is outlawed in the Construction Industry.*
- 3.3 **Body Harness** - Straps which may be secured about the employee in a manner that will distribute the fall arrest forces over at least the thighs, pelvis, waist chest and shoulders with means for attaching it to other components of a Personal Fall Arrest System.
- 3.4 **Competent Person** – An individual designated by the company to be responsible for the immediate supervision, implementation and monitoring of the company’s fall protection program, who through thorough training and knowledge is capable of identifying, evaluating and addressing existing and potential fall hazards and who has the authority to take prompt corrective action with regards to the hazards.

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- 3.5 Connector - A device which is used to couple (connect) parts of the Personal Fall Arrest System and Positioning Device System together. It may be an independent component of the system, such as a carabiner, or it may be an integral component of part of the system (such as a Buckle or dee-ring sewn into a body belt or body harness, or a snaphook spliced or sewn to a lanyard or self-retracting lifeline/lanyard).
- 3.6 Controlled Access Zone (CAZ) - An area in which certain work may take place without the use of guardrail systems, Personal Fall Arrest Systems, or Safety Net Systems and access to the zone is controlled.
- 3.7 Deceleration Device - Any mechanism, such as a Rope Grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyard, automatic self-retracting lifeline/lanyard, etc., which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limit the energy imposed on an employee during fall arrest.
- 3.8 Deceleration Distance - The additional vertical distance a falling employee travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which the deceleration device begins to operate. It is measured as the distance between the location of an employee's body harness attachment point at the moment of activation (at the onset of fall arrest forces) of the deceleration device during a fall, and the location of the attachment point after the employee comes to a full stop.
- 3.9 Equivalent - Alternative designs, materials, or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials or designs specified in the standard.
- 3.10 Free Fall - The act of falling before a personal fall arrest system begins to apply force to arrest the fall.
- 3.11 Free Fall Distance - The vertical displacement of the fall arrest attachment point on the employee's body harness between onset of the fall and just before the system begins to apply force to arrest the fall. This distance excludes deceleration distance, and lifeline/lanyard elongation, but includes any deceleration device slide distance or self-retracting lifeline/lanyard extension before they operate and fall arrest forces occur.
- 3.12 Guardrail System - A barrier erected to prevent employees from falling to lower levels.
- 3.13 Hole - A gap or void 2 inches or more in its least dimension, in a floor, roof, or other walking/working surface.
- 3.14 Infeasible - Impossibility to perform work using a conventional fall protection system (i.e., guardrail system, safety net system, or personal fall arrest system) or that it is technologically impossible to use any one of these systems to provide fall protection.

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- 3.15 Lanyard - A flexible line of rope, wire rope, or strap which generally has a connector at each end for connecting the body belt or body harness to a deceleration device, lifeline or anchorage.
- 3.16 Leading Edge - The edge of a floor, roof, or framework for a floor or other walking/working surface (such as the deck) which changes location as additional floor, roof, decking or formwork sections are placed, formed, or constructed. A leading edge is considered to be an unprotected side and edge during periods when it is not actively and continuously under construction.
- 3.17 Lifeline - A component consisting of a flexible line for connection to an anchorage at one end to hand vertically (vertical lifeline), or for connection to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.
- 3.18 Lower Levels - Those areas or surfaces to which an employee can fall. Such areas or surfaces include, but are not limited to, ground levels, floors, platforms, ramps, runways, excavations, pits, tanks, material, water, equipment, structures, or portions thereof.
- 3.19 Low-Slope Roof - A roof having a slope less than or equal to 4 to 12 (vertical to horizontal).
- 3.20 Opening - A gap or void 30 inches or more high and 18 inches or more wide, in a wall or partition, through which employees can fall to a lower level.
- 3.21 Personal Fall Arrest System - A system used to arrest an employee in a fall from a walking/working surface. It consists of an anchorage, connectors, body harness and may include a lanyard, deceleration device, lifeline, or suitable combinations of these. A body belt shall not be used in a personal fall arrest system
- 3.22 Positioning Device System - A body belt or body harness system rigged to allow an employee to be supported on an elevated vertical surface, such as a wall, and work with both hands free while leaning.
- 3.23 Qualified Person – A person with a recognized degree or professional certification (i.e. PE) and with extensive knowledge, training and experience in the fall protection and rescue field who is capable of designing, analyzing, evaluating and specifying fall protection systems.
- 3.24 Roof - The exterior surface of the top of a building. This does not include floors or formwork which, because a building has not been completed, temporarily become the top surface of a building.

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- 3.25 Roofing Work - The hoisting, storage, application, and removal of roofing materials and equipment, including related insulation, sheet metal, and vapor barrier work, but not including the construction of the roof deck.
- 3.26 Rope Grab - A deceleration device which travels on a lifeline and automatically, by friction, engages the lifeline and locks so as to arrest the fall of an employee. A rope grab usually employs the principle of inertial locking, cam/level locking, or both.
- 3.27 Safety Monitoring System - A safety system in which a competent person is responsible for recognizing and warning employees of fall hazards.
- 3.28 Safety Net System - Safety nets shall meet performance standards as determined by the regulation (Reference 2.3) and be certified by the manufacturer. Edge ropes shall provide a minimum breaking strength of 5,000 pounds. Forged steel safety hooks or shackles shall be used to fasten the net to its support. Connections between net panels shall develop the full strength of the net.
- 3.29 Self-Retracting Lifeline/Lanyard - A deceleration device containing a drum wound line which can 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.
- 3.30 Snaphook - A connector comprised of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released, automatically closes to retain the object.
- 3.31 Steep Roof - A roof have a slope greater than 4 to 12 (vertical to horizontal).
- 3.32 Toe board - A low protective barrier that will prevent the fall of materials and equipment to lower levels and provide protection from falls for personnel.
- 3.33 Unprotected Sides or Edges - Any side or edge (except at entrances to points of access) of a walking/surface, e.g., floor, roof, ramp, or runway where there is no wall or guardrail system at least 39 inches high.
- 3.34 Walking/Working Surface - Any surface, whether horizontal or vertical on which an employee walks or works, including, but not limited to, floors, roofs, ramps, bridges, runways, formwork and concrete reinforcing steel but not including ladders, vehicles, or trailers, on which employee must be located in order to perform their duties. Walking/working surfaces on which employee are to work shall have the strength and structural integrity to support employees safety.

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3.35 Warning Line System - A barrier erected on a roof to warn employees that they are approaching an unprotected side or edge, and which designates an area in which work may take place without the use of a guardrail system, safety net system or personal fall arrest system to protect employees in the area.

#### 4 RESPONSIBILITIES

- 4.1 Supervisors are responsible to ensure their employees or subcontractors are familiar with this procedure, adhere to its guidelines, and are provided necessary personal protective equipment. Supervisors shall not permit any worker to use fall protection equipment and systems without proper training.
- 4.2 The site location shall obtain/maintain and store all necessary hardware to comply with this procedure.
- 4.3 The Construction Manager shall have the authority to make any additional recommendations and administer this procedure and shall be responsible for supporting fall protection training through scheduling and implementation. He/she shall ensure the supervisor is trained as a competent person and assigned to every location where an active fall protection system is used to control fall hazards.
- 4.4 Safety Manager (s) will assist the Construction Managers and supervisors in determining if their project fall protection system meets the requirements of this procedure. The Safety Manager will serve as the Program Administrator and will measure and evaluate the effectiveness of the fall protection program by conducting periodic program evaluations and making improvements accordingly.

#### 5 PROCEDURE

##### 5.1 General

##### 5.1.1 Fall Protection

Each employee on a walking/working surface with an unprotected side or edge which is 6 feet or more above a lower level shall be protected from falling by the use of a guardrail system, safety net system or personal fall arrest system.

##### 5.1.2 Fixed Ladder Fall Protection Systems

Body belts, positioning device systems, or body harnesses shall be used when ascending/descending ladders with center rails with rail lock configurations.

##### 5.1.3 Leading Edges

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Each employee working near a leading edge 6 feet or more above lower levels shall be protected from falling by the use of a guardrail system, safety net system, or personal fall arrest system.

5.1.4 Hoist Areas

Each employee in a hoist area shall be protected from falling 6 feet or more to lower levels by the use of a guardrail system for personal fall arrest system. A guardrail system used at hoisting areas shall have a chain, gate or removable section placed across the access opening between guardrail systems sections when hoisting operations are not taking place.

5.1.5 Holes

Each employee on walking/working surfaces shall be protected from falling through holes more than 6 feet above lower levels by the use of a guardrail system, cover, or personal fall arrest system.

5.1.5.1 In addition to guardrail system requirements defined in paragraph 5.2.1, a guardrail system used at a hole shall:

- a. be erected on all unprotected sides or edges of the hole;
- b. have not more than two sides provided with removable guardrail system sections to allow the passage of materials.  
When the hole is not in use, it shall be closed over with a cover; and
- c. be provided with a gate (at access points such as ladderways), or be so offset that a person cannot walk directly into the hole.

5.1.6 Covers

Covers for holes in floors, roofs and other walking/working surfaces shall meet the following requirements.

5.1.6.1 Covers located in roadways and vehicular aisle shall be capable of supporting, without failure, at least twice the maximum axle load of the largest vehicle expected to cross over the cover as determined by the first line supervisor.

5.1.6.2 All other covers shall be capable of supporting, without failure at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time as determined by the supervisor.

5.1.6.3 All covers shall be secured when installed so as to prevent accidental displacement by the wind, equipment, or employees.



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5.1.6.4 All covers shall be marked with the word “HOLE” or “COVER” to provide warning of the hazard.

#### 5.1.7 Excavations

Each employee at the edge of an excavation 6 feet or more in depth shall be protected from falling by the use of a guardrail system, fence, barricade or cover.

#### 5.1.8 Roofing Work

5.1.8.1 Employees engaged in roofing work on low-slope roofs, with unprotected sides or edges 6 feet or more above lower levels, shall be protected from falling by one or more of the following methods:

- a. Guardrail System (5.2.1)
- b. Safety Net System (5.2.2)
- c. Personal Fall Arrest System (5.2.3)
- d. Warning Line System (5.1.9) and Guardrail System (5.2.1)
- e. Warning Line System (5.1.9) and Safety Net System (5.2.2)
- f. Warning Line System (5.9.1) and Personal Fall Arrest System (5.2.3)
- g. Warning Line System (5.9.1) and Safety Monitoring System (5.3.2)
- h. Safety Monitoring System (5.3.2) (for Roofs 50 ft. or less in width)

5.1.8.2 Employees on steep roofs with unprotected sides or edges 6 feet or more above lower levels shall be protected from falling by the use of a guardrail system with toe boards, safety net system, or personal fall arrest system.

#### 5.1.9 Warning Line System

Warning line system shall comply with the following provisions:

5.1.9.1 The warning line system shall be erected around all side of the roof work area.

5.1.9.2 The warning line system shall be erected not less than 6 feet from the roof edge.

5.1.9.3 Points of access, material handling areas, storage areas, and hoisting areas shall be connected to the work area by an access path formed by a warning line system.

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5.1.9.4 When the path to a point of access is not in use, a rope wire, chain, or other barricade, equivalent in strength and height to the warning line system, shall be placed across the path at the point where the path intersects the warning line system erected around the work area, or the path shall be offset such that a person cannot walk directly into the work area.

5.1.9.5 Warning line systems shall consist of ropes, wires, chains, and supporting stanchions as follows:

- a. Each line shall be flagged or otherwise clearly marked at not more than 6 foot intervals with high-visibility material (e.g. caution tape).
- b. Each line shall be rigged and supported in such a way that its lowest point (including sag) is not less than 34 inches from the walking/working surface and its highest point is not more than 39 inches from the walking/working surface.
- c. Each line shall have a minimum tensile strength of 500 pounds. Plastic warning tape cannot be used.
- d. As directed by the supervisor, after being erected with the warning line system 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 walking/working surface, perpendicular to the warning line, and in the direction of the roof edge.
- e. As directed by the supervisor, the warning line system shall be attached at each stanchion in such a way that pulling on one section of the line between stanchions will not result in slack being taken up in adjacent sections before the stanchions tip over.
- f. No employee shall be allowed in the area between the roof edge and a warning line system unless the employee is performing work in that area and is adequately protected per section 5.1.8.1.

#### 5.1.10 Wall Openings

Each employee working on, at, above, or near a wall opening where the outside bottom edge of the wall opening is 6 feet or more above lower levels, and the inside bottom edge of the wall opening is less than 39 inches above the walking/working surface, shall be protected from falling by the use of a guardrail system, safety net system, or personal fall arrest system.

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#### 5.1.11 Protection From Falling Objects

When an employee is exposed to falling objects, each employee shall wear a hard hat and one of the following measures shall be implemented:

- a. Erect toe boards, screens or a guardrail system to prevent objects from falling from higher levels; or
- b. Erect a canopy structure and keep potential fall objects far from the edge of the higher level so that those objects would not go over the edge if they were accidentally displaced; or
- c. 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 objects would not go over the edge if they were accidentally displaced.

#### 5.1.12 Unusual Applications

There may be unusual applications where other configurations not addressed in this procedure should be used, such as suspension belts, boatswain chairs, chest harnesses or suspended horizontal/vertical lifelines. These alternatives should be discussed with the employee's supervisor and Customer Operations Safety prior to implementation in the field.

### 5.2 Fall Protection Systems

#### 5.2.1 Guardrail Systems

Guardrail systems shall be so surfaced as to prevent injury to an employee from punctures or laceration. Guardrail systems and their use shall comply with the following requirements:

5.2.1.1 Top rails shall be 42 inches above the walking/working surface. The top rail shall be capable of withstanding, without failure, a force of at least 200 pounds in any outward or downward direction, at any point along the top rail. If wire rope is used for top rails, it shall be flagged at not more than 6-foot intervals with high-visibility material. Wire, manila, plastic or synthetic rope being used for top rails shall be inspected frequently as necessary to ensure it continues to meet strength requirements.

5.2.1.2 Midrails shall be installed midway between the top rail, and the walking/working surface. The midrail shall be capable of withstanding, without failure, a force of at least 150 pounds applied in any outward or

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downward direction, at any point along the midrail. Wire, manila, plastic or synthetic rope being used for midrails shall be inspected frequently as necessary to ensure it continues to meet strength requirements.

5.2.1.3 Screens and mesh, when used, shall extend from the rail to the walking/working surface and along the entire opening between top rail supports. The screen or mesh shall be capable of withstanding, without failure, a force of at least 150 pounds applied in any outward or downward direction at any point along the midrail.

## 5.2.2 Safety Net Systems

Safety nets shall be provided when working more than 25 feet above the lower level and the use of ladders, scaffolds, catch platforms, temporary floors, safety lines or persona fall arrest systems are impractical. Safety nets shall be installed as close as practical under the walking/working surface on which employees are working, but in no case more than 30 feet below such level. Contact the Regional Safety and Health Manager for additional requirements for safety nets.

## 5.2.3 Personal Fall Arrest Systems

### 5.2.3.1 General Requirements

Personal Fall Arrest Systems and their use shall comply with the provisions set forth below and meet ANSI and ASTM requirements.

#### A. Inspection and Maintenance –

1. Personal fall arrest systems shall be inspected daily by the user for wear, damage and other deterioration, and defective components shall be removed from service. The user is responsible for the safety equipment in his/her possession and all manufacturer's instructions shall be followed. Complete the Safety Harness and Lanyard Inspection Checklist – Attachment 7.2 quarterly so that there is written documentation available.
2. The competent person shall inspect fall protection and fall rescue equipment to verify that the equipment is inspected and maintained in accordance with the manufacturer's instructions. Inspections by the competent person shall be performed at least annually and documented.

#### B. System Requirements - Personal fall arrest systems, when stopping a fall, shall:

1. limit maximum arresting force on employee to 1,800 pounds when used with a body harness;

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2. be rigged such that an employee can neither free fall more than 6 feet nor contact any lower level;
3. bring an employee to a complete stop and limit maximum deceleration distance an employee travels to 3.5 feet; and
4. have sufficient strength to withstand twice the potential impact energy of an employee free fall distance permitted by the systems, whichever is less.

- C. Hoisting Areas - When a personal fall arrest system is used at hoist areas, it shall be rigged to allow the movement of the employee only as far as the edge of the walking/working surface.
- D. Equipment Used During Falls - Personal fall arrest systems and components subjected to impact loading shall be immediately removed from service and shall not be used again for employee protection until inspected and determined by the Manufacturer of the equipment, competent person or Regional Safety and Health Manager to be undamaged and suitable for reuse.

#### 5.2.3.2 Body Harnesses

- A. Body harnesses shall be used only for employee protection and not to hoist material.
- B. Body harnesses can be obtained at equipment supply rooms, fall protection cabinets and tool storage cabinets located within various company facilities and project sites.
- C. Body harnesses shall be worn properly, affording a snug, yet comfortable fit.

#### 5.2.3.3 Connectors: Dee-rings and Snaphooks (Carabiners)

Dee-rings and snaphooks (carabiners) shall be of a locking type and have a minimum tensile strength of 5,000 pounds and proof-tested to a minimum tensile load of 3,600 pounds. All connectors shall be drop forged, pressed or formed steel, or made of equivalent materials. They shall have a corrosion-resistant finish with all surfaces smooth to prevent damage to interfacing parts of the system.

#### 5.2.3.4 Lanyards and Lifelines

- A. Lanyards and vertical lifelines shall have a minimum breaking strength of 5,000 pounds and be protected against being cut or abraded. Ropes

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and straps (webbing) used in lanyards shall be made from synthetic fibers. ONLY double lanyards shall be used. No single lanyards.

- B. A 100 percent tie off means utilizing a double lanyard. Prior to unhooking one snaphook, the other must be hooked.
- C. Check the expiration date per the manufacturer's procedure (Avg 3-5 yrs). Equipment with an absence or illegibility of markings or tags shall be destroyed and removed from site.
- D. Each person shall be attached to a separate lanyard or lifeline.
- E. Lanyards secured to a body harness (for fall protection) shall be secured in the center of the wearer's back near shoulder level or above the wearer's head.
- F. Lanyards should be secured in such a manner so as to afford the least free fall distance possible up to a maximum of 6 feet and not allow contact with objects below.
- G. Horizontal lifelines (engineered only)
  - 1. Horizontal lifelines shall be designed either by the manufacturer, professional engineer (PE) or qualified person and installed, and used, under the direction of a competent person, as part of a complete personal fall arrest system, which maintains a safety factor of at least two to one, as determined by the competent person. **Only approved engineered horizontal lifelines systems specifying anchorage, connectors and calculated fall forces shall be used.**
  - 2. A written fall protection plan (Attachment 7.1) is required by the Company Safety Department and must be completed prior to installing any horizontal lifeline at the project site.
  - 3. Non-certified anchorages shall not be used for horizontal lifelines.
- H. Self-Retracting Lifelines/Lanyard (retractolocks or safety blocks) that automatically limit free fall distance to 2 feet or less shall be capable of sustaining a minimum tensile load of 3,000 pounds. The use of an additional lanyard should be avoided when using self-retracting lifelines/lanyards. The latching device on the self-retracting lifelines/lanyard should be connected directly to the body harness using

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the existing dee-ring. NOTE: Most manufacturers require 50 ft retractable lanyards to be returned for an annual inspection by the manufacturer. Check each lanyard type for the manufacturer's instructions for recertification.

#### 5.2.5.5 Anchorages

- A. Personal fall arrest equipment shall be independently attached to an anchorage capable of supporting at least 5,000 pounds per employee attached or shall be designed, installed, and used as part of a complete personal fall arrest system as part of a complete personal fall arrest system which maintains a safety factor of at least two, as determined by the competent person.
- B. Building structures (columns, floor, steel grating, and hand rail, for example) may be used as tie-off points.
- C. In the absence of other suitable points, a crane hook can be used as an anchorage point for a lanyard or deceleration device provided that the hook can support at least 5,000 pounds, the load is not suspended (rigging can be in place but de-tensioned), and there is no hook movement (hoisting or lowering).
- D. Anchorages for horizontal lifeline systems shall be "certified" and designed, prior to use, by a qualified person with experience and training in designing and using horizontal lifeline systems. Horizontal lifelines typically magnify fall arrest forces in anchorages to values far beyond the usual 5,000 pound limits for all arrest anchorages and thus only qualified persons should specify anchorages for this type of fall arrest system.

#### 5.2.4 Positioning Device System

Positioning device systems shall be rigged such that the free fall distance is limited to a maximum of 2 feet and shall be secured to an anchorage capable of supporting at least twice the potential impact load of an employee's fall for 3,000 pounds, whichever is greater, as determined by the competent person.

#### 5.2.5 Rescue After A Fall

- 5.2.5.1 If a fall occurs, any employee hanging from the fall-arrest system must be rescued safely and quickly. Fast rescue of fall victims may include the following: equipment that lets the victim self-rescue; a system for rescue by co-workers; and away of calling a trained rescue squad.

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5.2.5.2 Rescue systems required advanced planning. Before there is any risk of a fall, know what the project rescue plan calls for you to do.

- Know how to use the equipment for self-rescue and the rescue of others.
- Determine what rescue equipment is available and where it is located. This can include ladders, hoists, manlifts and winches.
- Know whom to call for outside help and the fastest way of reaching them. This may include a call to the fire department, facility rescue squad and medical services. Emergency phone numbers shall be posted. The recommended goal for rescue subject contact should be less than six minutes.

5.2.5.3 During the rescue, have fall protection available for the victim and the rescuers. Communicate with and monitor the victim constantly and call any special rescue services needed.

### 5.3 Fall Protection Plan

#### 5.3.1 Fall Protection Plan Development

**This option is available only to employees engaged in leading edge work** who can demonstrate that it is infeasible or it creates a greater hazard to use conventional fall protection equipment. The plan shall be prepared by supervisor and reviewed by the Regional Manager Safety and Health. Complete the Fall Protection Plan as outlined in Attachment 7.1. The plan shall be specifically developed for the site where the leading edge work is being performed and maintained up to date. Changes shall be reviewed by the Regional Safety and Health Manager and a copy shall be maintained at the job site. The plan shall include the following:

- 5.3.1.1 A discussion of why the use of conventional fall protection systems (guardrail systems, personal fall arrest systems, or safety net systems) are infeasible or why their use would create a greater hazard.
- 5.3.1.2 A discussion of other measures that will be taken to reduce or eliminate the fall hazard for workers who cannot be provided with protection from the conventional fall protection systems.
- 5.3.1.3 Identify each location where conventional fall protection methods cannot be used. These locations shall then be classified as Controlled Access Zones (section 5.3.3) and a safety monitoring system (section 5.3.2) shall be used.



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5.3.1.4 Identify by name or other method each employee designated to work in a Controlled Access Zone. No other employee may enter the Controlled Access Zone.

5.3.1.5 If an employee in a Controlled Access Zone falls, or some other related, serious incident occurs (e.g., near miss), it shall be investigated by Construction Manager/Regional Safety and Health Manager to determine if the fall protection plan needs to be changed (e.g., new practices, procedures, or training).

### 5.3.2 Safety Monitoring System

A safety monitoring system is an alternative fall protection system in which the supervisor designates a safety monitor who is responsible for recognizing and warning employees of fall hazards. The safety monitor shall have completed fall protection training. The duties of the safety monitor are;

5.3.2.1 Be on the same walking/working surface as the monitored employees, within visual sighting distance and close enough to communicate with the monitored employees.

5.3.2.2 Warn employees when it appears that they are unaware of fall hazards or act in an unsafe manner, and notify their supervisor accordingly.

5.3.2.3 Not allow other responsibilities to encumber monitoring. If the safety monitor becomes too encumbered with other responsibilities, the monitor shall stop the job and notify their supervisor.

### 5.3.2 Controlled Access Zone

A controlled access zone is an area designated and clearly marked, in which leading edge work may take place without the use of a guardrail system, a safety net system or personal fall arrest system. Control access zones shall comply with the following provisions:

5.3.3.1 Control lines shall consist of rope, wire, tapes, or equivalent materials, and supporting stanchions as follows:

- A. Each control line shall be flagged or otherwise clearly marked at not more than 6-foot intervals with high-visibility material.

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- B. Each control line shall be rigged and supported in such a way that its lowest point (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 walking/working surface.
- C. Each control line shall have a minimum breaking strength of 200 pounds.

5.3.3.2 When used to control access to areas where leading edge and other operations are taking place, the controlled access zone shall be defined by a control line or by any other means that restricts access.

5.3.3.3 When control lines are used, they shall be erected not less than 6 feet nor more than 25 feet from the unprotected or leading edge.

5.3.3.4 The control lines shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading edge.

#### 5.4 Working Over Or Near Water

5.4.1 Employees working over or near water shall be equipped with U.S. Coast Guard approved life vests or floatation devices.

5.4.1.1 Life vest/floatation devices shall be inspected for damage/defects prior to each use.

5.4.1.2 Life vest/floatation devices worn by employees performing hot-work shall be approved for such exposure.

5.4.2 An approved method of emergency rescue shall be established for employees working over or near water. Adequate communication shall be pre-planned with the site.

5.4.3 Ring buoys with 90 feet of line shall be provided and readily available for emergency rescue operations. The distance between ring buoys shall not exceed 200 feet.

5.4.4 Ring buoys and other floatation devices should be inspected periodically (e.g., monthly) to ensure they are in good repair. Damaged or defective floatation devices are to be replaced immediately.

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5.4.5 A life-saving skiff (boat) shall be pre-staged and immediately available to rescue personnel while performing work over or near moving water.

5.5 Fall Protection Training

5.5.1 The Construction Manager shall ensure a training program is conducted for each employee who might be exposed to fall hazards. The program shall enable each employee to recognize the hazards of falling and shall provide each employee with guidance in methods to minimize fall hazards.

5.5.2 The Construction Manager shall ensure that records (rosters) of personnel trained are maintained.

5.5.3 Retraining

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

5.5.3.1 Accidents and serious near misses which must be investigated and changes made to the fall protection plan as necessary.

5.5.3.2 Changes in the workplace render previous training obsolete; or

5.5.3.3 Changes in the types of fall protection systems or equipment to be used render previous training obsolete; or

5.5.3.4 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.

6 **RECORDKEEPING**

Employee training records for fall protection shall be kept for three (3) years.

7 **ATTACHMENTS**

7.1 Fall Protection Plan including Compliance Agreement (Appendix A)

7.2 Safety Harness and Lanyard Inspection Checklist

7.3 Competent Person Equipment Inspection Checklist

Fall Protection Work Plan  
**Leading Edge Work**

1 Purpose

This plan is written not only to comply with the law, but in the hope that through its use it will prevent injuries caused by falls. **This option of Completing the Fall Protection Work Plan is available only to employees engaged in leading edge work who can demonstrate that it is infeasible or it creates a greater hazard to use conventional fall protection equipment.**

2 Plan

The plan consist of the following nine (9) sections that should be completed and signed by the Project Manager and shall be posted on the job site bulletin board.

1. Instructions

- 3.1. Check the boxes in Section I that describe the project's fall hazards. Write in job specific or additional hazards not identified in Lines A through K starting with Line L.
- 3.2. Check the boxes in Section II that identify the corresponding method of fall protection for Items A through K. Write in the method of fall protection for the additional items written starting with L.
- 3.3. Continue to review the other seven (7) Sections with the workers and have each worker sign the site specific fall protection plan on page 8 (Appendix A) of the fall protection plan.

**SITE SPECIFIC FALL PROTECTION WORK PLAN**

Project: \_\_\_\_\_

Location: \_\_\_\_\_ Contract No. \_\_\_\_\_

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

Purpose: This plan has been designed to establish safe procedures and practices for our workers exposed to a fall hazard of 6 feet or more. All affected on-site personnel are required to read the Fall Protection Plan, abide by all of its provisions and sign a Compliance Agreement (Appendix A.) The development of this plan is in conformance with the directives and requirements of the Safety and Health Program; OSHA’s requirements as set forth in 29 CFR 1910.269, 1925.500 and 1926.105; and in conjunction with the customer’s safety and health requirements.

The Plan:

The plan shall consist of the following required procedures:

A full body harness, lanyard and/or life lines attached to an approved anchor or anchor system will be used at all times when the following conditions exist:

1. When fall hazards exist during a project phase in which the employee may be exposed to a fall hazard of 6 feet or more, or at the discretion of the customer’s health and safety requirements. This includes, but is not limited to:
  - A. Working on permanent platforms of floors with handrails removed.
  - B. Work requires working off temporary platforms or equipment, such as scaffolds with guardrails, midrails or toeboards removed.
  - C. Work requires working off equipment with no permanent access or fall protection devices installed.
  - D. Work requires working off any and all types of ladders.
  - E. Work requires workers to be exposed to temporary unguarded openings in floors or walls.

**I. Identification of Fall Hazards Which Exist During the Project Phase in Which the Employee May be Exposed to a Fall Hazard Over 6 Feet.**

- \_\_\_\_\_ A. Working on permanent platforms of floors with handrails removed.
- \_\_\_\_\_ B. Work requires working off temporary platforms or equipment, no handrails.
- \_\_\_\_\_ C. Metal /transite sheeting, no platform available.
- \_\_\_\_\_ D. Work requires working off equipment with no permanent access.
- \_\_\_\_\_ E. Work requires working off tube staging.
- \_\_\_\_\_ F. Work requires working off sky climber-type scaffold.
- \_\_\_\_\_ G. Work requires welding of scaffold brackets to equipment and working off scaffold planks.
- \_\_\_\_\_ H. Work requires working out of man-baskets supported from cranes or forklifts.
- \_\_\_\_\_ I. Work requires working off ladders.
- \_\_\_\_\_ J. Work requires workers to be overhead with the possibility of dropping material or tools.
- \_\_\_\_\_ K. Work requires workers to be exposed to temporary unguarded openings in floors or platforms.

**JOB SPECIFIC HAZARDS**

- L. \_\_\_\_\_  
\_\_\_\_\_
- M. \_\_\_\_\_  
\_\_\_\_\_
- N. \_\_\_\_\_  
\_\_\_\_\_
- O. \_\_\_\_\_  
\_\_\_\_\_
- P. \_\_\_\_\_  
\_\_\_\_\_

**II. Method of Fall Protection for Each of the Hazards Listed in Section I.**

- \_\_\_\_\_ A. Install temporary guard rail on open side or if it cannot be used, then full body harness (type III) with lanyards and life lines attached to an approved anchor will be used.
- \_\_\_\_\_ B. Install temporary guard rails with toeboard on all sides, if one side must be open then full body harness (type III) with lanyards and life line attached to an approved anchor will be used.
- \_\_\_\_\_ C. When installing /removing metal sheeting (e.g. transite panels) , all installers will wear safety harnesses (type III) with lanyards to life lines attached to approved anchors or from approved man baskets.
- \_\_\_\_\_ D. Temporary access will be built with scaffold planks, hand rail and toeboards or with temporary stairs with hand rail. Supervisor/foreman will inspect prior to use.
- \_\_\_\_\_ E. Work required from tube and coupler scaffold - the scaffold will be inspected and tagged by the Scaffold Competent Person before use.
- \_\_\_\_\_ F. Work from sky climber-type scaffold - Scaffold will have hand rail and toeboards. Workers will wear harnesses with lanyards and life lines attached to permanent approved anchor.
- \_\_\_\_\_ G. Brackets will in installed from approved man baskets with workers in harnesses with life lines and anchor. Scaffold brackets will be secured to wall with weld clips, all welding will be completed by certified welders. Workers using scaffold will be in harness with lift lines and anchors.
- \_\_\_\_\_ H. Work out of man-baskets supported from cranes or forklifts - Man baskets will be engineer certified. Crane will be certified within one (1) year. Workers will be in harnesses attached to life lines with approved anchor points. If a crane is used, the anchor point will be to cable above the crane ball, not to the crane hook. If forklift is used, anchor to point (i.e. mast) separate from forks or basket.
- \_\_\_\_\_ I. Ladders will be installed in accordance with Safety & Health directive.
- \_\_\_\_\_ J. Overhead Work - See Section V. tools.
- \_\_\_\_\_ K. Holes in permanent platforms (i.e. grating) will be temporarily covered with secured work or steel plates until openings are filled.

### JOB SPECIFIC HAZARDS

- L. \_\_\_\_\_  
\_\_\_\_\_
- M. \_\_\_\_\_  
\_\_\_\_\_
- N. \_\_\_\_\_  
\_\_\_\_\_
- O. \_\_\_\_\_  
\_\_\_\_\_
- P. \_\_\_\_\_  
\_\_\_\_\_

**III. Assembly, Maintenance and Inspection of Fall Protection Systems**

- A. Scaffold per Section II, Item B
- B. Employees will don equipment before climbing to the work position and will snap onto the lifeline immediately upon reaching the work area.
- C. Defective equipment will IMMEDIATELY be taken to the job trailer for replacement. Defective equipment will be tagged DANGER, DO NOT USE and sent out for repair or destruction.

**IV. Procedure for Handling and Storing of Tools and Equipment.**

- A. Job material will be handled by truck and trailer, crane, forklift or pneumatic tuggers.
- B. Tools will be stored in tool boxes or tool buckets on decks or in a designated tool room in the building.
- C. Material in its final position will be secured.
- D. Hand tools will be tied off if any chance of falling exists or will be carried in tool belt.

**V. Method of Providing Overhead Protection for Those Working Below and Where the Possibility of Falling Objects Exists.**

- A. Area will be roped off or barricaded to eliminate access.
- B. Hard hats will be worn. Entire job is a hard hat area.
- C. Warning signs will be posted.



- D. Floor openings will be closed and toe boards installed to prevent items from falling through the holes.
- E. Material and tools used overhead will be maintained in tool boxes and secured to prevent falling.

**VI. Method of Prompt Safe Removal**

- A. If an employee is injured, a supervisor/foreman will evaluate the employee's condition and administer first aid. If the condition appears serious, the supervisor or designated person will:
  - 1. Initiate emergency medical system 911 or other local specific PRE-ARRANGED emergency rescue unit to request assistance.
  - 2. Utilize "stokes" basket with harness and straps or crane basket to lower injured worker.
  - 3. Erect ladders to retrieve the worker.
  - 4. Use drop lines to lower the workers.
  - 5. Have select crew stand by to assist emergency rescue team.
  - 6. Minor injuries: employees will be delivered to the Designated Medical Provider by Supervisor/Foreman or designated representative.

**VII. Training Of Employees**

- A. Training of employees will be conducted as part of their new hire safety orientation
- B. Training will be a part of the weekly tool box safety meeting.
- C. Employees will immediately receive instructions on any special hazard or potential hazard as it is identified.

**VIII. Inspection of Fall Protection Equipment**

- A. All inspections will be conducted by the Supervisor/foremen and employees.
- B. All equipment sent to the job site will be checked and inspected by the branch office by the supervisor/foreman or designee prior to shipment to the job site. Checks will be for damage, proper operation, wear, mildew, etc.
- C. Prior to each Shift use, the employee will inspect his/her own equipment.

- D. Supervisors will periodically inspect equipment for compliance.

**IX. Documentation of Employee Training.**

- A. At job safety orientation, the employee will read and sign a Compliance Agreement (Appendix A) that he/she has read and understands the plan.
- B. Tool box safety talks will have items discussed and the names of those in attendance.
- C. All records and documents will be kept on file at the job site by the supervisor.

**Appendix A**  
**Compliance Agreement**

I, \_\_\_\_\_ (print name) have reviewed a copy of the company's Fall Protection Plan. I have read the plan, understand it, and agree to comply with all its provisions. I understand that I could be prohibited from working at the job site for violating any of the safety requirements in the plan.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
**Project Manager/Supervisor/Foremen**

## SITE SPECIFIC FALL PROTECTION WORK PLAN

Project: \_\_\_\_\_ Location: \_\_\_\_\_ Contract No. \_\_\_\_\_

Date: \_\_\_\_\_ Work Task(s): \_\_\_\_\_

This plan consist of seven(7) sections that shall be completed and signed by the competent person and the employees authorized execute the Work Task. This form is for Fall Protection ONLY. Protective equipment and procedures for other types of hazards must also be in place, i.e., TSAs

Contact ICG Regional Safety Mgr for all horizontal lifeline(s)  
 Competent Person Preparing Plan: \_\_\_\_\_

**I. Identification of Fall Hazards** Name \_\_\_\_\_

Check the box(s) in the table below for each fall hazard greater than 6 ft. above the lower safe level.

<input type="checkbox"/> Open Sides:	<input type="checkbox"/> Floors or Platforms	<input type="checkbox"/> Stairs	<input type="checkbox"/> Catwalks	<input type="checkbox"/> Scaffolds	<input type="checkbox"/> Unguarded Machinery
<input type="checkbox"/> Wall Openings: at Least 30 in. High x 18 in. Wide and Less Than 3ft. Above the Working Surface					
<input type="checkbox"/> Floor Openings: at Least 12 inches in any dimension: <input type="checkbox"/> Hatchway <input type="checkbox"/> Manhole <input type="checkbox"/> Pit <input type="checkbox"/> Tank <input type="checkbox"/> Skylight					
<input type="checkbox"/> Leaving the Guarded Floor Surface: of a <input type="checkbox"/> Manlift (Any Type) <input type="checkbox"/> Scaffold <input type="checkbox"/> Catwalk Platform					
<input type="checkbox"/> Working from inside a Properly Guarded Man-lift: (Scissor, Boom, Bucket, Articulating)					
<input type="checkbox"/> Working from a Suspended Platform: <input type="checkbox"/> Swing Stage <input type="checkbox"/> Manbasket <input type="checkbox"/> Boatswain's Chair					
<input type="checkbox"/> Fixed Ladder:	<input type="checkbox"/> Working with Both hands				
<input type="checkbox"/> Portable Ladder:	<input type="checkbox"/> Working with Both hands				
<input type="checkbox"/> Working on Roofs Steeper than 4:12 Pitch					
<input type="checkbox"/> Working within 6 ft. of a Roof Edge, Less than 4:12 Pitch					
<input type="checkbox"/> Structural Climbing: (Roof Truss, Cooling Towers, Pollution Equipment)					
<input type="checkbox"/> Other, Describe: _____					

**II. Fall Protection Methods**

Select the fall protection method from the list below for each hazard identified above.

Guardrails  Full Body Harness, Lanyard/Lifeline & Anchorage  Warning Line System  
 Floor/Hole Hatch Covers  Other \_\_\_\_\_  Warning Line System & Safety Monitor

**III. Fall Protection Assembly and Maintenance**

Fall protection systems will be assembled and maintained according to the manufacturer's instructions when using a manufactured system. All fall protection shall meet OSHA regulations. Assembly and maintenance instructions unique to this worksite such as components, placement of systems, anchor points, etc, are specified below.

Guardrails: 42' ± 3" top rail with minimum 200 lb. strength, mid-rail minimum 150 lb. strength. No significant deflection  
 Post and Rail Material; \_\_\_\_\_  Post Spacing 8 ft max  Anchor Method; \_\_\_\_\_

Floor/Hole Hatch Covers: 2 x heaviest worker, vehicle or other load, minimum 310 lbs.)

Select Anchorage:  
 > 5000 lbs. Free Fall > 2 ft Describe: \_\_\_\_\_  
 > 3000 lbs IF Deceleration device in use limits fall to 2 feet. i.e., retractable lanyard/lifeline  
Describe: \_\_\_\_\_

Fall Arrest Harness:  
 Anchor points capable of withstanding 5000 or 3000 lbs shock as noted above.   
 Free fall may not exceed 6 ft and lower level may not be contacted during a fall.  
 Snap hooks may NOT be connected to each other, or to loops in webbing UNLESS designed by Mfgr.  
 System Component List: \_\_\_\_\_  
 Configuration and placement sketch attached?  Yes  No.

Horizontal Lifeline (s)  
 Engineered (Mfgr only)  1 person  2 person  > 2 person  
 System Components List: \_\_\_\_\_  
 Configuration and placement sketch attached?  Yes  No.  
Describe: \_\_\_\_\_

Vertical Lifeline (s)  
 Rope grab compatible with line ( rope, cable, etc) NOTE: 1 person per line only.

Estimate Required Clearance: ( \_\_\_\_\_ ft. Free Fall) + ( \_\_\_\_\_ ft. Lockoff & Deceleration) + 3 ft (Stretch + Buffer) = \_\_\_\_\_ ft.  
 Measure Available Clearance: \_\_\_\_\_ ft.  Exceeds Clearance Requirement (Safe)  
 Less than Estimated Clearance Requirement (Caution)

Job materials such as harnesses, lanyards etc. will be stored where: \_\_\_\_\_

**III. Fall Protection Assembly and Maintenance (continued)**

Covers or Hatches must: \_\_\_\_\_

- Be able to support twice the weight of employees and equipment that would be on it at the same time.
- Be secured to prevent accidental displacement.
- Be marked with the word "Cover" or "Hole".
- Materials to use:  Other Instructions

Warning Line System must:

- Block access to all fall hazards in the work area  Be placed 6 ft. back from edge and flagged at 6 ft intervals
- Be made of rope wire or chain between 39"-45" above the surface height.
- Be attached to stanchions such that pulling one section of chain will not take up the slack in the other sections.
- Have stanchions that are able to withstand a 16 lb force applied horizontally at 30" high
- Systems Components List:

Controlled Access Zones must:

- Meet the "Warning Line System" requirements above, 6 ft to 25 ft back from edge plus the following when employees work between the fall hazard and the warning line ("control zone").
- Have a competent person designated as "Monitor" who has received **special training** and:
  - Wears a high-visibility vest marked "Monitor" • Is in visual and voice range of employees in the control zone
  - Is on the same working level • Has no other duty except watching, warning, and directing employees on fall hazards.
  - Has a maximum of 8 employees working in the control zone - all of whom also wear high-visibility vests

Monitor(s)

Control Zone Employees:

- |    |    |    |
|----|----|----|
| 1. | 4. | 7. |
| 2. | 5. | 8. |
| 3. | 6. |    |

Other Fall Protection System: Provide a description of how the system is to be assembled, disassembled, operated, inspected, and maintained, including specifications for the materials to be use in the construction.

**IV. Overhead Protection Method:**

- Overhead Hazard Signs  Barricade to Control Access to Area  Hardhats
- Screens on Guardrails  Other:

**V. Fall Protection Inspection**

- Fall Protection Systems must be inspected by the user before each use and by the competent person quarterly using the fall protection checklist.
- Fall Protection Checklist completed for every harness and lanyard on site.  Documentation on site

**VI. Prompt Safe Rescue**

If a person is injured at an elevation, the following elements are in place to provide prompt safe rescue.

- Emergency No.  Customer phone:  Outside rescue service phone:
- Equipment available:  Boom lift:  Ladder(s)
- Other - Describe:  Name Hospital:  Name Occupational Clinic:

**VI. Employee Training**

- Employees given specific instructions on any special hazard identified
- List Special Hazards:
- All employees have at least 1- hr Fall Protection Training  OSHA 10-hr Construction  Other:
- Compliance Agreement - Signed by all employees

I have reviewed this Site Specific Fall Protection Work Plan. I have read the plan above, understand it, and agree to comply with all its provisions.

Print Name	Signature	Date
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Competent Person Signature: Date:

The competent person's signature verifies that the hazard analysis has been completed, the employees informed of the plan's provisions and that employees have received training in the fall protection systems in use.



## Safety Harness and Lanyard Inspection Checklist

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

Safety Harness ID No. \_\_\_\_\_

Lanyard ID No. \_\_\_\_\_

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

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

The following information is provided to ensure proper inspection, use, and care of your safety harness and lanyard.

### 1. Inspect your equipment before each use

- Carefully inspect the webbing and other parts of the belt or harness. These items should be free of cuts and significant wear.
- Check the lanyard. It should also be free of cuts and abrasions. Look for signs that the shock absorber is distorted indicating that it has been used or exposed to some heavy loading.
- Check all metal hardware for bent, broken or cracked parts.
- Inspect clasp hooks to ensure they operate freely. All clasp hooks are required to be of the double action type requiring two actions to open them.

### 2. Don the harness and ensure it is adjusted properly.

- Safety belt, if used, must be securely fastened around the waist with the D-ring in the middle of the back.
- Safety harness fit snugly around the chest and leg areas. Use care in selecting the harness and fitting it.
- Safety harness D-ring should normally be in the middle of the back where it can easily be reached to hook and unhook the lanyard without performing contortionist act which may cause a fall.
- Ensure anchorage is attached to a structure with sufficient strength to support at least 5000 pounds for each person anchoring to it.

### 3. Take care of your equipment when you finish using it.

- Wash equipment frequently in mild detergent and water. Avoid harsh chemicals.
- Allow to air-dry and store in a location to avoid environmental extremes. Store properly
- Lubricate snap hooks with a light oil after cleaning.
- Follow all manufacturers' recommendations.

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

### Safety Harness, Anchorage Device, and Lanyard - Quarterly Inspection Checklist

**1st Quarter**  
Red

**2nd Quarter**  
Black

**3rd Quarter**  
Silver

**4th Quarter**  
Blue

**Inspectors Name:** \_\_\_\_\_ **Inspection Date:** \_\_\_\_\_

**Project Location:** \_\_\_\_\_ **Inspectors Signature:** \_\_\_\_\_

The following information is provided to ensure proper inspection, use, and care of your safety harness and double lanyard. Single lanyards are **NOT** permitted. You must have completed fall protection training

**Inspect Harnesses and Lanyards for the following:**

- Carefully inspect the webbing and other parts of the belt (positioning device only) or harness. These items should be free of cuts, significant wear or contaminants. Remove duct tape or anything that may hide wear.
- Check the lanyard. It should also be free of cuts, abrasions or contaminants. Look for signs that the shock absorber is distorted indicating that it has been used or exposed to some heavy loading.
- Check all metal hardware for bent, broken or cracked parts.
- Inspect clasp hooks to ensure they operate freely. All clasp hooks are required to be of the double action type requiring two actions to open them.

	Harness ID. No.	Manufacture Date	Pass	Taken out of service	Color Code
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					
27					
28					
29					
30					

### Retractable Lanyard - Quarterly Inspection Checklist

**1st Quarter**  
**Red**

**2nd Quarter**  
**Black**

**3rd Quarter**  
**Silver**

**4th Quarter**  
**Blue**

**Inspectors Name:** \_\_\_\_\_ **Inspection Date:** \_\_\_\_\_

**Project Location:** \_\_\_\_\_ **Inspectors Signature:** \_\_\_\_\_

The following information is provided to ensure proper inspection, use, and care of your safety harness and double lanyard. Single lanyards are **NOT** permitted. You must have completed fall protection training

**Inspect Harnesses and Lanyards for the following:**

- Carefully inspect the webbing, wire rope, and other parts of the device. These items should be free of cuts, significant wear and contaminants. Remove duct tape or anything that may hide wear.
- Look for signs that the shock absorber is distorted indicating that it has been used or exposed to impact loading.
- Check all metal hardware for bent, broken or cracked parts.
- Inspect clasp hooks to ensure they operate freely. All clasp hooks are required to be of the double action type requiring two actions to open them.

	Retractable ID. No.	Manufacture Date	Pass	Taken out of service	Color Code
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
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26					
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28					
29					
30					



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Safety Directive No. 5.3	

## 1 **GENERAL**

### 1.1 **Purpose**

To provide procedures and requirements for construction, safe use, inspection and tagging of scaffolds at industrial, commercial and construction sites.

### 1.2 **Objective**

It is the objective of the Company is to establish safe work practices for constructing, working on and dismantling scaffolding, and comply with all applicable OSHA standards.

### 1.3 **Scope**

This procedure applies to all employees who use, construct, work on or dismantle scaffolding. This procedure covers the four basic forms of scaffolding used at the Company; 1) Tubular Welded Frame scaffold, 2) Tube and Coupler scaffold, 3) System scaffold, and 4) Mobile scaffold (manually propelled).

## 2 **REFERENCES**

2.1 29 CFR 1910.28; Safety requirements for scaffolding

2.2 29 CFR 1926.451, Scaffolds

2.3 29 CFR 1910.29, Manually Propelled Mobile Scaffolds

2.4 ANSI Standard A10.8-1988, Safety Requirements for Scaffolds

## 3 **DEFINITIONS**

3.1 **Bearer** - A horizontal member of a scaffold upon which the platform rests.

3.2 **Brace** - A tie(usually mechanical) that holds one scaffold member in a fixed position, with respect to another member.

3.3 **Cleat** - A structural block used at the end of platform to prevent the platform from slipping off its support.

3.4 **Competent Person** - For the purposes of this section, an individual who, through training or experience, demonstrates an in-depth knowledge of the rules and regulations which govern the construction, use and inspection of scaffolds and platforms, along with applicable site procedures and policies.

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- 3.5 Coupler - A mechanical device, constructed of structural steel (drop-forged, malleable iron or structural grade aluminum) which is used to lock components of a tubular metal scaffold together.
- 3.6 Guardrail - A protective barrier erected on all open sides of a platform as a form of fall protection. Guardrails shall consist of a handrail, midrail and toe board, as applicable.
- 3.7 Ledger - A horizontal scaffold member which extends from post to post and supports the putlogs or bearer, forming a tie between posts.
- 3.8 Manually Propelled Mobile Scaffold - A portable rolling scaffold supported by casters or wheels.
- 3.9 Maximum Intended Load (Design load) - The total of all loads including the working load (workers, tools, equipment and material), the weight of the scaffold and any other anticipated loads.
- 3.10 Platform - An elevated work space for personnel, tools, machinery and/or equipment. Platforms are installed above the surrounding floor or ground, and may also be located above equipment and/or machinery.
- 3.11 Post/Vertical Pole - A vertical support extending from suitable base to bearer. Post/vertical poles shall be plumb and free of damage.
- 3.12 Putlog - A horizontal scaffold member upon which the platform rests.
- 3.13 Runner - The lengthwise horizontal bracing upon which the platform rests.
- 3.14 Scaffold - Any temporary elevated platform and its supporting structure used to support workers, tools, equipment and/or materials.
- 3.15 Sill - An additional support used under the bases to distribute the weight over a larger area.
- 3.16 System Scaffold - A quick erect metal scaffold system with integrated locking rings on the posts and integrated connectors on the bearers, runners and braces.
- 3.17 Tube and Coupler Scaffold - An assembly consisting of tubing which serve as posts, bearers, braces, ties and runners. A base supports the posts. Special couplers connect the tubes in various positions.
- 3.18 Tubular Welded Frame Scaffold - A sectional, panel or frame metal scaffold built of prefabricated, welded sections which consist of posts and horizontal bearers with intermediate members.

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3.19 Working Load - Total load imposed by workers, tools, equipment and material.

#### 4 **RESPONSIBILITIES**

##### 4.1 Employee

Obtain and or use scaffolding according to the manufacturers instructions, the applicable OSHA standard and safety procedures and practices.

##### 4.2 Supervisors/Foreman

4.2.1 Supervisors shall ensure that all employees are proficient in the use and knowledge of the Company's scaffold safety directive.

4.2.2 Supervisors shall enforce the requirements of the scaffolding safety directive and take appropriate actions when these procedures are not followed.

4.2.3 The Supervisor shall ensure appropriate training records are maintained.

#### 5 **PROCEDURES**

##### 5.1 General

5.1.1 Scaffolds shall be provided for employees engaged in work activities that can not be performed safely from the ground or from solid construction.

5.1.2 Scaffolding shall be erected under the direction of a competent person. All scaffolds shall meet the requirements of this procedure and the safety rules and instructions of the manufacturer. All scaffolds shall be identified with a properly completed "Scaffold Tag" as required by Paragraph 5.5 of this procedure.

5.1.3 Scaffolds and scaffolds components shall be inspected for visible defects by a competent person before each work shift and after any occurrence which could affect a scaffold's structural integrity.

5.1.4 Safe means of access/egress shall be provided for all scaffolds such as ladders, ramps, or stairways. Ladders shall extend a minimum of 36 inches above the platform unless a suitable grabrail is installed and properly secured. Personnel shall not climb the outside of the scaffold.

5.1.4.1 A safe means of access for employees erecting or dismantling a scaffold shall be provided where feasible and does not create a greater hazard. A competent person shall determine whether it is feasible based on site conditions and the type of scaffold being erected or dismantled.

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- 5.1.4.2 Fall protection shall be provided for employees erecting or dismantling scaffolds where the installation and use of such protection is feasible and does not create a greater hazard. A competent person shall determine whether fall protection is feasible.
- 5.1.5 Footing or anchorage for scaffolds shall be sound, rigid, and capable of carrying the “maximum intended load” without settling or displacement.
- 5.1.6 Unstable objects such as barrels, boxes, loose bricks or concrete blocks shall not be used to support scaffolds or planks.
- 5.1.7 Only OSHA approved lumber shall be used for platforms and scaffolds. All lumber used at the Company’s sites shall exhibit fire retardant capabilities.
- 5.1.8 Scaffolds which are incomplete shall be conspicuously tagged per paragraph 5.5 of this procedure. Scaffolds shall not be used unless a completed scaffold tag (green or yellow) is posted.
- 5.1.9 Scaffolds shall be kept clear from the accumulation of tools, materials and/or debris.
- 5.1.10 Where required guardrails cannot be installed on scaffold exceeding 6 feet in height due to scaffold location and/or activity being performed, personal fall protection shall be required.
- 5.1.11 Scaffolds shall not be altered or modified unless done so by a competent person. Upon modification, the scaffold shall be tagged accordingly. Where modifications are not complete, a red scaffold tag shall be posted.
- 5.1.12 Any scaffold which becomes damaged or weakened from any cause shall be repaired and/or replaced by a competent person.
- 5.1.13 Adequate sills and base plates shall be used to support scaffolds.
- 5.1.14 The working height of a scaffold shall not be increased by using ladders or by placing planking on handrails or midrails.
- 5.1.15 Putlogs shall not be cantilevered or extended as side brackets without considering loads to be applied.
- 5.1.16 Putlogs and planking shall extend beyond their supports by a minimum of 6 inches.
- 5.1.17 Where overhead hazards exist, sufficient overhead protection shall be installed.

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- 5.1.18 Where persons are required to work or pass within 8 feet of a scaffold, wire mesh screen (No. 18 mesh) or equivalent shall be installed between the guardrail and toe board or otherwise instructed by Regional Safety and Health Manager. In lieu of the screen, the area below the scaffold can be barricaded/taped off so that personnel cannot pass underneath while personnel are working from the scaffold deck overhead.
- 5.1.19 Employees shall not work on scaffolds during electrical storms or high winds.
- 5.1.20 Snow and ice shall be removed on scaffolds/platforms prior to being used.
- 5.1.21 Scaffolds/platforms shall not block exits, fire protection/alarm equipment or be connected to, or in contact with, any equipment, electrical panel or cable tray. Scaffolds shall not hamper safe operation of equipment needed for service.
- 5.1.22 Materials used in scaffolds shall be of standard manufacture and conform to standard specifications of strength, dimensions and weights, selected to safely support at least 4 times the maximum intended load.
- 5.1.23 Scaffolds shall be erected with required bracing, couplers and safety pins installed.

5.2 Lumber

- 5.2.1 Load-carrying timber members of scaffolding shall be of construction grade lumber.
- 5.2.2 Planking used on scaffolds and platforms shall be scaffold grade or equivalent and:
  - a. shall be laid with edges flush,
  - b. shall be secured to prevent displacement by nailing, installing cleats, using No. 9 tie wire, or other approved means.

5.2.3 Permissible spans for 2 inch X 10 inch or wider planks shall be as follows:

	UNDRESSED LUMBER*			NOMINAL DIMENSION LUMBER**	
Working load (lb./ft <sup>2</sup> )	25	50	75	25	50
Permissible Span (ft.)	10	8	6	8	6

\* “Undressed” lumber is rough cut and measures exact dimensions. (i.e. 2” x 10” = 2” x 10”)

\*\* “Nominal” lumber is finished (smooth) and measures less than exact inches. (i.e. 2” x 10” = 1 5/8” x 9 1/2”).

5.2.4 Planking shall be cleated or have other materials installed to deter splitting.

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- 5.2.5 Planking shall not be thrown/dropped to the ground/floor when disassembling scaffolds.
- 5.2.6 Planks which has excessive splitting/cracks, excessive knots or other visible damage, affecting its integrity, shall not be used for platforms or scaffolds.
- 5.2.7 Nails installed to secure planking shall be of adequate size and in sufficient number at each connection to develop the designed strength of the scaffold. Nails shall not be subjected to a straight pull, nor shall they create a trip hazard.
- 5.2.8 Planks shall extend over their end supports not less than 6 inches nor more than 12 inches.
- 5.2.9 Planking, when lapped, shall overlap each member a minimum of 12 inches.
- 5.2.10 When installed flush, planking shall be butted. The butt joint shall be at the center line of the pole with both ends supported by and secured to separate bearers.
- 5.2.11 When necessary, intermediate support shall be installed to prevent deflection.
- 5.2.12 Where planking material changes direction, planks shall be laid and secured in such a manner to prevent tripping.
  - a. Planks that meet the corner putlog at an angle shall be laid first, extending over the diagonally placed putlog far enough to have sound bearing, but not create a tripping hazard. Planking running in the opposite direction (at right angles) shall be laid across the first plank.
- 5.2.13 When changing levels, the old platform shall be left undisturbed until new putlogs or bearers have been installed and are capable of receiving the platform planks.

### 5.3 Guardrails

- 5.3.1 Scaffolds/platforms  $\geq$  6 feet in height shall be equipped with a handrail, midrail and toe board.

Note: Consideration shall be given to pits, edges of structures, crane bays, etc., when computing the scaffold height.

- 5.3.1.1 Guardrails shall be 2 x 4 inch lumber or equivalent and not less than 36 inches, nor more than 42 inches high.
- 5.3.1.2 Midrails shall be 2 x 4 inch lumber or equivalent and should be centered between the guardrail and the floor of the scaffold/platform.

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5.3.1.3 Toe boards shall be 1 x 4 inch lumber, or equivalent.

5.3.2 Guardrails shall be capable of withstanding a force of 200 lbs. From any direction without displacement or serious weakening.

5.3.3 Screen protection shall be installed when required by paragraph 5.1.18.

#### 5.4 Mobile Scaffolds

5.4.1 Mobile scaffolds shall be designed to withstand varying loads under circumstances for which they are used.

5.4.2 Free-standing scaffolds shall not exceed 4 times (4X) their minimum base dimensions, unless:

- a. Suitable outrigger frames are used to achieve the least base dimensions, or
- b. Suitable guying/bracing is installed to prevent tipping.

Note: When securely tied or guyed, the base of the scaffold shall be 1/3 as wide as the scaffolds height.

5.4.3 The construction and design load of mobile scaffolds shall be computed using the following factors as basis:

Light duty	25 pounds per square foot
Medium duty	50 pounds per square foot
Heavy duty	75 pounds per square foot

5.4.4 Mobile scaffolds shall rest on suitable footing and shall stand plumb.

5.4.4.1 Screw joints, where installed, should extend into the scaffold leg(s) at a distance of at least 1/3 of their length, but shall not have more than 12 inches of thread exposed outside of the scaffold leg.

5.4.5 Mobile scaffolds may be constructed from tubular welded scaffold or tub and coupler scaffolds.

5.4.5.1 Mobile scaffolds exceeding 50 feet in height, shall be approved by Engineering.

5.4.6 The minimum width for any mobile work platform shall be 20 inches.

5.4.7 Platforms shall be of wood, aluminum or plywood planking, steel or expanded metal, or other approved materials.

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- 5.4.7.1 Platforms shall be full width of the mobile scaffold, except for necessary access openings which should be properly guarded.
- 5.4.7.2 Platforms shall be adequately secured in place, planking (when used) shall be a minimum of a 2” nominal thickness, scaffold grade as specified in paragraph 5.2.
- 5.4.8 Mobile scaffolds having a height exceeding 6 feet shall be equipped with a full guardrail as specified in paragraph 5.3. Scaffolds, exceeding 4 but less than 6 feet high, MUST at a minimum, be equipped with a handrail. i.e Baker scaffold.
- 5.4.9 Safety access shall be installed on all mobile scaffolds in the form of stairs or ladders which are built into or attached to the scaffold.
- 5.4.9.1 Ladders shall be installed in such a manner and location to prevent the scaffold from tipping while being used.
- 5.4.9.2 Landing platforms shall be installed in mobile scaffolds every 30 feet in height.
- 5.4.9.3 Ladders shall extend a minimum of 36 inches above the platform or a suitable grabrail shall exist.
- 5.4.10 Caster/wheels used on mobile scaffolds shall be designed to support 4 times (4X) the design working load.
- 5.4.10.1 Casters/wheels shall be equipped with a positive locking device which shall be closed/secured while the scaffold is in use.
- 5.4.11 Moving a manually propelled mobile scaffold while personnel are on the scaffold is strictly prohibited. “Surfing” defined as pulling yourself along a mobile scaffold without getting down to move the scaffold is also prohibited.
- 5.4.11.1 When ready for rolling, check the floor for pits, holes, depressions and other items which could cause the scaffold to become unstable.
- 5.4.11.2 Tools, material and equipment must be secured or removed from the platform when moving the scaffold.
- 5.4.12 The height of a mobile scaffold shall not be increased by installing a ladder on the platform, or by placing planking on the midrails or handrails. Personnel shall not stand on any portion of the guardrail.
- 5.4.13 Any force applied in moving a mobile scaffold shall be at the base of the scaffold.



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## 5.5 Scaffold Tags

5.5.1 **RED SCAFFOLD TAG** (Attachment 7.1): Used to identify an inherent danger. **SCAFFOLD SHALL NOT BE USED.** Red scaffold tags delineate scaffolds which are unsafe due to the following:

- a. scaffold is partially completed;
- b. scaffold is being disassembled; or,
- c. scaffold has been found defective/damaged.

Only authorized persons assigned to erect, disassemble or correct unsafe conditions relating to the scaffold integrity shall be permitted on the scaffold. Proper fall protection shall be used accordingly.

5.5.2 **GREEN SCAFFOLD TAG** (Attachment 7.2): Denotes the scaffold meets all Federal, State and OSHA requirements. Scaffold is safe for personnel use.

5.5.3. **YELLOW SCAFFOLD TAG** (Attachment 7.2): Denotes a scaffold which due to location, configuration and/or obstructions cannot be completed meeting all Federal, State and OSHA requirements. The yellow tag requires the use of additional personal protective equipment, e.g. where guardrails cannot be installed, fall protection is required. This tag will only be used in special circumstances. A double lanyard is required for all yellow tag scaffolds.

Personnel shall utilize proper fall protection while on the scaffold.

## 5.6 Training

5.6.1 Each employee who erects, disassembles, operates or performs work while on a scaffold shall be trained by a competent person to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. Examples of such hazards include falls, electrical/stored energy, and falling objects. Training will include fall protection, the intended use of the scaffold system, the load capacity and constraints of the scaffold system, and inspection requirements and procedures.

5.6.2 Employees who work on scaffolds will receive user training regarding the hazards by a qualified person. The competent person shall also receive training. The training outline for both user and competent person is shown in Attachment 7.4.

5.6.2 The Supervisor of location shall ensure training records (rosters) are properly maintained per OSHA and the Company's requirements.

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### 5.6.3 Retraining

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

- 5.6.3.1 Changes in the workplace which render the previous training obsolete or inadequate.
- 5.6.3.2 Changes in the types of scaffolds, fall protection, or other equipment that introduce a new hazard not addressed by the prior training program.
- 5.6.3.3 Inadequacies in an affected employee's knowledge or work involving scaffolds that indicate the employee has not retained the requisite understanding or skill as demonstrated by insufficient proficiency.

## 6 **RECORDKEEPING**

- 6.1 All training records to be maintained by local, area and/or regional office for three (3) years.

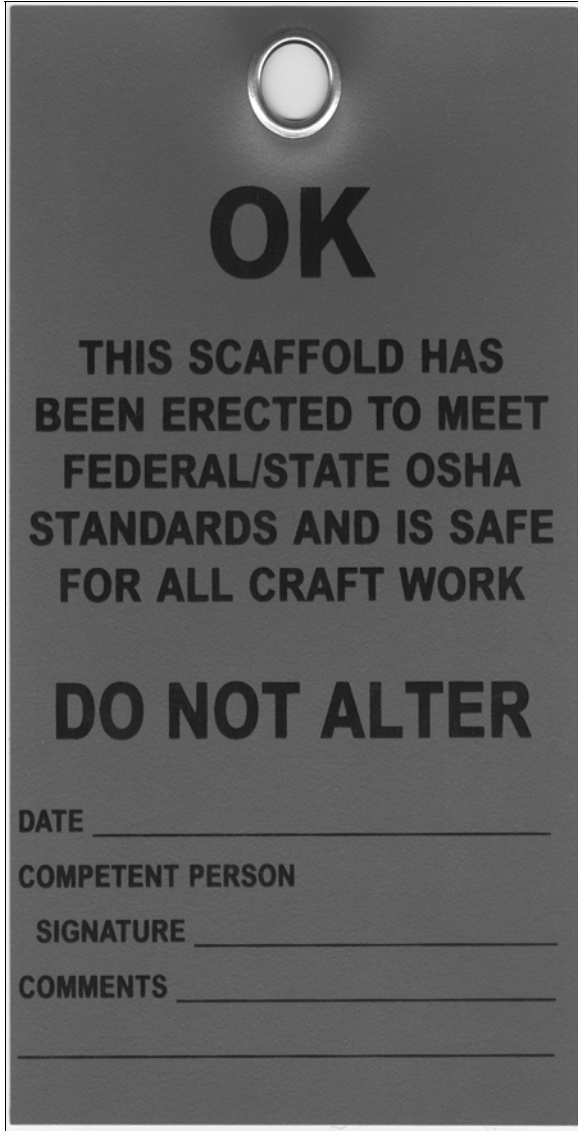
## 7 **ATTACHMENTS**

- 7.1 Red Scaffold Tag
- 7.2 Green Scaffold Tag & Yellow Scaffold Tag
- 7.3 Scaffold User List of "Prohibited Actions"
- 7.4 Scaffold Training Outline for User and Competent Person



**ATTACHMENT 7.2  
GREEN & YELLOW SCAFFOLD TAGS  
EXAMPLE**

**Green**



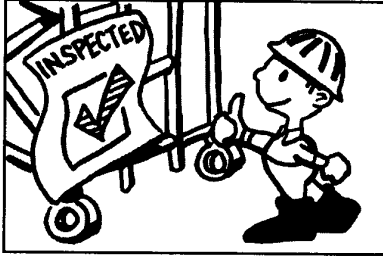
A vertical rectangular tag with a dark grey background. At the top center is a circular hole for a ring. Below the hole, the word "OK" is printed in large, bold, black letters. Underneath, the text "THIS SCAFFOLD HAS BEEN ERECTED TO MEET FEDERAL/STATE OSHA STANDARDS AND IS SAFE FOR ALL CRAFT WORK" is printed in smaller, bold, black letters. Below that, "DO NOT ALTER" is printed in large, bold, black letters. At the bottom, there are four lines of text with horizontal lines for input: "DATE", "COMPETENT PERSON", "SIGNATURE", and "COMMENTS".

**Yellow**

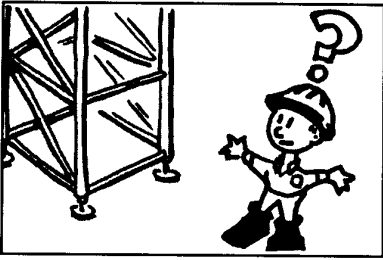


A vertical rectangular tag with a light grey background. At the top center is a circular hole for a ring. Below the hole, the word "CAUTION" is printed in large, bold, black letters. Underneath, the text "THIS SCAFFOLD DOES NOT MEET FEDERAL/STATE OSHA SPECIFICATIONS" is printed in smaller, bold, black letters. Below that, "ALL EMPLOYEES WORKING FROM THIS SCAFFOLD MUST WEAR AND USE AN APPROVED SAFETY HARNESS" is printed in smaller, bold, black letters. Below that, "DO NOT ALTER" is printed in large, bold, black letters. At the bottom, there are four lines of text with horizontal lines for input: "DATE", "COMPETENT PERSON", "SIGNATURE", and "COMMENTS".

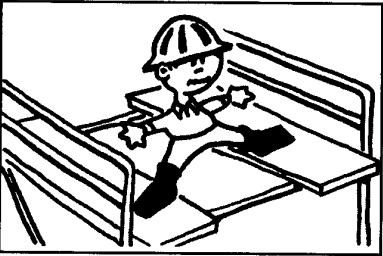
## User Prohibited Actions



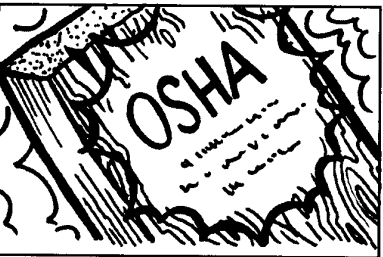
Do not work from a scaffold if it is not been inspected that workshift and is tagged as "Approved, Ready To Use". In addition, do a visual inspection for the obvious requirements such as ladder access, full planking, guardrails, plumbness, rigidity, etc.



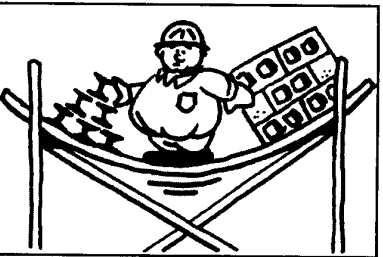
Do not use a scaffold if it does not have a proper ladder or other equivalent safe means of access. Do not climb the scaffold itself.



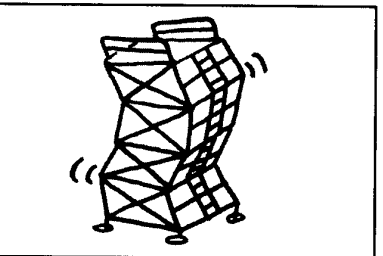
Do not use a scaffold if the working platform is not planked all the way across. Do not use a scaffold if only one or two planks are placed where there should be more.



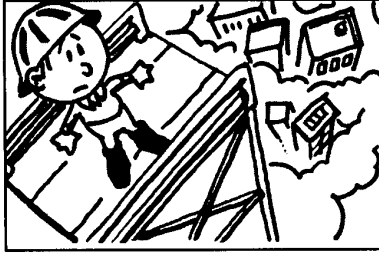
Do not use a scaffold if the planks are not scaffold grade, bearing the proper grade stamp. If the planks are man made, make sure they are in good condition.



Do not use a scaffold if the planks are bowing more than 1/60 of their span.

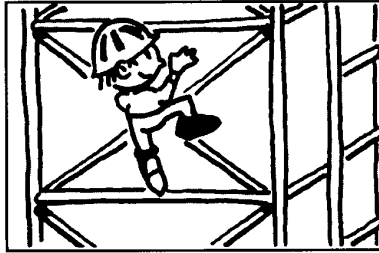


Do not use a scaffold if it is not plumb, square, and rigid.

**User Prohibited Actions**

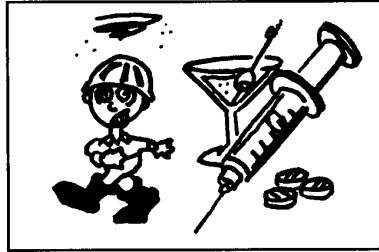
Do not use a scaffold taller than 4 times its minimum base unless it is tied, guyed, or braced to prevent tipping.

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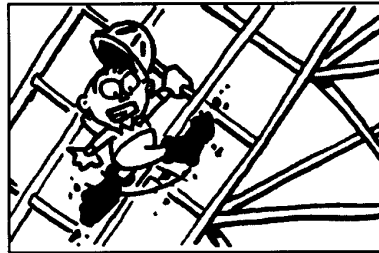
Do not climb the scaffold other than by the safe means of access provided. Never climb guardrails.

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Do not work if you feel weak, sick, or dizzy. Never use drugs or alcohol on a scaffold.

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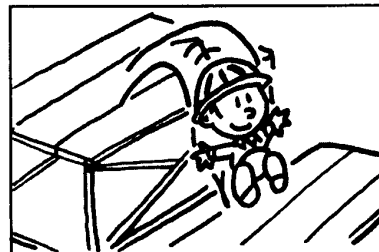
Do not climb with slippery shoes.

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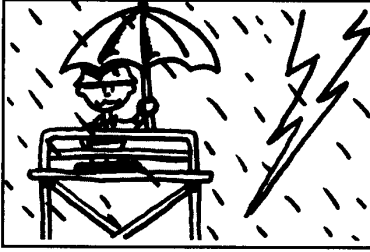
Do not carry materials as you climb. Keep both hands on the siderails.

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Do not jump on to planks or platforms.

## User Prohibited Actions



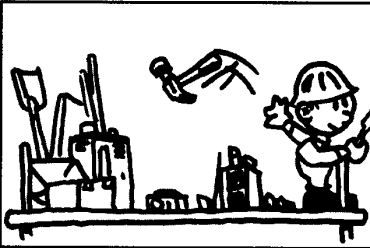
Do not use scaffolds during storms, rain, or high wind.

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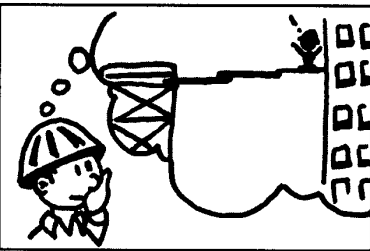
Do not work on ice or snow covered platforms.

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Do not allow tools, material, or debris to accumulate on the platforms and cause a hazard.

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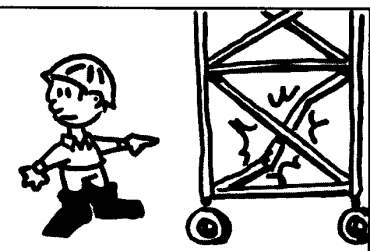
Do not alter the scaffold. Scaffold alterations may only be performed by a trained crew under the supervision of a competent person.

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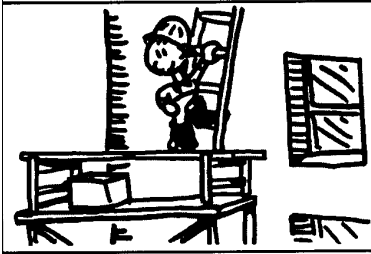


Do not use heat producing activities such as welding or insulation removal without taking precautions to protect the scaffold members.

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Do not work if you notice any components which are damaged.

**User Prohibited Actions**

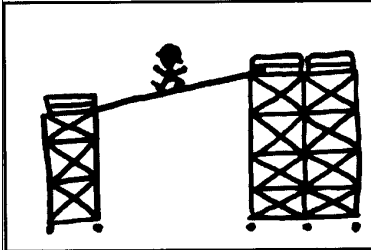
Do not attempt to extend working heights by planking guardrails or by the use of boxes or ladders on scaffold platforms.

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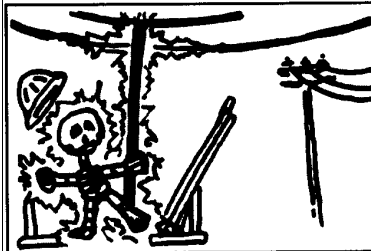
Do not use scaffold as material hoist towers or for mounting derricks unless the scaffold is designed for such use.

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Do not bridge between towers with planks or stages unless the scaffold assembly has been designed for this use by a qualified person.

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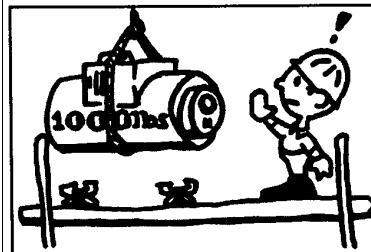
Do not violate clearances from electrical power lines as previously outlined.

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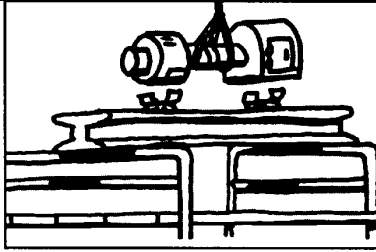
Do not overload the platform by more than it's intended uniform loading.

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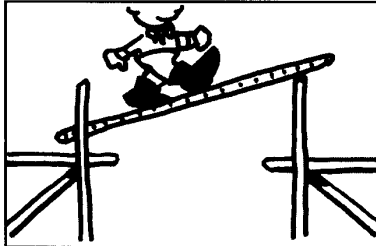
Do not overload the scaffold by point loading a plank above it's capacity.



**User Prohibited Actions**

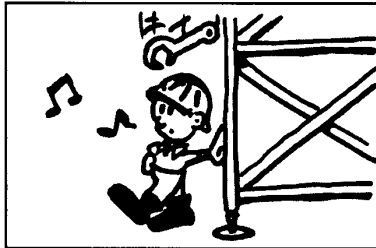
Do not overload a platform by point loading a tube above it's capacity.

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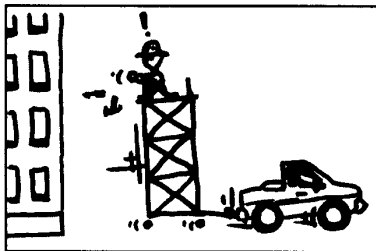
Do not bridge between two scaffolds by stages unless designed by a qualified person.

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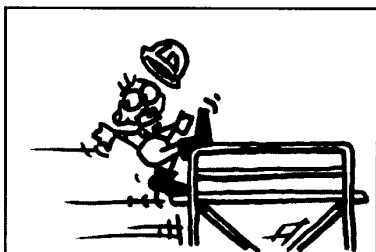
Do not use the scaffold unless the proper falling object protection for the users and workers below has been provided.

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Do not use rolling towers unless the wheels are locked.

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Do not ride rolling towers while they are being moved.

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Do not get up on a scaffold unless you have successfully completed this training.



## **Scaffold Training Outline For Training Users and Scaffold Competent Person**

1. Review Company Scaffold Safety Directive No. 5.3 ( Competent Person – CP)
  - a. Review 3 color tags used at site specific project and requirements (User/CP)
  - b. Review 5 page Attachment 7.3 “User Prohibited Actions” (User/CP)
  - c. Review and discuss types of scaffold, erecting and disassembling (CP)
2. Review Company prepared Power Point Presentation “Scaffolds” 23 Slides (CP)
3. Review Site Specific Fall Protection Equipment Used on Scaffolds (User/CP)
  - a. Review Company Policy – Full body harness and double leg lanyard.
  - b. Review and ensure Fall Protection Equipment Checklist is completed for each worker’s harness and lanyard.
4. Show video “Stationary Scaffolds in Construction” by Coastal Training (10:30 min) (CP)
5. Review training pamphlet “Stationary Scaffolds” and have each person complete Quiz Page 15-16. (User/CP).
6. Complete Written Exam for Scaffold Competent Person.

**1 PURPOSE AND SCOPE**

The Company will take all steps necessary for the protection of employees whenever temporary conditions present a danger of employees or materials falling through the floor, roof, or wall opening.

**2 REFERENCES**

- 2.1 OSHA 1926.500 Subpart M - Fall Protection
- 2.2 OSHA 1926.1052 - Stairways

**3 DEFINITIONS**

None

**4 RESPONSIBILITIES**

- 4.1 Supervisors shall assure that all affected employees are trained in this procedure.

**5 PROCEDURE**

- 5.1 Floor opening must be guarded by a standard railing and toeboards or cover, with the railing provided on all exposed sides, except at entrances to stairways. The cover shall be worded "Floor Hole Opening" with overlapping 6" sides and adequately secured to the floor.
- 5.2 Ladderway floor opening or platforms must be guarded by standard railings, standard toeboards on all sides, except at the entrance to opening, with the passage through the railing either provided with a swinging gate or so offset that a person cannot walk directly into the opening.
- 5.3 Hatchways and chute floor openings must be guarded by one of the following:
  - 5.3.1 Hinged covers of standard strength and construction and a standard railing with only one exposed side. When the opening is not in use, the cover shall be closed or the exposed side shall be guarded at the top and intermediate position by removable standard railings.
  - 5.3.2 A removable standard railing with toeboards on not more than two sides of the opening and fixed standard railing with toeboards on all other exposed sides. The removable railing shall be kept in place when the opening is not in use and should preferably be hinged or otherwise mounted so as to be conveniently replaceable.

## Floors and Wall Openings and Stairways

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- 5.4 Manhole floor openings shall be guarded by standard cover which need not be hinged in place. While the cover is not in place, the manhole opening shall be protected by standard railing.
- 5.5 Temporary floor opening shall have standard railings.
- 5.6 Floor holes, into which persons can accidentally walk, shall be guarded by either standard railing with standard toeboards on all exposed sides, or floor covers of standard strength and construction that is secured against accidental displacement. While the cover is not in place, the floor hole shall be protected by a standard railing.
- 5.7 Wall openings, from which there is a drop of more than 4 feet, and the bottom of the opening is less than 3 feet above the working surface, shall be guarded as follows:
  - 5.7.1 If the location of the opening in relation to the working surface is such that either a standard railing or intermediate rail will reduce the danger of falling, these rails must be provided.
  - 5.7.2 If the bottom of the wall opening is less than 4 inches above the working surface, regardless of width, the opening must be guarded by a standard toeboard or an enclosing screen either of solid construction section.
- 5.8 Every open-sided floor or platform 6 feet or more above adjacent floor or ground level shall be guarded by standard railing, or the equivalent, on all open sides, except where there is entrance to a ramp, stairway, or fixed ladder. The railing shall be provided with a standard toeboard wherever, beneath the open sides, persons can pass, or there is moving machinery, or there is equipment from which falling material could create a hazard.
- 5.9 Every flight of stairs having four or more risers shall be equipped with standard stair railings or standard handrails or standard handrails as specified below, the width of the stair to be measured clear of all obstructions except handrails:
  - 5.9.1 On stairways less than 44 inches wide having both sides enclosed, at least one handrail, preferably on the right side descending;
  - 5.9.2 On stairways less than 44 inches wide having one side open, at least one stair railing on the open side;
  - 5.9.3 On stairways less than 44 inches wide having both sides open, one stair railing on each side;
  - 5.9.4 On stairways more than 44 inches wide but less than 88 inches wide, one stair railing on each enclosed side and one stair railing on each open side;

# Floors and Wall Openings and Stairways

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- 5.9.5 On stairways 88 or more inches wide, one handrail on each enclosed side, one stair railing on each open side, and one intermediate stair railing located approximately midway of the width.
- 5.10 A standard railing shall consist of top rail, intermediate rail, toeboard, and post and shall have a vertical height of approximately 42 inches from the upper surface of top rail to floor, platform, runway, or ramp level. The top rail shall be smooth surfaced throughout the length of the railing. The intermediate rail shall be halfway between the top rail and the floor, platform, runway, or ramp. The ends of the rail shall not overhang the terminal post except where such overhang does not constitute a projection hazard.
- 5.11 Stairways
- 5.11.1 On all structures, two or more floors (20 feet or over) in height, stairways, ladders, or ramps shall be provided for employees during the construction period.
- 5.11.2 Stairway railings and guardrails shall meet the requirements of 1926.1052 (c).
- 5.11.3 All parts of stairways shall be free of hazardous projections, such as protruding nails.
- 5.11.4 Debris, and other loose materials, shall not be allowed on or under stairways.
- 5.11.5 Slippery conditions on stairways shall be eliminated as soon as possible after they occur.
- 5.11.6 Permanent steel or other metal stairways, and landings with hollow pan-type treads are to be filled with concrete or other materials, when used during construction and shall be filled to the level of the nosing with solid material.
- 5.11.7 Wooden treads for temporary service shall be full width.
- 5.11.8 Metal landings shall be secured in place before filling.
- 5.11.9 Temporary stairs shall have a landing not less than 30 inches in the direction of travel at every 12 feet of the vertical rise. Stairs shall be installed at angles to the horizontal of between 30 and 50 degrees.

## 6 RECORDKEEPING

Employee training records shall be kept for three (3) years.

## 7 ATTACHMENTS

None

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## 1 PURPOSE AND SCOPE

To outline the responsibilities and practices used by employees operating and working with cranes utilized for hoisting workers. This procedure contains guidelines for crane and hoist operator signals and guidelines for working from platforms, cages or baskets suspended from crane load lines. **The use of a crane to lift personnel should be considered when no safer alternative is available.**

All workers involved with the use and set-up of personnel lifting equipment shall use extreme care to prevent any accidents that result from improper practices. It is the intent of the Task Safety Analysis (TSA) coupled with the Suspended Work Platform Worksheet Attachment 7.1, which must be completed by the Supervisor to identify the hazards and protective measures used by employees operating and working with all types of cranes and associated platforms.

## 2 REFERENCES

- 2.1 OSHA 29 CFR 1926.550 (g) Crane or Derrick Suspended Personnel Platforms
- 2.2 OSHA 29 CFR 1926.251 – Rigging Equipment For Material Handling

## 3 DEFINITIONS

- 3.1 Failure – means load refusal, breakage, or separation of components
- 3.2 Hoist or Hoisting – means all crane or derrick functions such as lowering, lifting, swinging booming in and out or up and down or suspending a personnel platform.
- 3.3 Load Refusal – the point where the ultimate strength is exceeded.
- 3.4. Maximum Intended Load – means the total load of all employees, tools materials, and other loads reasonably anticipated to be applied to a personnel platform or personnel platform component at any one time.

## 4 RESPONSIBILITIES

- 4.1 Construction Manager/Job Superintendent shall assure that the crane operator is qualified and has a current operating permit/license for the crane used, employees have been trained in rigging, and a TSA and Suspended Work Platform Worksheet (Attachment 7.1) have been completed and signed by **both** the Superintendent and Crane Operator.

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## 5 **PROCEDURE**

### 5.1 Preparation and Use

Personnel shall be permitted to work from suspended platforms on crane load lines when the following procedure is used and when other, safer, conventional means of access are not possible, or would create a greater hazard than that posed by the use of the personnel basket.

#### 5.1.1 Crane Operator Hand Signals

- a. Only a qualified employee shall be used to give signals. These qualifications must include a degree of rigging experience or aptitude, the dynamics of stress and inertia, as well as an understanding of the power of the forces being set in motion. When manual signals are used, only one person shall be designated to give signals to the operator.
- b. A copy of the hand signals must be posted in the cab of the crane. These hand signals are the primary source of communication and should be used whenever applicable.
- c. When the operator of the hoisting equipment cannot see the person giving the signals, or the difference in elevation is greater than 50 feet, other means of communication must be used. Such means would include the use of a signal relay man or a two-way radio set on a designated rigging channel reserved strictly for the crane operation.

#### 5.1.2 Procedure for Safety Check

- a. Before lifting any personnel, a pre-lift meeting must be held with all individuals involved in the lift to review the procedure. Also, the rigger and crane operator must make a safety check of the crane and associated rigging hardware. The job supervisor must complete a Task Safety Analysis (TSA) and the Suspended Work Platform Worksheet (Attachment.1)
- b. The rated capacity of the crane, at the radius at which the lift will be made, must be divided by two. This limit must not be exceeded.
- c. A full cycle operational test must be made prior to lifting employees. The platform shall be equipped with the factory supplied test weight during the test lift. Stability of the footing should be verified during the full cycle operational test.
- d. A firm footing uniformly level within one percent (expressed as one foot in 100 feet), shall be provided for the crane. Outriggers for the crane must be appropriately used during the hoisting.
- e. All lifts must be made in accordance with the manufacturers's lifting recommendations.

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f A Suspended Work Platform Worksheet must be completed **each time** the crane is moved from its stationary position.

#### 5.1.3 Procedure for Personnel Basket Hook-up

- a. The main hoist block or whip line must have a positive locking safety clip on the hook. Spring-loaded safeties are not sufficient.
- b. Positive locking safety clip shall be set in place after the master link of the 4-leg bridal is put into the hook.
- c. A back-up safety choker, no less than 5/8" diameter must be attached to the master link and secured to the lifting blocks above the hook. In the case of a whip line, the safety cable is shackled directly to the whip line above the ball. For the main hoist block, the safety cable can be passed above and through the hook mounting plate or shackled directly to the dead end ear or hole or to the standing beckett line on blocks with an odd number of running parts.
- d. The safety cable in the secured position must have slack to verify that it is taking none of the weight of the master link.
- e. Personnel harnesses must be tethered to a second 5/8" steel safety choker also shackled above the ball on the load line.
- f. Use 1/2" diameter rope for a tag line attached to the bottom of the personnel basket. Tag lines should be of a reasonable length to reduce the possibility of the line getting caught while the basket is being elevated.

#### 5.1.4 Directions for the Rigger and the Operator

- a. Keep the weight of the hook less than 50% of the capacity of the crane regardless of the position of the crane.
- b. Ensure that there is as little boom movement as possible when personnel lifting devices are in use.
- c. Crane hooks must have a positive locking device for the throat opening. Spring-loaded safeties alone are not sufficient.
- d. All cranes must have an anti-two blocking device, which will automatically deactivate the hoisting action.
- e. The use of cranes having live booms ( booms in which lowering is controlled by a brake without aid from other devices which slow the lowering speeds) is prohibited.
- f. The load line hoist drum shall have a system or device on the power train, other than the load hoist brake, which regulates the lowering rate of speed of the hoist mechanism (controlled load lowering). Free fall is prohibited.
- g. Cranes with variable angle booms shall be equipped with a boom angle indicator, readily visible to the operator.
- h. Cranes with telescoping booms shall be equipped with a device to indicate clearly to the operator, at all times, the boom's extended length.
- i. Equipment Needed:
  - (1) Full Body Harness for each person
  - (2) A six-foot shock-absorbing lanyard for each person



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- (3) Three shackles with a minimum diameter of 5/8 inch
- (4) 1/2 inch or 5/8 inch rope for use as a tag line
- (5) Two thimble eye slings. They shall be a minimum of 5/8 inch in diameter x four feet to six feet in length. One will be used for fall protection, and the other one for the master link to whip line connection.

## 5.2 Precautions

- 5.2.1 All materials and tools for use during the lift shall be secured to prevent accidental dropping.
- 5.2.2 All personnel shall keep all parts of their body inside the lifting device during raising, lowering and positioning.
- 5.2.3 While personnel are in the lift device, all crane operations must be done in a safe and slow manner.
- 5.2.4 No traveling / moving of the crane is allowed while personnel are in the lifting device. If the crane is to be moved, a full cycle operational test must be performed with a new pre-lift plan and test weights attached to the personnel basket.
- 5.2.5 The suspended lifting device must be secured to the structure before any personnel enter or exit the basket.
- 5.2.6 No lifts shall be made on another of the crane load lines while personnel are suspended in a lifting device.
- 5.2.7 The number of personnel occupying the lift device shall not exceed the number required for the work being performed or the limitation of the lifting device.
- 5.2.8 Lifting devices shall be used for personnel, their tools, and the material necessary to do the work. They shall not be used to lift only materials and tools. This section prohibits the use of personnel baskets for the transfer of tools or materials.
- 5.2.9 When welding from a personnel-lifting device, you must use a protective covering on the load sling.
- 5.2.10 The man-basket must not be used as a convenience elevator. The basket shall only be used when performing work that is inaccessible via normal means or other access poses a greater safety risk.

## 6 RECORDKEEPING

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6.1 A copy of the Crane Operator's License and Suspended Work Platform Worksheet(s) shall be kept with the project file.

6.2 Employee training records shall be kept for three (3) years.

## 7 **ATTACHMENTS**

7.1 Suspended Work Platform Worksheet.

SUSPENDED WORK PLATFORM WORKSHEET

Project Site \_\_\_\_\_ Date & Time: \_\_\_\_\_

Superintendent's Name \_\_\_\_\_ Job No. \_\_\_\_\_

Type of Lifting Equipment \_\_\_\_\_  
(Derrick, Crawler Crane, Truck Crane, etc.)

- A. Radius: \_\_\_\_\_ ft
- B. Boom Length \_\_\_\_\_ ft
- C. Rated Capacity \_\_\_\_\_ lbs
- D. Rated Capacity / 2 \_\_\_\_\_ lbs.

LOAD CALCULATION TO DETERMINE WEIGHT WITHIN

- 1. Intended Load:
  - A. Weight of Personnel
    - No. of Persons \_\_\_\_\_ x 250 lbs each = \_\_\_\_\_ lbs
  - B. Tools and Equipment = \_\_\_\_\_ lbs
  - C. Intended Load = A + B \_\_\_\_\_ lbs
- 2. Work Platform Weight = \_\_\_\_\_ lbs
- 3. Rigging (slings, blocks, etc.) = \_\_\_\_\_ lbs
- 4. TOTAL LOAD TO BE LIFTED = 1C +2 +3 \_\_\_\_\_ lbs

Superintendent's Signature: \_\_\_\_\_

Crane Operator's Signature: \_\_\_\_\_

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## **1 PURPOSE AND SCOPE**

The Company will not issue or permit the use of any tools which are defective and therefore unsafe. Tools which are supplied by the Company or the employee, according to local labor agreements, must be inspected and maintained in proper condition.

## **2 REFERENCES**

- 2.1 *OSHA* 29 CFR 1926.300 - General Requirements, Tool: Hand and Powered
- 2.2 *OSHA* 29 CFR 1926.301 - Hand Tools
- 2.3 *OSHA* 29 CFR 1926.302 - Powered Operated Hand Tools
- 2.4 *OSHA* 29 CFR 1926.303 - Abrasive Wheels and Tools
- 2.5 *OSHA* 29 CFR 1926.304 - Woodworking Tools

## **3 DEFINITIONS**

None

## **4 RESPONSIBILITIES**

- 4.1 Supervisors shall assure proper tools are used and are in good repair.
- 4.2 Employees shall use the proper tool for the job and shall be responsible for the safe use and condition of such tools. Employees are responsible for wearing clothing that fits closely to the body and ensuring head and facial hair is short or confined to minimize the hazards of being snagged or caught in moving tools, equipment or machinery. Employees are also responsible for not wearing bracelets, rings, dangling neckwear, a wristwatch or similar articles that can get snagged or caught by moving tools, equipment or machinery or which can represent a significant electrical energy conducting hazard if exposed to energized electrical components or items.
- 4.3 Supervisors are responsible to identify, tag and ensure removal from the work site any defective tool or equipment. Supervisors are also responsible for ensuring clothing, jewelry, etc. is appropriate for the task and that it does not represent a potential risk of getting caught in moving items in the workplace or exposure to energized electrical components or items.

## **5 PROCEDURE**

### **5.1 GENERAL TOOL REQUIREMENTS**

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- 5.1.1 Tools will not be issued to employees unless they have been properly trained on the specific tool to be used.
- 5.1.2 All guards provided for power operated tools shall be in place and operable at all time while the tool is in use. The guard may not be manipulated in such way that will compromise its integrity or compromise the protection for which it is intended. Guards shall meet the requirements set forth in ANSI B15.1. Guards must be supplied for isolating belts, gears, shafts, flywheels, spindles, drums, chains, and any other rotating or moving parts.
- 5.1.3 Before starting or operating any machinery, the operator shall inspect the item and ensure that starting or operating the machinery will not endanger themselves or another worker.
- 5.1.4 Contact between moving parts of machinery, electrically energized equipment or part of the work process with a workers clothing, jewelry or hair is a significant hazard that must be identified, communicated, and mitigated in the Task Safety Analysis (TSA)/Pre Job Hazard Analysis (PJHA) process. Examples of specific tools and equipment where the potential for this hazard exists include grinders, drills and drill presses, energized equipment such as redundant power supply battery systems that can be contacted by jewelry, and reciprocating saws. This potential hazard is increased during winter months when additional layers of clothing and jackets with draw strings are more commonly worn. Draw strings and loose or baggy clothing are particularly strong risks for this type of hazard and are prohibited from being worn when working with tools, equipment or machinery with movable parts that could get caught up and ensnare the worker.
- 5.1.5 No tools with locking triggers shall be utilized. Only use hand-held triggers.
- 5.1.6 Employees using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dust, fumes, mists, vapors, or gases shall be provided with particular PPE necessary to protect them from the hazard, e.g. face shield, safety glasses, gloves, respirators, etc.
- 5.1.7 Machines designed for a fixed location must be securely anchored to prevent walking or moving.
- 5.1.8 All hand and power tools shall be properly used and maintained in a safe condition at all times. Damaged, defective or otherwise deficient tools shall be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operations. Any tool which is not in compliance with applicable requirements is prohibited

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- 5.1.9 Repairs and sharpening of tools shall be performed by personnel who are competent in such operations.
- 5.1.10 Proper tools shall be used for the job at hand. Size or capacity of a tool should be matched to the requirements of the job. Substitute or make-shift tools shall not be used unless approved by the supervisor.
- 5.1.11 Cheater bars shall not be used to gain additional leverage unless the tool is designed for such use by the manufacturer.
- 5.1.12 Operating handles of jacks should be removed from the jack if possible, when the lift is completed and the handle is no longer needed.
- 5.1.13 Steel measuring tapes or tapes with metal strands, including metal fish tapes and steel rules, shall not be used in close proximity to electrical energized equipment.
- 5.1.14 Tools shall not be thrown to another employee or from higher elevations to the ground. Tools with sharp or pointed edges, such as knives, shall not be carried in pockets but in pouches or buckets when not in use.
- 5.1.15 Properly insulated tools shall be used where electrical hazards exist.
- 5.1.16 Lanyards or other suitable devices shall be used to prevent hand tools from dropping into open pipes, shafts, etc., unless adequate covering is installed.
- 5.1.17 Non-sparking tools or those approved for explosive locations shall be used where the sources of ignition may cause fire or explosion.
- 5.1.18 Where craftsmen furnish their own tools, such tools shall conform to the requirements specified herein.
- 5.1.19 No tool shall be placed at an elevated surface such as the top of a step ladder, scaffold or platform where it may fall onto an employee. When tools are used on or next to grating, a suitable covering/barrier shall be installed to prevent tools from passing through the grating.
- 5.1.20 Tools shall not be strewn about or left on the floor or at the bottom of a ladder where they may create a tripping hazard.
- 5.1.21 Tools shall not be carried while climbing/descending a ladder. They are to be placed in a container and hoisted/lowered using a rope.
- 5.1.22 Proper storage facilities (e.g. tool sheds) equipped with segregated racks, shall be used for the safe storage of tools, abrasive wheels and cutting blades.

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## 5.2 SWITCHES AND CONTROLS

- 5.2.1 Hand-held powered circular saws (2" or greater blade diameter), chain saws and percussion tools without positive accessory holding means shall be equipped with a constant pressure switch.
- 5.2.2 Hand-held gasoline chain saws shall be equipped with a constant pressure throttle control.
- 5.2.3 Hand-held powered drills, tapper, or grinders (wheel diameter 2 inches or greater), disc sanders (discs 2 inches and greater), reciprocating saws, saber, scroll and jig saws with blade shanks greater than ¼ inch shall be equipped with a constant pressure switch. They may have a lock-on control, provided that turn-off can be accomplished by a single motion of the same finger(s) that turned it on.
- 5.2.4 Powered tools such as platen sanders, grinders (wheels 2 inches in diameter and less) disc sanders (discs 2 inches in diameter and less) routers, nibblers, shears, saber, scroll and jig saws (blade shank ¼ wide or less) may be equipped with a positive on-off control.
- 5.2.5 Pneumatic Staplers or nailers must have a safety device on the muzzle to prevent it from ejecting fasteners when not in contact with the work surface. All hoses exceeding 1/2" I.D. must have a safety device at the source of supply to reduce the pressure in the event of hose failure.

## 5.3 GUARDS

- 5.3.1 Tools designed to accommodate a guard shall have the guard in place in operating condition.
- 5.3.2 Belts, gears, shafts, pulleys, sprockets, spindles, drums and other types of moving drives shall be isolated.
- 5.3.3 Guards shall not be altered or modified without written approval from the manufacturer.
- 5.3.4 Portable circular saws (blade 2 inches or greater) shall have a guard above and below the base plate shoe.
- 5.3.5 The installation, guarding, use and care of grinding wheels shall comply with the standards set forth in the current ANSI B7.1 standard "Safety Code for the Use, Care and Protection of Abrasive Wheels".
- 5.3.6 Band saws shall be fully enclosed, except for their point of operation.

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5.3.7 Guards are not required for abrasive wheels 2 inches in diameter or less when used inside of materials, for which the material itself acts as a guard. (i.e., grinding the inside of a pipe.)

#### 5.4 ABRASIVE WHEELS AND CUTTING BLADES

5.4.1 Abrasive wheels, scratch brushes and cutting blades shall be properly rated for use on a particular power tool. The specified RPM rating of the wheel/blade shall meet or exceed that of the power tool.

5.4.2 Cracked, bent, worn, or otherwise damaged wheels/blades shall be removed from service until repaired. All wheels must be inspected before mounting and prior to each use for defect.

5.4.3 Cutting blades shall be maintained in a sharpened state to minimize hazards created by dull blades.

5.4.4 All bench mounted abrasive wheels must be equipped with a protective hood which allows only an exposure of 1/4 of the wheel or 90 degree angle. The safety guard must be strong enough to withstand a bursting wheel.

5.4.5 Work rest must be provided and the distance between the work rest and the wheel must not exceed 1/4/ inch.

5.4.6 All portable abrasive wheels must be provided with safety guards which are mounted in alignment with the wheel and strong enough to withstand wheel braking.

5.4.7 Eye protection equipment must be provided for all grinding operations.

5.4.8 Abrasive wheels and cutting blades attached to power tools should be allowed to stop their rotation prior to setting the tool down. Power tools equipped with abrasive wheels or cutting blades should not be dropped or thrown onto hard surfaces.

5.4.9 Abrasive wheels and cutting blades shall be installed only on equipment designed for their use. Attachments should not be bored-out or otherwise forced onto the spindle or shank.

5.4.10 Where arbors are used, their rating shall meet or exceed that of the power tool.

#### 5.5 HAND TOOLS



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- 5.5.1 Impact tools such as drift pins, punches and chisels shall be free from mushroomed, cracked or chipped heads or shanks.
- 5.5.2 Cutting edges shall be maintained in a sharp condition.
- 5.5.3 Suitable holding devices or tongs should be used to hold impact tools while being struck.
- 5.5.4 Appropriate safety equipment shall be obtained and properly used while working with hand tools.
- 5.5.5 Wrenches shall fit snugly on nuts/bolts. The use of shim plates is prohibited.
- 5.5.6 Wrenches, sockets, etc., should be pulled rather than pushed to loosen/tighten items.
- 5.5.7 Adjustable pipe, end and socket wrenches shall not be used with sprung jaws or damaged gears.
- 5.5.8 Cheaters shall not be used to increase leverage, nor shall tools be struck by hammers or other tool unless designed for such use by the manufacturer.
- 5.5.9 Wooden handles shall fit snugly, and shall be free of cracks or splinters. Files shall be equipped with handles.
- 5.5.10 Hand tools shall be used properly.
  - a. Screw drivers and files shall not be used as pry-bars.
  - b. Wrenches, pliers, etc., shall not be used as hammers.
  - c. Chisels, punches, files, etc., shall not be used as wedges.
- 5.5.11 Non-sparking hand tools shall be used in locations where sources of ignition may cause a fire or explosion.

## 5.6 KNIVES

The intention of this section is to ensure that the proper cutting tool is used to accomplish specific work related tasks. There are many tasks where a knife is not the best tool for the job, there are also a few tasks where a knife is the proper tool. These jobs need to be clearly identified. The information below will specify the policy on knives.

- 5.6.1 The principal hazard when using a knife is that the user's hand may slip from the handle onto the blade or the knife may strike the free hand or the user's body. Always use a knife only for what it is intended.

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5.6.2 General safety precautions for knife use include:

- Always wear cut resistant gloves to protect your hands from accidental contact
- Do **not** talk with coworkers while using a knife. When interrupted, stop cutting and place the knife down on a secure surface. Do not try to cut while distracted.
- Cut in a direction away from your body. Keep your fingers and thumb out of the way of the cutting line.
- Keep knives sharpened and in good condition. A dull knife can cause you to put too much pressure on the object you are trying to cut. The blade could slip and slice you or someone nearby. Inform co-workers when knives have been newly sharpened.
- Carry the knife in a sheath or holder over the right or left hip, pointing backwards otherwise a fall could cause a serious leg injury.
- Knives are not permitted to be carried in the worker's pocket
- Knives that are not specified for the trade shall not be used.
- Avoid placing knives at the edge of the shop/fab table.

5.6.3 Self-retracting razor knives are preferred but all razor knife blades must retract.

5.6.4 Either a leather glove or Kevlar glove must be worn when sharpening a knife.

5.6.5 All cuts should receive first aid. Even the smallest cut can become infected, so treat all cuts.

## 5.7 PORTABLE ELECTRIC POWER TOOLS

5.7.1 Portable electric power tools shall be equipped with an assured ground, or may be of the double insulated type. Double insulated tools shall be labeled as "Double Insulated" or contain a double square meaning the same.

5.7.2 Portable electric tools shall be visibly marked as approved by an underwriting agency such as Underwriters Laboratories, Inc., or Factory Mutual Engineering Corp.

5.7.3 Power tools shall be disconnected from their power source while changing attachments or while performing maintenance or repairs.

5.7.4 Electrical power tools shall not be used where the hazard of fire or explosion exist.

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- 5.7.5 Repairs shall be made by qualified personnel. Repairs in power cords shall be vulcanized, or the entire cord replaced.
- 5.7.6 Personnel shall be familiar with the safe operation of portable electrical tools and shall use required personal protective equipment.
- 5.7.7 Never yank the cord to disconnect it from the receptacle or to hoist or lower tools.

5.8 PNEUMATIC POWER TOOLS

- 5.8.1 Impact tools shall be operated with all safety clips or retainers installed.
- 5.8.2 Personnel shall be familiar with the safe operation, care and maintenance of pneumatic power tools and shall utilize proper safety equipment including eye and hearing protection.
- 5.8.3 Hose and hose connections shall be rated for the intended purpose.
- 5.8.4 Hose exceeding 0.5 inch inside diameter shall be equipped with safety-type couplings and properly secured to prevent displacement.
- 5.8.5 Hose and hose connections should be inspected daily. Those having excessive wear, damage, etc., shall be removed from service. Approved banding shall be used in connecting hose to fittings/couplings. The use of wire, hose clamps and/or tape is prohibited.
- 5.8.6 Compressed air shall not be directed at any portion of the body and shall not be used to dust clothing or work activities.
- 5.8.7 Hoses shall not be used for hoisting/lowering tools, and shall not be routed across ladders, steps, scaffolds or walkways. Hoses shall be routed overhead (min. 10 feet) or otherwise protected from damage.
- 5.8.8 Hoses exceeding 0.5 inch inside diameter shall be equipped with anti-whipping devices at each connection. Anti-whipping devices shall be capable of withstanding imposed forces created by damaged hose.

5.9 HYDRAULIC POWER TOOLS

- 5.9.1 The maximum anticipated working pressures in the hydraulic system shall not exceed the safe working pressure rating of any component in the system, including hoses, fittings, couplings and gauges.
- 5.9.2 Only approved hydraulic fluid shall be used.

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- 5.9.3 Hoses, fittings, couplings, etc., shall be inspected prior to each use and shall be removed from service when deficiencies are observed. Do not check for leaks using your hands because fluid under pressure may puncture the skin.
- 5.9.4 Repairs shall be made by qualified personnel and properly tested to assure safe operation.
- 5.9.5 Personnel using hydraulic equipment shall be properly trained in the use, care and maintenance of hydraulic equipment, including its limitations.
- 5.9.6 Personnel using or near operating hydraulic equipment shall utilize proper protective equipment.

5.10 GASOLINE POWER TOOLS

- 5.10.1 Gasoline powered tools shall be turned off and allowed to cool to ambient temperature before refilling. Spills shall be properly cleaned and the waste properly disposed of in approved fire cans.
- 5.10.2 Gasoline powered tools shall not be used in a confined/enclosed space where such use may cause an oxygen deficiency or increased levels of carbon monoxide. Adequate ventilation shall exist.
- 5.10.3 Employees shall be trained in the safe use, care and maintenance of gasoline powered tools, and shall use proper safety equipment.
- 5.10.4 Gasoline shall be stored in an approved and properly labeled “Safety Can” equipped with a self-closing spout and a flame arrestor.
- 5.10.5 Smoking is not permitted while refueling powered tools.
- 5.10.6 Gasoline powered tools shall not be altered or modified in any way which may affect personal safety and/or the design or intended use by the manufacturer.
- 5.10.7 Fire extinguisher of no less than 5 lbs. ABC shall be present within 20 feet of the work area.

5.11 POWDER ACTUATED TOOLS

- 5.11.1 Powder-actuated tools shall be designed, maintained and used in accordance with ANSI A10.3 “Safety Requirements for Powder-Actuated Fastening System”, as well as the requirements set forth herein.

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- 5.11.2 Personnel using powder-actuated tools shall be trained in their use, care and maintenance by the manufacturer, and shall have an operator's card in their possession. The operating manual for the powder-actuated tool shall be readily available to the user, along with any tables specifying load ranges for materials. An Operator Examination is included in Attachment 7.1 and can be used as **one** measure (not the only criteria) for qualifying operators.
- 5.11.3 Proper safety equipment shall be utilized while operating powder-actuated tools.
- 5.11.4 Suitable barriers shall be erected and properly posted, identifying the use of powder-actuated tools. Postings shall be within 50 feet of the operation.
- 5.11.5 Powder-actuated tools, such as Hilti guns, shall be inspected and tested daily to ensure that safety devices operate properly. A procedure, recommended by the manufacturer, shall be utilized for this inspection. Any tool not operating properly or developing a defect during use, shall be immediately removed from service and tagged for repair.
- 5.11.6 Powder-actuated tools shall not be loaded until just before firing. Loaded tools shall not be left unattended for any reason.
- 5.11.7 Powder-actuated tools whether loaded or unloaded, shall not be pointed at employees. Hands shall be kept away from the open barrel end.
- 5.11.8 Only fasteners and explosive charges designed by the manufacturer shall be used in that particular tool. Explosive charges shall be properly stored as required by the manufacturer.
- 5.11.9 Powder-actuated tools shall not be used within a flammable or explosive atmosphere.
- 5.11.10 Fasteners shall not be driven into very hard or brittle material, such as cast iron, glazed tile, surface-hardened steel, glass block, live rock, faced brick or hollow tile. Driving fasteners into materials which are easily penetrated should be avoided unless substantial backing is installed.
- 5.11.11 Fasteners to be driven into unsupported edges shall be limited as follows:
  - a) No closer than 3 inches for brick or concrete
  - b) No closer than one-half inch for steel surfaces.
  - c) No closer than 2 inches for 2 x 4 wood to concrete using 7/82 inch shank diameter.

Note: Low-velocity fasteners may be exempt from the above limitations.

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5.11.12 Fasteners shall not be driven into spalled surfaces caused by other fasteners, nor shall they be driven into pre-drilled holes.

## 5.12 WOODWORKING TOOLS

5.12.1 All fixed power driven tools must be provided with disconnect switch which can be tagged or locked out.

5.12.2 Operating speeds must be marked on each circular saw over 20" on diameter or operating at greater than 10,000 fpm. Saws should not be used in excess of speed marked on the blade.

5.12.3 Guard must be in place above and below the base plate. The upper guard must cover to the depth of the teeth except for the minimum arc required to permit the base to be tilted for beveled cuts. The bottom guard must cover to the depth of the teeth except for the minimum arc required to allow for proper retraction and contact with the work.

5.12.4 Personal protective equipment must be provided to protect against flying chips and dust.

## 6 RECORDKEEPING

Employee training records and tool repair records shall be kept for three (3) years.

## 7 ATTACHMENTS

7.1 Operator Examination - Low Velocity Powder Actuated Tools.

**Tools, Hand and Power Safety Directive No. 6.1****Attachment 7.1****OPERATOR EXAMINATION - LOW VELOCITY POWER ACTUATED TOOLS**

- |  |     |  |     |
|--|-----|--|-----|
| 1. You must have a certified operator's card supplied by the manufacturer to operate the tool?   | T F | 18. Pins and powder loads should never be mixed in the same container or work apron.   | T F |
| 2. Sheetrock, wood, fiberglass and sheet metal are not suitable base materials for powder actuated fasteners?  | T F | 19. The spell guard supplied with the tool by the manufacturer must be used on the tool whenever possible?   | T F |
| 3. Tools must never be used where flammable liquids or explosive vapors are present?   | T F | 20. Local regulations governing powder tools must also be observed by tool operators?  | T F |
| 4. A warning sign stating "Powder Actuated Tool in Use" is required to be posted in the work area where tools are being used   | T F | 21. Except for Ladd tool, the fastener must always be placed in the tool before the powder load is chambered?  | T F |
| 5. Use the tool for its intended application only. Horse play or clowning around is not permissible?   | T F | 22. Powder loads should never be pried out of a tool?  | T F |
| 6. Malfunctioning tools can be used and do not have to be removed from service immediately?  | T F | 23. It is not important to read the entire tool manual before operating the tool?  | T F |
| 7. Operators, assistants and by-standers must wear eye and hearing protection when using or in an area where tools are being used?   | T F | 24. Only fasteners manufactured for use in the powder actuated tool should be used since they are different from common nails.?  | T F |
| 8. The operator must inspect the work surface to be certain it consists of mild steel, concrete, or other solid non-brittle masonry material?                                  | T F | 25. Placing a hand or finger over the fastener end of a loaded tool can result in a serious injury?  | T F |
| 9. Never fasten into material that will permit the fastener to penetrate and escape?   | T F | 26. Before using any low velocity tool, the operator must check to be sure the tool is unloaded, in good mechanical condition, no foreign objects in barrel, and safety features are in working order? | T F |
| 10. The operator must make sure that the tool is at right angles to the work surface when firing?  | T F | 27. Never fasten into cracked or spelled concrete?   | T F |
| 11. Test fastenings should always be made with the lowest power level made for the tool?   | T F | 28. When fastening into concrete, the concrete thickness should be at least 3 time the intended shank penetration unless otherwise permitted?  | T F |
| 12. Any material not passing the "Center Punch Test" is not suitable for powder actuated fastening?  | T F | 29. Do not drive fasteners into structural steel that is thinner than the shank diameter of the fastener?  | T F |
| 13. Never place your finger on the trigger until you are ready to make the fastening?  | T F | 30. In concrete, a fastener should be driven no closer than 3" of an unsupported edge unless otherwise permitted?  | T F |
| 14. Operators may set fasteners into standard structural steel, but must never attempt to set fasteners into hardened alloy steel, close to weld or torch marks, or cast iron? | T F | 31. A fastener that "fish-hooks" can cause a serious injury if proper safety precautions are not taken?  | T F |
| 15. When fastening into steel the point of the fastener need not fully extend through the steel to give maximum holding power.   | T F | 32. Only the manufacturer's replacement parts are permitted to be used to repair the tool?   | T F |
| 16. If the tool fails to fire, you should extract the powder load immediately?   | T F | 33. An operator's color deficiency in vision will not effect his/her safe use of the tool?   | T F |
| 17. Powder loads should be stored in a box or enclosure used exclusively for storing them?   | T F |  |     |

I AM \_\_\_ I AM NOT \_\_\_ color deficient in my vision and have demonstrated my ability to distinguish the load power levels used by the powder actuated tool according to color and power level number system.

Signature \_\_\_\_\_ Operator Applicant

**Applicant Checklist**

- \_\_\_ (A) Safety rules and general training completed.
- \_\_\_ (B) Practiced loading, firing, and extracting, including handling misfires.
- \_\_\_ (C) Instructed on how to disassemble and clean the tool(s)
- \_\_\_ (D) Use of accessories explained.
- \_\_\_ (E) All incorrect test answers have been explained.
- \_\_\_ (F) Signed color blind pledge.
- \_\_\_ (G) Have read and understand the manual for each tool tested.

**DANGER**

Failure to read, understand and follow the detailed warnings and rules for the safe operation of powder tools, can result in serious injury or death to the tool operator or by-standers.

This certifies that \_\_\_\_\_ has received instruction in the operation of the powder actuated tools (tool type and model specified below) and has successfully passed both the written and practical tests to qualify as an operator of the tools listed below. As a tool operator, I agree to adhere to the regulations governing the safe use of \_\_\_\_\_ powder actuated tools and certify that I meet the legal age requirement of the jurisdiction(s) in which I will use the \_\_\_\_\_ powder actuated tools.

TOOL MODELS CERTIFIED TO USE: \_\_\_\_\_

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

\_\_\_\_\_  
Operator's Signature

\_\_\_\_\_  
Instructor Card No.

\_\_\_\_\_  
Operator Card No.

\_\_\_\_\_  
Date of Instructor Card

\_\_\_\_\_  
Date



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## 1 **PURPOSE AND SCOPE**

To insure that no employee will work in such proximity to any part of an electrical power circuit that they may be inadvertently contacted during the course of their work, unless the employee is protected against electric shock by deenergizing the circuit and grounding it or by guarding it by effective insulation or other means.

To establish and implement an assured equipment grounding conductor program on construction sites covering all cord sets, receptacles which are not part of the building or structure, and equipment connected by cord and plug which are available for use or used by employees.

## 2 **REFERENCES**

- 2.1 OSHA 29 CFR 1926.400 – Electrical
- 2.2 OSHA 29 CFR 1910, Subpart S – Electrical
- 2.3 NFPA 70E
- 2.4 National Building Code of Canada

## 3 **DEFINITIONS**

- 3.1 **GFCI** - Ground Fault Circuit Interrupters is an electrical device that compares the amount of current flow between the supply and return conductors. When an imbalance of current flow is measured (by comparison) greater than the design intent, the device removes voltage from the tool.
- 3.2 **Competent Person** - means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has the authorization to take prompt corrective measures to eliminate them.

## 4 **RESPONSIBILITIES**

- 4.1 The Construction Superintendent / Project Manager will appoint one or more competent person(s) to conduct the required testing of portable GFCI's.
- 4.2 The Construction Superintendent / Project Manager will contact and notify the owner/operator of an energized overhead power line before work is done or equipment is operated in the vicinity of the power line at distances less than the safe limit of approach distances (15 feet in the U.S. and 7.0 meters in Alberta, Canada) and obtain the owners/operators assistance in protecting workers.
- 4.3 The Construction Superintendent / Project Manager will ensure no vehicle loads above 12 feet or 4.15 meters total height (including truck, equipment, and materials)

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is transported under energized overhead power lines, either on any project location or over the public transit roadway system.

- 4.4 The Supervisor shall ensure employees who face the risk of electric shock but who are not qualified persons shall be trained and familiar with electrical related safety work practices that pertain to their respective job assignments including clearance distances.

## 5 **PROCEDURE**

### 5.1 **General**

- 5.1.1 Electrical installations shall be made so that the probability of spread of fire through fire stopped partitions, floors, hollow spaces, firewalls or fire partitions, vertical shafts, or ventilating or air-conditioning duct is reduced to a minimum. Where a fire separation is pierced by a raceway or cable, any openings around the raceway or cable shall be properly closed or sealed in compliance with the National Building Code of Canada, local jurisdiction, or applicable U.S. building code.
- 5.1.2 Electrical equipment shall be installed and guarded so that adequate provision is made for the safety of persons and property and for the protection of the electrical equipment from mechanical or other injury to which it is liable to be exposed.
- 5.1.3 Electrical equipment such as switchboards, panel boards, industrial control panels, meter socket enclosures and motor control centers that are installed in other than dwelling units and are likely to require examination, adjustment, servicing or maintenance while energized shall be field marked to warn persons of potential electric shock and arc flash hazards. The markings shall be located so that it is clearly visible to persons before examination, adjustment, servicing, or maintenance of the equipment.
- 5.1.4 Where electrical equipment is required to be approved for use in hazardous location it shall also be approved for the specific gas, vapour, mist or dust that will be present. No electrical equipment shall be used in a hazardous location, unless the equipment is essential to the process being carried on therein. Service equipment, panel boards, switchboards, and similar electrical equipment shall, where practicable, be located in rooms or sections of the building in which hazardous conditions do not exist.
- 5.1.5 Work spaces around equipment shall allow sufficient access to electrical equipment to permit safe operation and maintenance of such equipment. Employees may not enter spaces containing exposed energized parts unless illumination is provided that enables are work to be performed safely. Also refer to Safety Directive 1. 1, General Safety, and reference 5.3.2 of that section regarding minimum illumination requirements.

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- 5.1.6 No flammable or combustible materials are to be stored or used in proximity to energized electrical equipment or in electrical rooms containing energized items.
- 5.1.7 Adequate ventilation shall be provided for work in electrical rooms or other confined or classified locations where energized electrical items are present whenever our work may increase the thermal load of the room.
- 5.1.8 Where our work requires the use of electrical equipment in a Classified location, it is to be approved for use in hazardous locations representative of the type of environment the work is to be conducted in. It shall also be approved for the specific gas, vapor, mist or dust that will be present. Classified locations include:
  - Class I locations are those in which flammable gases or vapors are or may be present in the air in quantities sufficient to produce explosive gas atmospheres;
  - Class II locations are those that are hazardous because of the presence of combustible or electrically conductive combustible dusts; and
  - Class III locations are those that are hazardous because of the presence of easily ignitable fibers or filings, but in which such fibers or filings are not likely to be in suspension in air in quantities sufficient to produce ignitable mixtures.
- 5.1.9 All electrical conductors and equipment shall be approved. Listed, labeled, or certified equipment shall be installed and used in accordance with the instructions included in the listing, labeling, or certification.
- 5.1.10 A conductor used as a grounded conductor or as an equipment grounding conductor shall be identifiable and distinguishable from all other conductors.
- 5.1.11 Equipment or circuits that are de-energized shall be rendered inoperative and have tags attached to all points where such equipment or circuits can be energized. Tags shall be placed to identify plainly the equipment or circuits being worked on. Only qualified persons may work on electric circuit parts or equipment that has not been deenergized. Such persons shall be familiar with the use of special precautionary techniques, PPE, insulating and shielding materials and insulated tools. Refer to Safety Directive 7.2, item 4.1.3 which states, “Workers not qualified to work near exposed energized or de-energized overhead lines or equipment must stay a minimum of ten feet away from any unguarded equipment.”
- 5.1.12 Ground-Fault Circuit Interrupters. All 120-volt, single phase, 15 and 20 ampere receptacle outlets on construction sites, which are not part of the permanent wiring of the building or structure and which are in use by employees, must have approved ground-fault circuit interrupter for personal protection.
- 5.1.13 On all construction sites, precautions must be taken to make any necessary open wiring inaccessible to unauthorized personnel.

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- 5.1.14 All portable ladders shall have non-conductive side rails. Refer to Ladder Safety Directive 5.1 for additional information on ladders.
- 5.1.15 Conductive items of jewelry or clothing shall not be worn unless they are rendered non-conductive by covering, wrapping or other insulating means.
- 5.1.16 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:

United States

- For voltages to ground 50kV or below - 10 feet (305 cm);
- For voltages to ground over 50kV - 10 feet (305 cm) plus 4 inches (10 cm) for every 10kV over 50kV.
- When 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 above.

Alberta Province, Canada

- 7.0 meters until the actual voltage of the power line is established via direct communication with the power line operator. Once the actual voltage of the line is determined, this will establish the appropriate safe limit of approach distance.

- 5.1.17 For qualified persons only, the following Approach Distances apply to alternating current sources:

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).

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## 5.2 Electrical Cords/Cables

5.2.1 Electrical cords/cables shall be approved for their intended use. Consideration should be given to environmental conditions, exposure to water or direct sunlight for extended periods, hazardous chemicals, vehicle/foot traffic, etc.

5.2.2 Electrical cords/cables routed across roadways/walkways shall be protected from damage using ramps or suitable covering. Such covering shall be capable of withstanding imposed forces and shall be adequately secured against displacement.

Note: Electrical cords used for a brief period, not to exceed one day, may be exempt from this requirement, providing suitable warning devices are installed (e.g., signs, use of black and yellow tape).

5.2.3 Electrical cord/cables shall be routed overhead (7 ft. minimum for <600 Volts).

5.2.4 Electrical cords/cables shall be secured with only non-conductive material.

5.2.5 Unless as supplied by the manufacturer, all cord/cables shall be of the 3-wire type when used in conjunction with hand-held power tools.

5.2.6 Electrical cords/cables shall be removed from service and repaired/ replaced should any of the following conditions exist:

- a. Missing ground prong.
- b. Damage to exterior protective covering, exposing interior wire (bare or insulated wire).
- c. Wrinkling of cord, caused from exposure to vehicular traffic (internal wires are twisted within exterior protective covering).
- d. Protective exterior covering is pulled from protective sheath at plug (male or female) end.

5.2.7 Electrical cords/cables should not be laid across hot surfaces, sharp edges or routed through doorways where they may become pinched, unless sufficient protection is installed to protect the cord/cable.

5.2.8 Electrical cords/cables should not be tied in knots or used to raise/lower material.

5.2.9 Where electrical cords/cables are plugged together, each cord/cable shall be capable of carrying the electrical current without overheating. Connections should be adequately secured together to prevent their displacement.

## 5.3 Grounding

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- 5.3.1 The noncurrent-carrying metal parts of portable and/or plug connected equipment shall be grounded.
- 5.3.2 Portable tools and appliances protected by an approved system of double insulation, or its equivalent, need not be grounded. Such equipment must be distinctively marked.
- 5.3.3 All exposed noncurrent-carrying metal parts of fixed electrical equipment, including motors, generators, frames, and electrical equipment, etc. shall be grounded.
- 5.3.4 Grounding circuits shall be checked to insure that circuits between the ground and the grounded power conductor has a resistance which is low enough to permit sufficient current to flow to cause the fuse or circuit breaker to interrupt the current.

#### 5.4 Bonding

- 5.4.1 Conductors used for bonding and grounding stationary and movable equipment must be of ample size to carry the anticipated current.
- 5.4.2 When attaching bonding and grounding clamps or clips, secure metal to metal contact must be made.

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## 5.5 Temporary Lights

- 5.5.1 Temporary light stringers shall be sufficiently secured using non-conductive material. Temporary lighting should be routed overhead wherever possible and shall not be suspended by their electric cords unless cords and lights are designed for this means of suspension.
- 5.5.2 Temporary lights must be equipped with heavy duty electric cords with connections and insulation maintained in safe condition.
- 5.5.3 Each light socket shall be equipped with a protective guard, preventing the lamp from coming in contact with personnel or materials.
- 5.5.4 Unless constructed from a non-conducting material, all guards shall be internally grounded.
- 5.5.5 Portable electric lights used in wet and/or other conductive locations must be operated at a maximum of 12 volts. However, 120-volt lights may be used if protected by a ground-fault circuit interrupter.
- 5.5.6 Lamps should be of a 'tough-skin' type.
- 5.5.7 Power tools shall not be plugged into temporary light stringers, unless the light stringer is equipped with a continuous ground.
- 5.5.8 Lamps installed in light stringers and/or light strands should not be permitted to come in contact with the protective guard or be of such wattage that will melt the plastic guard.
- 5.5.9 Temporary light strands shall be properly constructed so as not to be top heavy.
- 5.5.10 Lamps installed in temporary light stands shall be equipped with a guard. Unless of a non-conducting material, all guards shall be internally grounded.
- 5.5.11 Temporary light stands shall not be placed in water.
- 5.5.12 Temporary light stands shall be properly grounded.
- 5.5.13 Temporary light stands should be placed at a safe distance from the work area to prevent accidental contact by personnel, tools or material.
- 5.5.14 Temporary light stands should be properly aimed to not blind the workers.

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5.5.15 Temporary light stringers/stands shall not be placed in a damp/wet area or inside a metal tank unless connected to a GFCI or a low-voltage type.

5.5.16 Temporary light stands shall not be used with exposed sockets.

5.5.17 Fittings/connections in temporary light stringers/stands shall be sufficiently tightened.

#### 5.6 Equipment installation and maintenance.

5.6.1 Receptacles for attachment plugs shall be of approved, concealed contact type with a contact for extending ground continuity and shall be so designed and constructed that the plug may be pulled out without leaving any live parts exposed to accidental contact. Where different voltage, frequencies, or types of current are to be supplied by portable cords, receptacles must be of such design that the attachment plugs used on the circuits are not inter-changeable.

5.6.2 Attachment plugs used in work areas must be so constructed that they will endure rough use and be equipped with a suitable cord grip to prevent strain on the terminal screws.

5.6.3 Flexible cords may be spliced if the insulation is equal to the cable being spliced and wire connections are soldered.

5.6.4 Flexible cords and cables may pass through doorways or other pinch points, if protection is provided to avoid damage.

5.6.5 Grounding passing through work areas must be covered or elevated to protect them from damage creating a hazard to employees.

5.6.6 Portable lamps shall be wired with flexible cord and an attachment plug of the polarized or grounding type.

#### 5.7 Equipment Grounding Conductor Program

##### 5.7.1 General

In accordance with OSHA regulations (OSHA 1926.404), requires equipment grounding conductor program for all cord sets, receptacles which are not part of a permanent structure, and all electrical equipment are maintained in proper operating condition.

##### 5.7.2 Scope of Tests

- a) Visually inspect cords and equipment for damage.
- b) All equipment grounding conductors shall be tested for continuity and shall be electrically continuous.



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- c) Test each receptacle and attachment cap or plug for correct attachment of the grounding conductors. The equipment grounding conductor shall be connected to its proper terminal. If for any reason the cord set, receptacle or equipment do not meet the above procedure it shall not be allowed to be used at the job site.

### 5.7.3 Frequency

Test will be conducted as follows:

- a) Visual inspection before each use.
- b) Before equipment is returned to service following any repairs.
- c) Following any incident believed to have caused damage (e.g. when cord set is run over).
- d) At intervals not to exceed 3 months while in service at job location except that cord sets and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding 6 months.
- e) Tests performed as required by this program shall be recorded as to the identity of each receptacle, cord set, and cord and plug connected equipment that passed the test and shall indicate the last date tested or interval for which it was tested.
- f) These records shall be kept by means of logs, color coding, or other effective means and shall be maintained until replaced by a more current record.
- g) These records shall be made available at the job site for inspection by the Asst. Secretary and any affected employees.

## 6 **RECORDKEEPING**

The "Electrical Equipment Ground Test Report" Form 9986, Attachment 7.1 will be completed for each inspection. Copy of this report must be available upon request of any OSHA representative. A copy of each inspection report will be maintained in the branch loss control file. Employee training records shall be kept for three (3) years.

## 7 **ATTACHMENTS**

7.1 Electrical Equipment Ground Test Report "Form 9986"

<b>Lock-Out, Tag-Out (LOTO)</b>	Issue Date: January 2001 Revised: May 2007 Issued By: Safety Dept.
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## 1 **PURPOSE AND SCOPE**

- 1.1 The Company will take the necessary measures for establishing safe practices to ensure employee protection against inadvertent operation of control, equipment or circuits, while performing work on or in the immediate vicinity of motor driven, electrical, or pressure equipment.
- 1.2 The Company shall administrate a Lock-out, Tag-out Program to eliminate the potential situations where the unexpected energizing, start-up, or release of stored energy or electrical current would be likely to endanger personnel.
- 1.3 Unless otherwise noted in the contract, the appropriate representative of the customer and/or facility in which the work area is located, will be requested, prior to the start of work, to de-energize and render inoperative all mechanical equipment, electrical circuits and vessels containing chemicals or pressurized fluids in the immediate vicinity of the work area, and have locks and tags attached to all points where such equipment, circuits, or pressurized vessels can be energized.
- 1.4 The Company will assume responsibility for this task only in those instances when required to do so by the contract documents or the appropriate representative of the customer and/or facility is not available.

## 2 **REFERENCES**

- 2.1 OSHA 29 CFR 1926.417 - Lockout and Tagging of Circuits
- 2.2 OSHA 29 CFR 1910.147 - The Control of Hazardous Energy (lockout/tagout)

## 3 **DEFINITIONS**

- 3.1 Authorized employee (Supervisors) – A person who locks out and tags out machinery or equipment in order to service or maintain it.
- 3.2 Affected employee – An employee whose work involves the use or operation of equipment under lockout/tagout or who works in the area where service is being performed.

## 4 **RESPONSIBILITIES**

### 4.1 **SUPERVISORS**

- 4.1.1 Supervisory personnel will receive special training in the lock-out, tag-out procedures.

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- 4.1.2 The supervisor will instruct the appropriate representative of the customer and/or the facility in which the work area is located, prior to the start of work, to de-energize and render inoperative all mechanical equipment, electrical circuits, hydraulic, steam, gravity and/or vessels containing chemicals or pressurized fluids which are located in the immediate vicinity of the work area. The lines shall be deenergized and grounded or other protective measures shall be provided before work is started.
- 4.1.3 Workers not qualified to work near exposed energized or de-energized overhead lines or equipment must stay a minimum of ten feet away from any unguarded equipment.
- 4.1.4 Vehicles and mechanical equipment must also maintain a ten-foot safe distance.
- 4.1.5 Request the above individuals to have locks and tags attached to all points where such mechanical equipment, electrical circuits, and/or vessels containing chemicals or pressurized fluids can be energized.
- 4.1.6 In those instances where the above activities cannot be carried out by a representative of the customer and/or facility, it will be the direct responsibility of the supervisor to ensure and coordinate the implementation of these activities by a competent individual. Only qualified persons may work on electric circuit parts or equipment that have not been deenergized. Such persons shall be made familiar with the use of special precautionary techniques, PPE, insulating & shielding materials and insulated tools.
- 4.1.7 Instruct and train their employees in the content and application of this standard. This will include the purpose and the use of Lock- out/Tag-out procedures, the recognition and application of adequate methods and means of isolation of all hazardous energy sources, and the proper procedures for safely re-energizing equipment when work is completed.
- 4.1.8 Provide locks and tags specifically identified for this program. All locks and tags must be durable; able to resist easy removal; readable even if exposed to water or chemicals; easily identifiable; standardized by color, shape or size; used only for LOTO procedures; and marked to identify the person who attached it.
- 4.1.9 Supervisors shall review with the facility manager their specific procedures for handling of multiple groups of workers (different crafts, depts, etc.) at their facility and instruct our employees of the same. The supervisor as the authorized employee has primary responsibility for a set number of employees working under the protection of a group lockout/tagout device.

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- 4.2 Employees shall receive training will be responsible for knowing and following each of the established safety procedures applicable to his/her own safe performance while on the job.
- 4.3 The training for authorized (supervisors) and affected employees shall include the following:
- a) other employees whose work operations are or may be in the area where energy control procedures may be utilized.
  - b) tagout systems used including the limitations of a tag, not removing a tag without authorization and never to be ignored or defeated in any way
  - c) retraining is required when there is a change in job assignments, in machines, a change in the energy control procedures, or a new hazard is introduced.
  - d) Minimum approach distances for both should be listed along with safety measures utilized.
  - e) all training must be documented with the employee's name and date(s).

NOTE: Each entrant involved with Confined Space Entry shall comply with this Lock Out/Tag Out Policy.

## 5 **PROCEDURES**

- 5.1 There are six (6) steps to lockout/tagout and de-energizing machinery and equipment.
- 5.1.1 Preparation - Know the equipment and its energy source before working on it. Does it have multiply energy sources that must be controlled? Refer to the written procedure or checklist for each equipment that details the shutdown of the equipment to be worked on.
- 5.1.2 Shutdown - Turn off the equipment as directed by the facility procedure. Check with the facility manager if you are unsure of any part of the shutdown.
- 5.1.3 Isolation - Find and isolate every form of energy that the machines uses. This includes pulling fuses, throwing disconnects and capping any secondary sources of energy. NOTE: Don't stop with simply pulling a fuse. Fuses can be readily replaced.
- 5.1.4 Application - Locks and tags must be applied to ALL energy-isolating equipment, valves and switches. Anything that might restore the flow of energy to the work area must be locked out. Include tags with locks to help other employees identify a lockout situation. Tags explain the work being performed, estimated work time and name of the authorized employee who placed the lock. Place tags with the locks or as close to it as possible. Each supervisor on the job will be provided with an individual safety lock and one key, as well as a supply of tag-out cards. If more than one supervisor is assigned to a task, each supervisor will be responsible for placing his/her own lock and tag so the controls or electrical

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system cannot be operated. Use the LOTO checklist as referenced in Attachment 7.1.

- 5.1.5 Control - Even after the equipment is locked out, stored energy must be controlled.
- a) Relieve, disconnect or restrain any residual hazardous energy that could be present.
  - b) Check that all moving parts have stopped
  - c) Relieve trapped pressure and blank pipe flanges.
  - d) Install ground wires to discharge electrical equipment
  - e) Block or support elevated equipment
  - f) While performing services, check continuously if energy build-up (reaccumulation) is possible.

- 5.1.6 Verify - Ensure every energy source is shut down, blocked off, controlled and locked and tagged out. Warn all workers in the lockout area and be sure they are moved to a safe place. Activate all controls that might restore power to the machine you are working on. If the equipment does not start, restore all controls to the OFF position and begin work. All other personnel who have a need to use the lock-out should add their lock and tag to verify the equipment or circuits have been de-energized.

5.2 There are three (3) steps to removal of locks and tags and re-energizing.

- 5.2.1 Restore Work Area – Restore the work area to operating conditions by removing all tools, double-check all equipment components, replace all safety features such as machine guards and close access panels that were opened to perform service on equipment.

- 5.2.2 Notify Personnel - Notify all employees that the lockout/tagout devices are being removed. Remove employees from the area and ensure they are at a safe distance from the equipment.

- 5.2.3 Remove Lockout/Tagout Devices - The person who placed each device must be the one to remove it. If someone who placed a lockout/tagout device is not present, notify the supervisor who will follow specific procedures. Never remove it yourself.

5.3 When work extends beyond the shift on which the lock-outs were put on, they should be removed by the outgoing supervisor and replaced by the incoming supervisor prior to commencing work. Each incoming supervisor should then verify the equipment or circuits are, in fact, de-energized.

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- 5.4 Protective measures shall be used when working in confined or enclosed work spaces where electrical hazards may exist. Protective shields, protective barriers or insulating materials as necessary shall be provided.
- 5.5 Employee shall not be subjected to handling long dimensional conductor objects ( ducts or pipes). If so steps for safe work practices shall be developed and employees trained.
- 5.6 Supervisors who finish their work assignments before the job is completed should each remove their own lock and tag. When the entire job is finished, the last lock and tag should have been removed. Locks and tags should only be removed by the individuals placing them.
- 5.7 The Construction Manager / Project Manager will conduct periodic inspections with documentation along with an annual review to ensure procedures and requirements are being followed.

6 **RECORDKEEPING**

Employee training records for LOTO shall be kept for three (3) years.

7 **ATTACHMENTS** None

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**PURPOSE AND SCOPE**

- 1.1 Uncontrolled exposure to asbestos can result in serious health affects including asbestosis of the respiratory system and cancer of the respiratory and gastrointestinal systems, including mesothelioma. This Directive is intended to establish standard operating procedures and guidelines for safely working around asbestos products, and also safely removing, handling, and disposing of asbestos containing materials and products.
  
- 1.2 It is the objective of the company to implement standard operating procedure for the handling and disposal of asbestos containing materials that ensure personnel safety and strict compliance with all OSHA, EPA and customer regulations.
  
- 1.3 These procedures apply to all situations where removal of or contact with previously installed thermal systems insulation, spray-applied or troweled-on surfacing material or other potential or presumed asbestos-containing building material including floor tile and sheeting, wallboard, roofing and siding shingles, asbestos-cement products (piping and sheeting), and construction mastic/adhesive is encountered. This includes products of all types, both asbestos and non-asbestos. Additional materials that may contain asbestos include automotive and industrial brake and clutch linings, ceiling tiles, plasters, and all types of heat resistant coatings, materials, and fabrics. Contact includes tie-in with installed thermal systems insulation, re-jacketing, re-embodiment, encapsulation, or any form of retrofitting. Any deviation from this procedure must be in accordance with applicable regulations, customer requirements, and be approved in writing by the Corporate Safety Director.
  
- 1.4 All asbestos removal activities are to be conducted with current local and state licenses for the jurisdiction the work will be conducted in. All asbestos licenses are to be obtained using salaried (or salary-equivalent) employees as the company representative on the license (i.e. as the qualifier on the license). All such salaried employees shall have and maintain current asbestos supervisor certifications for the location of the work. A list of “salary-equivalent” employees is maintained by the Irex Corporate Safety Director and can be provided upon request.
  
- 1.5 On multi-employer work sites, company employees working adjacent to Class I, II or III regulated work areas shall take steps to daily ascertain the integrity of the negative pressure enclosure (NPE) and/or the effectiveness of all exposure control measures in maintaining airborne asbestos concentrations below the permissible exposure level (PEL) as determined by performing an initial exposure assessment. Any breaches in the NPE shall be reported to the employer performing the abatement activities, and repaired prior to proceeding with company work.

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## 2 **REFERENCES**

- 2.1 OSHA 29 CFR 1926.1101 – Asbestos
- 2.2 OSHA 29 CFR 1910.1001 – Asbestos
- 2.3 California Code of Regulations (8 CCR 341.6 - .14) – Asbestos Registration
- 2.4 California Code of Regulations (8 CCR 1529) – Asbestos in Construction
- 2.5 Clean Air Act and Amendments (CAAA) – National Emission Standards for Hazardous Air Pollutants (NESHAP) – 40 CFR Part 61, Subpart M

## 3 **DEFINITIONS**

- 3.1 Aggressive Method - means removal or disturbance of building materials by sanding, abrading, grinding, or other method that breaks crumbles, or disintegrates intact Asbestos Containing Material (ACM).
- 3.2 Asbestos - includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these materials that has been chemically treated and/or altered. For purposes of this standard, “asbestos” includes Presumed Asbestos Containing Material (PACM), as defined below.
- 3.3 Category I Nonfriable ACM – means ACM packings, gaskets, resilient floor covering, and asphalt roofing products.
- 3.4 Category II Nonfriable ACM – means any material, excluding Category I nonfriable ACM, that when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.
- 3.5 Class I Asbestos Work - means activities involving the removal of thermal systems insulation and surfacing ACM and/or PACM.
- 3.6 Class II Asbestos Work- means activities involving the removal of ACM which is not thermal systems insulation or surfacing material. This includes, but is not limited to, the removal of asbestos-containing wallboard, floor tile and sheeting, roofing and siding shingles, and construction mastic.
- 3.7 Class III Asbestos Work - means repair and maintenance operations, where ACM, including thermal systems insulation and surfacing material, is likely to be disturbed.
- 3.8 Class IV Asbestos Work - means maintenance and custodial activities during which employees contact ACM and PACM and activities to clean up waste and debris containing ACM and PACM.
- 3.9 Closely Resemble - means that the major workplace conditions which have contributed to the level of historic asbestos exposure are no more protective than the

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conditions of the current workplace.

- 3.10 Competent Person - means one who is capable of identifying existing asbestos hazards in the workplace and selecting the appropriate control strategy for asbestos exposure, who has the authority to take prompt corrective measures to eliminate them, who is specially trained in a training course which meets the criteria of EPA's Model Accreditation Plan for project designer or supervisor, or its equivalent, and who otherwise meets the criteria set out in Section 6.6 below.
- 3.11 Critical Barriers - means one or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.
- 3.12 Disturbance - means contact which releases fibers from ACM and PACM or debris containing ACM or PACM. This term includes activities that disrupt the matrix of ACM or PACM, render ACM or PACM friable, or generate visible debris. Disturbance includes cutting away small amounts of ACM or PACM, no greater than the amount which can be contained in one standard sized glove bag or waste bag in order to access a building component. In no event shall the amount of ACM or PACM so disturbed exceed that which can be contained in one glove bag or waste bag which shall not exceed 60 inches in length and width.
- 3.13 Fiber - means a particulate form of asbestos, 5 micrometers or longer, with a length-to -diameter ratio of at least 3 to 1.
- 3.14 Friable – means a material that can be crushed, crumbled or reduced to powder with hand pressure and is therefore more susceptible to emitting fibers when disturbed. Examples of friable materials include pipe insulation, spray-on insulation or acoustical coatings, and troweled-on insulation, acoustical, or finish coatings.
- 3.15 Homogeneous Area - means an area of surfacing material or thermal system insulation that is uniform in color and texture.
- 3.16 Intact - means that the ACM has not crumbled, been pulverized, or otherwise deteriorated so that it is no longer likely to be bound with its matrix.
- 3.17 Negative Initial Exposure Assessment - means a demonstration by the employer, which complies with the criteria set out in Section 6.8.2 (b) that employee exposure during an operation is expected to be consistently below the PELs.
- 3.18 NESHAP – means the National Emission Standards for Hazardous Air Pollutants. Asbestos was one of the first substances regulated under the NESHAP.
- 3.19 Nonfriable – means materials that bind fibers within the matrix composition of the

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product and which do not readily release fibers when disturbed unless exposed to physical actions that release the fibers from the matrix such as sanding, cutting, pulverizing, or otherwise abrading the material sufficient to cause the material to readily emit or release fibers to the ambient air.

Examples of non-friable materials include asbestos –cement products such as transite panels, sheeting or piping, vinyl-asbestos floor tile and sheeting, gaskets, and various asphaltic-based coatings that include asbestos fibers as a component of the product such as roofing shingles and mastics, and various adhesives [NOTE: Certain states (for example, New York, may also refer to these asphaltic or matrix bound type of products as NOBs – non-friable, organically bound asbestos-containing materials and they are regulated in a different manner in those states].

- 3.20 PACM -means “ presumed asbestos-containing material”, which is thermal system insulation and surfacing material found in a building constructed in 1980 or before. The designation of a material as PACM may be rebutted as provided in Section 5.2 below.
- 3.21 Project Designer - means a person who has successfully completed the training requirements for an abatement project designer established by 40 CFR 763.90(G).
- 3.22 Regulated Asbestos Containing Material – means friable asbestos, Category I nonfriable ACM that has become friable, Category II nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations.
- 3.23 Surfacing Material - means material that is sprayed, troweled- on or otherwise applied to surfaces (such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, and other purposes).
- 3.24 Surfacing ACM - means surfacing material which contains more than 1% asbestos.
- 3.25 Thermal Systems Insulation (TSI) - means ACM applied to pipes, fittings, boilers, breaching, tanks, ducts or other structural components to prevent heat loss or gain.
- 3.26 Thermal Systems Insulation ACM - is thermal systems insulation which contains more than 1% asbestos.

#### 4 **RESPONSIBILITIES**

See Sections 6.5 and 6.6

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## 5 **PROCEDURE A - PRODUCT IDENTIFICATION**

### 5.1 Product Identification/Communication Of Hazard

Before any work involving the removal of or the contact with installed friable, regulated ACM, or Category I or Category II non-friable ACM is performed, and preferably before the job is bid, it must be determined if any of the following installed products, or any others not listed below, contain asbestos:

#### MATERIALS THAT MAY CONTAIN ASBESTOS AND WOULD RESULT IN CLASS I ABATEMENT, SUCH AS BUT NOT LIMITED TO:

CALCIUM SILICATE  
MINERAL WOOL  
MAGNESIA  
EXPANDED PERLITE (CAREYTEMP, CALSILITE)  
ARMABESTOS, UNIBESTOS, K-MATT, AND RELATED PRODUCT  
AIR CELL  
DIATOMACEOUS EARTH (SUPEREX, HY TEMP, ETC.)  
REMOVAL BLANKETS  
SPRAY APPLIED INSULATION AND SURFACING MATERIALS  
INSULATING AND FINISHING CEMENT

#### MATERIALS THAT MAY CONTAIN ASBESTOS AND WOULD RESULT IN CLASS II ABATEMENT, SUCH AS BUT NOT LIMITED TO:

MASTICS AND ADHESIVES  
CLOTH, FELT, TAPE, OR PAPER PRODUCT  
VINYL AND ASPHALT FLOORING  
ROOFING MATERIAL  
CEILING TILES  
WALL BOARDS  
SIDING/SHINGLES  
TRANSITE  
GASKETS

- 5.1.1 By regulation, thermal system insulation and surfacing materials present and installed in or before 1980 will be identified and treated as Presumed Asbestos Containing Material (PACM) until it is proven not to contain asbestos per 29 CFR 1926.1101(k)(5). By policy, all suspect ACM that will be contacted or disturbed will be treated as PACM until it is proven not to contain asbestos in a manner equivalent to 29 CFR 1926.1101(k)(5).

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## 5.2 Determining Product Composition

Possible methods of determining the composition of installed products include:

- 5.2.1 Obtain a written statement of the manufacturer's brand names for the products from the customer, owner, original installer, architect, or other knowledgeable party, and determine the composition of the product from specification sheets or other reliable written information.
- 5.2.2 Obtain a written inspection conducted pursuant to the requirements of AHERA (40 CFR Part 763, Subpart E) which demonstrates that the material is not ACM from the customer, architect or other qualified agent or representative of the owner.
- 5.2.3 Obtain other reliable evidence of the product composition such as relying on non-asbestos labels or color codes established and documented by facility management and original installer submittals, establishing the absence of asbestos fibers.
- 5.2.4 Obtain a report of product composition from an accredited industrial hygiene laboratory.
  - a) If laboratory testing is necessary to check for the presence of asbestos, bulk samples of any unidentified or suspect material must be taken by an AHERA certified asbestos inspector currently trained and licensed in the state of operation, e.g. in California, the inspector must be a DOSH-Certified Asbestos Consultant.
  - b) Each sample should be taken by penetrating the entire depth of the material to ensure all substances present are included.
  - c) The EPA recommends minimum of 3 samples for all homogeneous material of a 1000 square foot area, 5 samples for above a 5,000 square foot area. To avoid unnecessary exposure to asbestos fibers, the following precautions during sampling are required:
    - The person taking the samples shall wear approved personal protective equipment. (See sections on protective clothing and respirator selection).
    - The material shall be sampled when the area is not in use.
    - Only personnel required for sampling shall be present.
    - The sample shall be taken as far from the face as practical.
    - The material shall not be disturbed more than is necessary.
    - Wetting the material with a light mist of water will minimize the release of fibers when sampling.
    - If material is dislodged while sampling the area, clean up immediately with wet rag or HEPA vacuum.

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- Use a small container that can be resealed (a film canister or zip lock bag).
- Gently twist the open end of the container into the material or use a small knife penetrating all layers of the material.
- Tightly close container wiping it with a damp cloth.
- Tape the lid to prevent accidental opening.
- Label the container with the facility and the date the sample was taken with an ID tag for a specific location or equipment sample.
- Have a written record of (1) location, (2) area ID number, (3) date taken.
- Samples will be sent to an approved laboratory for analysis.

d) Settled dust sampling can be accomplished by scraping an area containing accumulated dust and placing the material in a small container. Alternatively, settled dust sampling can be conducted by “suctioning” the area with a filter in a cassette which is attached to an air pump. This material is then treated like a bulk sample with analysis by polarized light or electron microscopy.

e) Wipe sampling is another technique used to determine trace amounts of asbestos on surfaces. A filter matter is used to wipe an area (usually a square foot) and submitted to the laboratory for analysis by electron microscopy.

f) Tape sampling is similar to wipe sampling except a cellophane tape is used to collect settled dust. The sample is normally analyzed by scanning electron microscopy.

5.3 In all cases of doubt, treat the product in question as asbestos containing. This situation would arise most often when necessary contact was not anticipated and time does not allow for formal analysis.

5.4 A report of product identification (Form 9926) together with all backup reports must be submitted to the Risk Management Department in all cases where removal of or contact with previously installed ACM or PACM is planned or becomes necessary. This Report shall be submitted prior to job start-up, by completion of the form in either JDE or handwritten on Attachment ASB\_01, Form 9926, and emailed to [driding@irexcorp.com](mailto:driding@irexcorp.com) or faxed to the Risk Management Department in Lancaster at 717-393-3872.

#### 5.5 Communicating Information.

5.5.1 When the sampling results are received or other relevant documentation is obtained, employees who will perform abatement work or who are working or will be working in adjacent areas shall be informed of the sampling results.

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- 5.5.2 A pre-job safety meeting/conference will be held prior to the start of the job. The conference shall include the building owner or agent, the company Competent Person responsible for the project, and employees and/or their representatives that are responsible for reviewing the safety program and the equipment and practices that will provide a safe and healthful workplace.
- 5.5.3 The Competent Person will notify the building/ facility owner or their representative and other employers in adjacent areas about safe work measures that will be used to prevent uncontrolled asbestos exposures and the location and quantity of ACM/PACM in the affected work area(s).
- 5.5.4 The Competent Person is responsible for posting all required notifications, permits, registrations, licenses prior to the start of work, and all air monitoring results as obtained and required. In California, the Competent Person shall post the registration certificate at the worksite adjacent to the CAL/OSHA poster.
- 5.5.5 Within 10 days of the completion of abatement work, the Competent Person or designated Owner's representative shall inform the building/facility owner and employers of employees who are or will be working in the area of the current location and quantity of PACM and/or ACM remaining in the area and final monitoring results, if any.
- 5.5.6 If ACM and/or PACM are discovered during the progress of work, information concerning the presence, location and quantity of such newly discovered ACM and/or PACM shall be conveyed to the owner and to other employers of employees working at the work site, within 24 hours.

**6 PROCEDURE B - REMOVAL OF ASBESTOS-CONTAINING MATERIAL**

- 6.1 Recordkeeping Requirements - For the protection of the company and employees, it is critical that complete records be prepared and maintained at the corporate office of all asbestos removal operations. The following documents must be completed and forwarded to the Risk Management Department for extended retention as part of the contract file.
  - 6.1.1 The REPORT OF PRODUCT IDENTIFICATION (Form 9926, Attachment ASB\_01), and all supporting documents as described in these procedures.
  - 6.1.2 A fully completed INSULATION REMOVAL/CONTACT REPORT (Form 9927 Rev. 10/00) and all other forms and documents required by the checklist on reverse side (See Attachment ASB\_02).



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- 6.1.3 Any other records which may be relevant to the removal operations. Examples include, but are not limited to, EPA and/or state notifications, asbestos survey reports, project specifications, job logs, air and bulk sampling results, photographs, etc.
- 6.1.4 All objective data, exposure measurements, medical surveillance, and training records are to be collected throughout each project and forwarded upon job completion to the corporate office for extended retention (30 years past the date of last employment).

6.2 Review

- 6.2.1 All removal jobs involving special conditions, such as inadequate ventilation, congested work conditions, confined space entry, work at height that requires a written Fall Protection Plan, yellow-tag scaffolding use, etc., shall be reviewed with the Regional Safety Manager in sufficient advance time to support effective safety planning and execution on the project.
- 6.2.2 On all removal jobs, the operational office shall review any unusual or unfamiliar circumstances regarding the project with Construction Services and the Corporate Safety Department and seek any needed input, services or equipment.
- 6.2.3 All local, state, federal, and Provincial governmental regulations regarding asbestos removal shall be identified, understood and adhered to.

6.3 State/CAL/OSHA and EPA Notification

- 6.3.1 Pre-abatement state notification requirements vary widely, both between states and within states. In all cases, at a minimum, the federal NESHAP Notification rules apply for building demolitions and when the quantity of Regulated Asbestos Containing Material (RACM) is exceeded in project renovations (federally, these quantities are 160 square feet or 260 linear feet). All pre-abatement state notification requirements for the state in which the work is to be conducted shall be identified, understood, and complied with.
- 6.3.2 In California, the Argus office that is performing ACM or PACM work will provide a written notice using CAL/OSHA's notification form to the nearest District Office of DOSH 24 hours prior to the commencement of any asbestos-related activity including separate phases of work, when different work practices are used, and where the work occurs in non-contiguous locations.

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6.3.3 It is the Competent Person’s responsibility to ensure that the CAL/OSHA notification is done properly according to current regulations. Immediate (emergency) abatement such as, but not limited to, customer repair of broken equipment containing asbestos shall notify CAL/OSHA by following the applicable regulatory requirements in effect at the time of the work.

6.3.4 When no state specific notification requirements exist, and as otherwise required by applicable state and/or federal regulations, notifications must be provided to the appropriate Regional Office of Environmental Protection Agency, to the attention of the Director, Enforcement Division. NESHAP demolition notifications are always required. If the demolition or renovation involves RACM above the threshold quantities, then the applicable notification and additional NESHAP requirements apply.

- “DEMOLITION” means the “wrecking or taking out of any load supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.” “RENOVATION” means “altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component.”

NOTE: Postmark or deliver the notification at least 10 working days before asbestos stripping or removal work or any other activity begins (such as site preparation) that would break up, dislodge or similarly disturb asbestos material.

- EPA notice shall be made using either the EPA format or the individual state notification forms. Individual state notifications shall be made using appropriate state forms.
- Two copies of any EPA notice should be sent to the appropriate EPA Regional Office within the required time frame prior to commencement of the removal work. A list of the EPA’s Regional Offices is contained in Attachment ASB\_03.

#### 6.4 Personnel Selection

6.4.1 Smokers - Whenever feasible, we should select non-smoking employees for work on asbestos removal jobs, because of the correlation between smoking and asbestos related diseases.

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- 6.4.2 Previous asbestos exposures - Whenever feasible, we should select employees for work on asbestos removal jobs who have not had previous occupational asbestos exposure without proper precautionary measures (including especially respiratory protection.)
- 6.4.3 Employment is contingent on an employee being medically fit to use a respirator and pass the appropriate asbestos medical surveillance physical, as determined by a physician.

6.5 Employee Training

- 6.5.1 It is the responsibility of the account manager / construction manager to assure that all employees engaged in asbestos removal are properly trained and that the training is verified with a copy of the employees' training certification. The account manager / construction manager shall also ensure that all employees who work in areas that do or which may contain asbestos-containing materials receive and document the required Asbestos Awareness training for workers who work around but will not disturb the asbestos-containing materials in the work environment. The course will include specific instructions to understand and abide by all warning signs and labels or other identification system the facility has employed, and to not disturb materials so identified. The course shall also identify the specific obligations of other contractors when working on multi-employer work sites and establish the communication and exposure protection requirements of other contractors.
- 6.5.2 Asbestos Awareness training shall be provided annually to workers who work in areas where asbestos-containing materials or presumed asbestos-containing materials are located, but which will not be disturbed. The training shall be documented, and shall include information on the health effects of asbestos, locations of ACM and PACM in the building/facility, recognition of ACM and PACM damage and deterioration, requirements of the standard relating to housekeeping, and proper response to fiber release episodes.
- 6.5.3 Training for Class I operations and Class II operations that require critical barriers (or an equivalent isolation method) and/or negative pressure enclosures shall be the equivalent in curriculum, training method and length to the EPA Model Accreditation Plan (MAP) asbestos abatement worker training (40 CFR Part 763, Subpart E, Appendix C). In addition to this training, a thorough briefing of precautionary measures to be followed on the job is to be provided to each employee before work begins. This training shall be conducted in a manner that the employee is able to understand.

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6.5.4 Training for Class II operations not included above shall include at a minimum all of the items listed below and also include all of the specific work practices and engineering controls set forth in 29 CFR 1926.1101(g) and shall include hands-on training in each of the work practices for each category of material and each method of removal. The training content below incorporates the requirements of 29 CFR 1926.1101(k)(9)(viii) and shall be conducted in a manner that the employee is able to understand:

- a) Methods of recognizing asbestos, including the requirement to presume that certain building materials contain asbestos (chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos and actinolite asbestos);
- b) The health effects associated with asbestos exposure;
- c) The relationship between smoking and asbestos in producing lung cancer;
- d) The nature of operations that could result in exposure to asbestos, the importance of necessary protective controls to minimize exposure including as applicable, engineering controls, work practices, respirators, housekeeping procedures, hygiene facilities, protective clothing, decontamination procedures, emergency procedures, and waste disposal procedures, and any necessary instruction in the use of these controls and procedures; where Class III and IV work will be or is performed, the contents of EPA 20T-2003, "Managing Asbestos-In-Place" July 1990 or its equivalent in content;
- e) The purpose, proper use, fitting instructions, and limitations of respirators as required by OSHA 29 CFR 1910.134;
- f) The appropriate safe work practices for performing the asbestos job;
- g) Medical surveillance program requirements;
- h) A review of the 29 CFR 1926.1101 standard and its appendices;
- i) The names, addresses and phone numbers of public health organizations which provide information, materials and/or conduct programs concerning smoking cessation; and
- j) The requirements for posting signs and affixing labels and the meaning of the required legends for such signs and labels.

## 6.6 Supervision

6.6.1 All supervisory and management personnel shall assure that qualified and trained supervisory personnel are on site at all times during asbestos removal operations. The account manager / construction manager has the authority and responsibility to supervise and discipline a competent person in compliance with applicable asbestos requirements. Also, the account manager / construction manager is obligated to understand all applicable state asbestos management requirements and additional company safety and health policies, procedures, and programs. Specifically in California, the Construction Manger shall understand and adhere to all Title 8 requirements.

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6.6.2 All Branch Managers, account managers / construction managers, superintendents, and other supervisory personnel responsible for obtaining, overseeing, coordinating and managing asbestos related services shall be trained and maintain a current license as an asbestos supervisor. All such training and certification records shall be managed in the same process as all asbestos worker related training and licensing records.

6.6.3 Superintendents and other supervisory personnel with daily/weekly supervisory responsibilities that include frequent management of on-site asbestos operations shall maintain annual medical clearances to wear respiratory protection and enter asbestos regulated areas (i.e. shall obtain an asbestos physical compliant with 29 CFR 1926.1101).

A competent person must be on site to supervise and make inspections of the jobsite as required below. The Competent Person has the authority and responsibility to carry out the duties described in company policies, procedures and programs. The failure to do so will make them subject to disciplinary action and, possibly, prevent them from working as a competent person.

6.6.4 Inspections. The competent person shall make frequent and regular inspections of the job site, in order to perform the duties of the competent person. This includes, but is not limited to inspecting protective work suits at least once per work shift for rips or tears and ensuring they are mended or replaced.

6.6.5 For Class I jobs and Class II operations that require critical barriers or negative pressure enclosures, on-site inspections shall be made at least once during each work shift, and any time at employees' request.

6.6.6 For class II jobs that do not require critical barriers or negative pressure enclosures, on-site inspections shall be made at intervals sufficient to assess whether conditions have changed, and at any reasonable time at employees' request. Also, during an on-site inspection the Competent Person shall determine if the material is being removed in an intact state.

6.6.7 On all worksites where employees are engaged in Class I or II asbestos work, the competent person shall perform or supervise the following duties:

- a) Set up the regulated area, enclosure, or other containment
- b) Ensure (by on-site inspection) the integrity of the enclosure or containment;
- c) Set up procedures to control entry to and exit from the enclosure or containment;
- d) Supervise all employee exposure monitoring - See Section 6.8;

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- e) Ensure that employees working within an enclosure, performing glove bag operations, or within the regulated area wear the required protective clothing and respirators;
- f) Ensure through on-site supervision, that employees set up and remove engineering controls, use work practices and personal protective equipment in compliance with all requirements;
- g) Ensure that employees use the hygiene facilities and observe the decontamination procedures;
- h) Ensure that through on-site inspections engineering controls are functioning properly and employees are using proper work practices; and
- i) Ensure that notification requirements are met.

#### 6.6.6 Training for class I and II asbestos work.

- a) The competent person shall be trained in all aspects of asbestos removal and handling, including, but not limited to: installation and/or implementation of asbestos abatement control methodologies, and technologies; implementation of asbestos abatement work practices, and effective removal and handling methodologies; the content of the OSHA Construction Industry Occupational Exposure to Asbestos standard; the identification of asbestos; effective removal control procedures; and other practices for reducing asbestos hazards and include a training course which meets the criteria of EPA's Model Accreditation Plan (40 CFR 763) for supervisor, or its equivalent and, for Class III and Class IV work, who is trained in a manner consistent with EPA requirements for training of local education agency maintenance and custodial staff as set forth at 40 CFR 763.92 (a)(2).
- b) Such training shall be obtained in a comprehensive course for supervisors, such as a course conducted by an EPA or state-approved training provider, certified by the EPA or a State, or course equivalent in stringency, content and length.
- c) Evidence that the required training has been completed shall be posted and made available for inspection

#### 6.7 Medical Surveillance

- 6.7.1 Procedures - All employees engaged in Class I and II work involving exposures to levels of asbestos at or above the permissible exposure limit or excursion limit for 30 or more days per year, or who are required to wear a negative pressure respirator, must be offered and participate in the following medical surveillance program by the company without charge to the employee.
- 6.7.2 Medical Examination - Content. The employee must be offered a medical examination which includes:

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- a) A medical and work history with specific emphasis directed to the pulmonary, cardiovascular, and gastrointestinal systems.
- b) On initial and annual examinations, the standardized questionnaires contained in Appendix B to 29 CFR 1926.1101.
- c) A physical examination directed to their pulmonary and gastrointestinal system, including a chest roentgenogram (posterior anterior 14x17) to be administered at the discretion of the physician and pulmonary function tests of forced vital capacity (FVC) and forced expiratory volume at one second (FEV). At a minimum, all medical evaluations shall comply with 29 CFR 1926.1101(m) and Appendices D, E, and I.
- d) Workers who elect not to submit to a physical examination, or any component of the physical examination required by the examining physician, shall not be employed in any regulated asbestos activities.

6.7.3 Frequency - The company shall make available medical examinations and consultations to each employee on the following schedule:

- a) A medical examination must be offered to employees prior to assignment to an area where a respirator is required. This evaluation must be made to see if the employee is medically fit to wear a respirator.
- b) A medical examination must be offered to employees within 10 working days following the thirtieth day of exposure to levels of asbestos at or above the permissible exposure limit or excursion limit.
- c) And at least annually thereafter.
- d) A copy of the physician's written opinion is to be provided to the affected employee within 30 days from its receipt.

Exception- No medical examination is required of any employee if adequate records show that the employee has been examined in accordance with 29 CFR 1926.1101 (m) within the prior 1-year period.

6.7.4 Information provided to the Physician by the Branch Manager

The following information must be provided by the branch manager to the examining physician prior to the examination:

- a) A copy of OSHA 1926.1101 and Appendices D, E, & I.
- b) A description of the affected employee's duties as they relate to the employee's exposure to asbestos.
- c) The employee's anticipated exposure or representative exposure level.
- d) A description of personal protective and respiratory equipment used or to be used.

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e) Information concerning the availability of medical examinations and consultations to each employee and information from previous medical examinations of the affected employee that is not otherwise available to the examining physician, as available.

6.7.5 Documentation - Examination results shall be forwarded to the Risk Management Department for extended retention. OSHA regulations require these records be maintained for the duration of employment plus 30 years.

6.7.6 A physician's written opinion must be obtained from the examining physician. The written opinion shall contain the results of the medical examination and shall include:

- The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos;
- Any recommended limitations on the employee or on the use of personal protective equipment such as respirators;
- A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions that may result from asbestos exposure;
- A statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and asbestos exposure; and
- A copy of the physician's written opinion must be given to the affected employee within 30 days of receipt.

## 6.8 Air Monitoring / Exposure Assessment

6.8.1 Policy - Air quality sampling, including environmental, personal and excursion, as listed below, must be performed on all projects unless a written variance is obtained from the Corporate Safety & Health Director.

a) Representative 8-hour TWA employee exposure shall be determined on the basis of one or more samples representing full-shift exposure for employees in each work area. Representative 30-minute short-term employee exposures shall be determined on the basis of one or more samples representing 30 minute exposures associated with operations that are most likely to produce exposures above the excursion limit for employees in each work area. Eight-hour TWA and Excursion samples are types of personal monitoring.



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- b) Environmental monitoring is sampling collected from areas of the work environment which are representative of the airborne concentrations of asbestos fibers for that work area. Examples include Background Ambient, Inside Work Area (IWA), Outside Work Area (OWA), and Clearance samples.
- c) Personal monitoring is sampling collected from within the breathing zone of the employee.
- d) Excursion monitoring is sampling collected from within the breathing zone of the employee which measures short-term (30 minute) exposure levels.
- e) Monitoring analyses must be performed by a laboratory that successfully participates in the National Voluntary Laboratory Accreditation Program (NVLAP) administered by the American Industrial Hygiene Association (AIHA) or be performed by laboratories and analysts that successfully participate in the Proficiency Analytical Testing (PAT) Program, the Asbestos Analysts Registry, or equivalent.

6.8.2 Procedure - Air monitoring must be conducted **daily**, unless:

- a) Initial Exposure Assessment. A competent person must conduct an exposure assessment immediately before or at the initiation of a project to ascertain expected exposures during that project.

The assessment must be completed in time to comply with requirements which are triggered by exposure data or the lack of a negative exposure assessment and to provide information necessary to assure that all control systems planned are appropriate for that project and will work properly. **NOTE:** Some municipalities and States require a person performing asbestos air monitoring be certified or licensed. Check with local regulatory agencies. In California, it is prohibited for Certified Asbestos Consultants hired by a building owner to have a “financial or proprietary interest in an asbestos abatement contractor hired for the same project.” A related restriction exists prohibiting these same types of firms from conducting clearance monitoring on behalf of a building owner. Only DOSH-Certified Asbestos Consultants may perform these services. New York prohibits the abatement contractor from hiring the third party monitoring firm. These examples reinforce the need to understand and adhere to local and state requirements.

- b) Basis of Initial Exposure Assessment: The initial exposure assessment shall be based on data derived from the following sources:

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- 1) If feasible as determined by a competent person, the company shall monitor employees and base the exposure assessment on the results of exposure monitoring which is conducted pursuant to the criteria in subparagraph 'c' below for Negative Exposure Assessment.
  - 2) In addition, the assessment shall include consideration of all observations, information or calculations which indicate employee exposure to asbestos, including any previous monitoring conducted in the workplace, or of the operations of the company, which indicate the level of airborne asbestos likely to be encountered on the job. However, the assessment may conclude that exposures are likely to be consistently below the PELs only as a conclusion of a negative exposure assessment.
  - 3) For Class I asbestos work, until the company conducts exposure monitoring and documents that employees on that job will not be exposed in excess of the PELs, or otherwise makes a negative exposure assessment, the company shall presume that employees are exposed in excess of the TWA and excursion limit. This means that all Class I work shall be initiated using Powered Air Purifying Respirators as the minimum respiratory protection. By corporate policy, the sole authorized process to downgrade from PAPR respiratory protection is defined in Section 6.9.1 and requires written approval from the Corporate Safety Director.
- c) Negative Exposure Assessment: For any one specific asbestos job, the company may demonstrate that employee exposures will be below the PELs by data from one or more of the following categories:
- 1) Objective data demonstrating that the product or material containing asbestos mineral or the activity involving such product or material cannot release airborne fibers in concentrations exceeding the TWA and excursion limits under those conditions having the greatest potential for releasing asbestos; or
  - 2) Prior air monitoring data, where the company has monitored other asbestos jobs for the PEL and the excursion limit within 12 months of the current or projected job, the monitoring and analysis were performed in compliance with the asbestos standard in effect, the data were obtained during work operations conducted under workplace conditions A closely resembling the process, type of material, control methods, work practices, and environmental conditions used and prevailing in the current job, the prior jobs were conducted by employees whose training and experience are no more extensive than that of employees performing the current job, and these data show that under the conditions prevailing and which will prevail in the current workplace there is a high degree of certainty that employee exposures will not exceed that TWA and excursion limit; or

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3) Results from initial exposure monitoring of the current job made from breathing zone air samples that are representative of the 8-hour TWA and 30-minute short-term exposure of each employee performing those operations which are most likely during the performance of the asbestos job to result in exposures over the PELs.

d) Periodic Monitoring - Class I and II operations: The company shall conduct daily monitoring that is representative of the exposure of each employee performing Class I or II work who is assigned to work in a regulated area, unless the company has made a negative exposure assessment per in accordance with the requirements of Section 6.8.2 for the entire operation.

1) If a negative exposure assessment is achieved in accordance with the requirements of Section 6.8.2, daily monitoring requirements can be changed to periodic monitoring. Periodic monitoring frequency shall be determined and approved in writing by the Corporate Safety Director as a part of the Negative Exposure Assessment evaluation.

2) Termination of monitoring. (i) If the periodic monitoring reveals that employee exposures, as indicated by statistically reliable measurements, are below the permissible exposure limit and excursion limit the company may discontinue monitoring for those employees whose exposures are represented by such monitoring. Discontinuing periodic monitoring requires the written authorization of the Corporate Safety Director.

3) Additional monitoring is required whenever there has been a change in process, control equipment, personnel or work practices that may result in new or additional exposures above the permissible exposure limit and/or excursion limit or when the employer has any reason to suspect that a change may result in new or additional exposures above the permissible exposure limit and/or excursion limit. Such additional monitoring is required regardless of whether a "negative exposure assessment" was previously produced for a specific job.

4) Background air monitoring is recommended before removal work begins on all jobs to determine background airborne asbestos concentration levels. Daily or periodic sampling must be conducted to determine personal exposure levels and environmental sampling must be conducted to assure that clean-up is complete and that air quality requirements are met (0.01 F/cc is recommended). Check the project specifications or meet the standard customer requirements for the project. You may consult the Regional Safety Manager or Corporate Safety Department for assistance in evaluating sampling results, as needed.

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- 5) Monitoring must include personal and environmental sampling, and must include sampling based on an 8-hour, time-weighted average concentrations.
- 6) No employee may be exposed to airborne concentration of asbestos in excess of 0.1 fibers per cubic centimeter of air measured as an 8 hour time-weighted average or a short-term exposure of 1 Fiber per cubic centimeter of air. The Corporate Safety Department shall be contacted immediately in all cases where air monitoring results indicate exposure to airborne concentrations in excess of 1 F/cc without regard for the protection factor of the employee's respirator. Additionally, any employee found to have been exposed to such concentrations shall be notified in writing as soon as practical but not later than five (5) consecutive days after determination of exposure. Such employees shall also be timely notified of the corrective actions taken to mitigate the circumstances that contributed to the elevated fiber concentrations.
- 7) Affected employees and their designated representatives may observe any monitoring of employee exposure to asbestos. When observation of this monitoring of employee exposure to asbestos requires entry into an area where the use of protective clothing or equipment is required, the observer shall be provided with and required to use such clothing and equipment and shall comply with all other applicable safety and health procedures.

6.8.3 Documentation - Monitoring reports must include details of samples, personnel/area monitored, dates, duration of sampling, calibrated flow rates, field data sheets, chains-of-custody, analytical reports, QA/QC data, and resulting concentrations. Personnel sampling must be conducted and reported as 8-hour time-weighted average concentrations. A copy of all air monitoring document listed above must be forwarded to the Lancaster Risk Management Department for extended retention.

- a) Owner supplied monitoring is performed on some projects. Results of such owner performed monitoring must be forwarded to the Risk Management Department in all cases. If the owner or their representative will not provide copies of the documentation and data listed above, then the company will collect its own data at a minimum for personal sampling as required by OSHA and/or state or local governmental agencies.

## 6.9 Personal Protective Equipment

All employees involved in Class I, II or III removal operations must be provided with the following personal protective equipment:

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### 6.9.1 Respirators

The company maintains a respiratory protection program in accordance with 29 CFR 1910.134, (See Respiratory Program in this manual).

- a) Mandatory respirator selection criteria for asbestos operations are summarized in Table D-4 below.
- b) Respirator effectiveness relies on worker knowledge and effective understanding of and strict adherence to manufacturer-provided procedures, fit testing, proper use, cleaning and maintenance and adherence to limitations. Respirators shall be provided at no cost to the employee and shall be used in the following four circumstances: when using work practice controls, when conducting work operations, as needed to reduce exposure, and in emergencies.
- c) All atmosphere-supplying respirators (supplied air and/or SCBA) shall provide breathing air of high purity that meet the following criteria:
  - Compressed and liquid oxygen shall meet the United States Pharmacopoeia requirements for medical or breathing oxygen;
  - Compressed breathing air shall meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989 to include:
    - Oxygen content (v/v) of 19.5-23.5%;
    - Hydrocarbon (condensed) content not in excess of 5 milligrams per cubic meter of air;
    - Carbon monoxide content not in excess of 10 parts per million (ppm);
    - Carbon dioxide content not in excess of 1,000 ppm; and
    - Be free of recognizable odor(s).
- d) Compressed oxygen is prohibited from use in atmosphere-supplying respirators previously used with compressed air.
- e) Supplied air oxygen concentrations greater than 23.5% shall only be used in equipment specifically designed and constructed for oxygen service or distribution.
- f) Cylinders used to supply breathing air shall:
  - Be tested and maintained per the Shipping Container Specification Regulations of the Department of Transportation (49 CFR part 173 and part 178);
  - Include a Certificate of Analysis from the supplier verifying the air meets Grade D breathing air specifications; and

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- Contain a moisture content not in excess of a dew point of -50° Fahrenheit (-45.6° Celsius) at 1 atmosphere pressure.
- g) Compressors used to supply breathing air shall:
- Prevent entry of contaminated air into the air-supply system;
  - Not produce a moisture content such that the dew point at 1 atmosphere pressure is 10° Fahrenheit (5.56° Celsius) below the ambient temperature;
  - Have suitable in-line air-purifying sorbent beds and filters to ensure breathing air quality. Sorbent beds and filters shall be maintained and replaced or refurbished periodically, as evidenced by a signed, and dated tag affixed near or on the compressor.
  - Non oil-lubricated compressors shall limit carbon monoxide levels in the breathing air to less than 10 ppm.
  - Oil-lubricated compressors shall use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply shall be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.
  - Breathing air couplings must be incompatible with outlets for nonrespirable worksite air or other gas systems. No asphyxiating substance shall be introduced into breathing air lines.
  - Breathing gas containers shall be marked in accordance with the NIOSH respirator certification standard, 42 CFR part 84.
- h) The Corporate Safety Director is responsible for the overall implementation of the company respirator program and the Regional Safety Manager and Branch Manager for each area are responsible for implementation of the program in their respective areas.
- i) The Branch Manager, project manager, superintendent and foreman are responsible for enforcing the program.
- j) Table D-4 below sets minimum requirements for respiratory protection as provided by company policy and OSHA regulations.

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**Table D-4 –  
Respiratory Protection for Asbestos, Tremolite, Anthophyllite, and Actinolite Fibers**

<b>Airborne Concentration of ACM/ PACM / Class of Asbestos Work</b>	<b>Required Minimum Respiratory Protection</b>
Class II or Class III removal not in excess of 1 F/cc (10 x PEL) and All Class II or III work when no compliant NEA exists; all Class III work where disturbance of TSI or Surfacing Material will occur.	1. 1/2 face piece respirator equipped with high efficiency particulate air filters or a higher rated respiratory protection system
Not in excess of 5 F/cc (50 x PEL)	1. Full face piece air purifying respirator equipped with high efficiency particulate air filters or a higher rated respiratory protection system, or  2. 1/2 face piece powered air purifying respirator
Not in excess of 100 F/cc (1,000 x PEL)	1. Full face piece powered air purifying respirator equipped with high efficiency particulate air filters, or  2. Supplied air line respirator operated in continuous flow or pressure demand, or other positive pressure mode and equipped with HEPA egress cartridges or an auxiliary positive pressure, self-contained breathing apparatus (SCBA)
Greater than 100 F/cc (>1,000 PEL)	1. Self-contained breathing apparatus operated in pressure demand or other positive pressure mode (e.g. open/closed circuit)

- Notes:
1. Filtering Facepiece Respirators are prohibited for use to protect against asbestos.
  2. All high efficiency particulate cartridges shall be changed when breathing resistance is noted by the user.
  3. All respiratory protection helmets/hoods are assigned a protection factor of 25 unless manufacturer testing evidencing a greater assigned protection factor (up to 1,000) is provided and maintained in written form.
  4. All references to powered air purifying respirators in Table D-4 are for tight-fitting face pieces only.
  5. All asbestos concentrations described in Table D-4 above represent 8-hour TWAs.

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- k) All Class I asbestos work in the regulated area requires the use of tight-fitting powered air-purifying respirators or a full facepiece, supplied-air respirator operated in the pressure-demand mode and equipped with either HEPA egress cartridges or an auxiliary positive-pressure, self-contained breathing apparatus (SCBA) unless a compliant negative exposure assessment has been established, and the exposure assessment data indicates that the exposure level will be at or below 1 f/cc (as an 8-hour time-weighted average (TWA)). Initial and Negative Exposure Assessment requirements are presented in Section 6.8.2. PAPRs are the minimum initial respirator protection authorized for any Class I work by company policy without the written authorization of the Corporate Safety Director to downgrade.
- l) All Class I asbestos work in the regulated area requires the use of full facepiece, supplied-air respirators operated in the pressure-demand mode and equipped with either HEPA egress cartridges or an auxiliary positive-pressure, self-contained breathing apparatus (SCBA) unless a compliant negative exposure assessment has been established, and the exposure assessment data indicates that the exposure level will be above 1 f/cc as an 8-hour TWA.
- m) By company policy, no operation is authorized to use Negative Exposure Assessments to downgrade respiratory protection without the written authorization of the Corporate Safety Director. All authorizations will be evaluated and approved on a case-by-case basis.
- n) NO dry cutting or handling of any asbestos containing material is allowed except in electrical, thermal, equipment operation, or fall hazard situations, and a PAPR or higher level of respiratory protection is required. All instances of dry asbestos handling or removal must be communicated to and approved in writing by the Corporate Safety Director prior to the start of work.

NOTE: The selection of all respiratory protection equipment must be based on either current or historical personal air sampling data for like operations obtained and documented in accordance with all applicable regulatory requirements.

#### 6.9.2 Protective Clothing

- a) All employees shall be provided with head-to-toe disposable clothing (e.g., Tyvek<sup>®</sup> or equivalent), including hoods, gloves, and shoe covers/booties or rubber or similar material boots that can be washed as part of the decontamination process. When necessary, laundry-capable protective clothing is authorized as established below.



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- b) Disposable one-piece body coverings are preferred and required except when the use of Flame Resistant Clothing (FRC), such as Nomex<sup>®</sup> or equivalent brands, imparts an overriding fire hazard that takes priority.
- c) In some situations, such as at many refineries, FRC may be required to be worn beneath one or more disposable, full body protective suit(s). In other situations, such as during arc torch-cutting and similar types of spark-producing demolition activities, FRC may be required to be worn as the outermost protective body covering in active asbestos abatement areas. In both of these situations, the use and laundering requirements described herein are mandatory.
- d) When necessary or as deemed most efficient, laundry-capable, one-piece clothing may be used with written approval from the Corporate Safety Department so long as the bagging and laundering procedures described herein are followed.
- e) Wearing additional clothing beneath protective clothing is strictly prohibited except as required to meet a definable site hazard that exists (e.g. the use of FRC to protect against fire/explosion hazards) or as needed to support the safety and welfare of the work force in light of adverse weather conditions. In all such cases, the requirements defined below are mandatory:
  - All clothing worn beneath protective clothing during any Class I, Class II or Class III asbestos related activities, including FRC, shall be bagged and laundered after each use in accordance with the procedures described in paragraph (h) below; or
  - All clothing used beneath protective clothing inside of an asbestos abatement negative pressure enclosure (containment) shall be kept on the “contaminated” or “active” abatement side (equipment room) of the three (3) stage decontamination system and shall only be donned once respiratory protection is in use and the employee(s) has entered the abatement area through the clean room (when remote decontamination showers are required) and/or decontamination shower room (in all instances when typical 3-stage decontamination systems are feasible). All such clothing shall be bagged, labeled, and laundered in accordance with the procedures described in paragraph (h) below when it is removed from the abatement area, or it shall be bagged, labeled, and disposed as asbestos-contaminated waste.

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- f) To be most effective, FRC must be worn outside all other clothing, however, site requirements don't always provide for FRC to be worn over disposable protective clothing in certain asbestos abatement situations. When allowed (e.g. to meet winter warmth requirements when working outside, etc.), clothing worn beneath FRC shall be constructed of natural fibers and/or flame resistant fabrics that will resist melting when exposed to elevated temperatures.
- g) When feasible and allowed, the use of fire-resistant, disposable body coverings (e.g. treated Tyvek<sup>®</sup> or equivalent) are preferred to cloth FRC so long as they provide sufficient flame protection relative to the potential site hazards and their use complies with existing site safety requirements established by the facility owner/operator.
- h) All company-constructed laundering facilities shall include water filtration of all discharge waters and shall be constructed inside of a room or enclosure operated under negative pressure with the exhaust equipped with HEPA filtration. The design and operation of any company-controlled laundering operation shall be approved in writing by the Regional Safety Manager prior to site operation. All laundering facilities shall be maintained clean and free of accumulations of dust or debris. Periodic air monitoring shall be conducted at least monthly and all such air monitoring records shall be maintained for a period of 30 years following the last day of operation of the laundering operations.
- i) Laundering requirements include:
  1. The company shall ensure that laundering of contaminated clothing is done so as to prevent the release of asbestos fibers.
  2. If the contaminated clothing is offered to a third party for laundering, a written notification that the contaminated clothing was used during asbestos abatement shall be given to any entity the clothing is offered to and shall include the requirements of 29 CFR 1926.1101(i)(2)(ii) to effectively prevent the release of asbestos fibers.
  3. Contaminated clothing shall be transported in sealed, impermeable bags or other closed, impermeable containers and labeled.
- j) For hazardous environments when asbestos, chemical and fire hazards all exist, the Regional Safety Manager shall be consulted for the appropriate protective clothing most suited to most effectively mitigate the potential hazards.

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k) Refer to Section 6.20 in its entirety for a complete discussion of applicable procedures and requirements related to the proper decontamination process. All projects where the use of remote decontamination facilities are to be used shall be reviewed with and approved in writing by the Regional Safety Manager prior to the start of work. Site locations where remote decontamination use is required on an ongoing basis, such as certain areas of refineries, shall be reviewed with the Regional Safety Manager initially and at intervals whenever the location of the remote decontamination unit is changed.

#### 6.10 Isolation/Regulated Areas

6.10.1 All Class I, II and III asbestos work, and any other asbestos work that may reasonably be expected to exceed the PEL, shall be conducted within regulated areas. The regulated area shall be demarcated in any manner that minimizes the number of persons within the area and protects persons outside the area from exposure to airborne asbestos. The regulated area may be isolated with barricade tape labeled “Danger – Asbestos.” Warning signs that demarcate the regulated area shall bear the information below and be posted at such a distance from such a location that an employee may read the signs and take necessary protective steps before entering the area marked by the signs.

The warning signs shall bear the following information:

**DANGER  
ASBESTOS  
CANCER AND LUNG DISEASE HAZARD  
AUTHORIZED PERSONNEL ONLY  
RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN  
THIS AREA**

6.10.2 Remove as much unnecessary and uncontaminated equipment/materials from the regulated area as possible prior to the start of work. Do not permit entry into the regulated area by unauthorized personnel or any personnel taking inadequate protective measures. In some cases work may be performed after hours so as to avoid unintended contact with plant or office personnel.

6.10.3 Install critical barriers over all openings to the HVAC system (double layer), the floor surface, all objects that remain in the work area, vents, electrical outlets, and window seals to prevent airborne asbestos in a work area from migrating to an adjacent area. Implement additional engineering and work practice controls, such as but not limited to negative pressure enclosures, necessary to comply with the Class of asbestos operations being conducted.

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## 6.11 Engineering Control and Work Practices

6.11.1 The company shall use the following engineering controls and work practices in all operations, regardless of the level of exposure:

- Vacuum cleaners equipped with HEPA filters to collect all debris and dust containing known or suspect ACM and PACM;
- Wet methods, including wetting agents to control employee exposure during employee handling, mixing, removal, cutting, application, and cleanup, except where the use of wet method is infeasible due to, for example, the creation of electrical hazards, thermal hazards, equipment malfunction, and in roofing, slipping hazards; any removal operation that will not use wet methods must be communicated to and approved in writing by the Corporate Safety Director prior to the start of work; and
- Prompt cleanup and disposal of wastes and debris contaminated with asbestos in properly labeled, leak-tight containers.

6.11.2 The company shall use the following control methods to achieve compliance with the TWA permissible exposure limit and excursion limit:

- Local exhaust ventilation equipped with HEPA filtered dust collection systems;
- Enclosure or isolation of processes producing asbestos dust;
- Ventilating of the regulated area to move contaminated air away from the breathing zone of employees and toward a filtration or collection device equipped with a HEPA filter;
- Other feasible work practices and engineering controls that are shown to be effective in controlling asbestos fiber emissions by the Assistant Secretary of OSHA.

6.11.3 Whenever feasible engineering and work practices controls are not sufficient to reduce employee exposure at or below the permissible exposure limit and/or excursion limit, the company shall use them to reduce employee exposure to the lowest level attainable by these controls and shall supplement them by the use of respiratory protection.

6.11.4 Prohibited Activities - The following work practices and engineering controls shall not be used for work related to asbestos or for work which disturbs ACM or PACM, regardless of measured levels of asbestos exposure or the results of initial exposure assessments:

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- High-speed abrasive disc saws that are not equipped with point of cut ventilator or enclosures with HEPA filtered exhaust air.
- Compressed air used to remove asbestos, or materials containing asbestos, unless the compressed air is used in conjunction with an enclosed ventilation system designed to capture the dust cloud created by the compressed air.
- Dry sweeping, shoveling or other dry clean-up of dust and debris containing ACM and PACM.
- Employee rotation as a means of reducing employee exposure to asbestos.
- Blowing, shaking or brushing debris from protective clothing.
- Eating, drinking, smoking, chewing tobacco or gum, and applying cosmetics in any regulated area.
- Removing respirators in the equipment room or at any time prior to fully decontaminating in a compliant shower room;

#### 6.12 Additional Engineering Controls and Work Practices for Class I Work

In addition to the requirements set forth in 6.11 above, the following engineering controls and work practices and procedures shall be used for all Class I work.

6.12.1 All Class I work, including the installation and operation of the engineering controls shall be supervised by a competent person;

6.12.2 For all Class I jobs involving the removal of more than 25 linear feet or 10 square feet of thermal systems insulation or surfacing material; where the company cannot produce a negative exposure assessment; or where employees are working in areas adjacent to the regulated area, while the Class I work is being performed, the company shall use one of the following methods to ensure that airborne asbestos does not migrate from the regulated area:

- a) Critical barriers shall be placed over all openings of the regulated area; or
- b) The company shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area surveillance during each work shift at each boundary of the regulated area, showing no visible dust; and perimeter area monitoring showing that clearance levels of .01 F/cc are met, or that perimeter area levels, measured by (PCM) are no more than background levels in the same area before the asbestos work began. The results of the monitoring shall be made known to the company and employees no later than 24 hours from the end of the work shift during which the monitoring took place.

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6.12.3 For all Class I jobs, HVAC systems shall be isolated in the work area by sealing with a double layer of 6 mil plastic or the equivalent;

6.12.4 For all Class I jobs, impermeable drop cloths shall be placed on surfaces beneath all removal activities;

6.12.5 For all Class I jobs, all objects within the regulated area shall be covered with impermeable drop cloths or plastic sheeting which is secured by duct tape or an equivalent.

6.12.6 For all Class I jobs where the company cannot produce a negative exposure assessment, or where exposure monitoring shows that a PEL is exceeded, the company shall ventilate the regulated area to remove contaminated air away from the breathing zones of employees toward a HEPA filtration or collection device.

#### 6.13 Enclosures for Class I Work

Class I asbestos work shall be performed using one or more of the following

6.13.1 Negative Pressure Enclosures (NPE) systems; NPE systems shall be used unless the configuration of the work area makes the erection of the enclosure infeasible, with the following specifications and work practices:

a) Specifications:

1. The NPE shall be an approved configuration determined by the project competent person.
2. At least 4 air changes per hour shall be maintained (air changes per hour = cubic volume of room/cumulative cfm rating of total number of negative air machines x 0.9 efficiency buffer = air changes per minute x 60 = air changes per hour),
3. A minimum of -0.02 column inches of water pressure differential, relative to outside pressure, shall be maintained within the NPE as evidenced by manometric measurements,
4. The NPE shall be kept under negative pressure throughout the period of its use, and
5. Air movement shall be directed away from employees performing asbestos work within the enclosure, and toward a HEPA filtration or collection device.

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b) Work Practices

1. Before beginning work within the enclosure and at the beginning of each shift, the NPE shall be inspected for breaches and smoke-tested for leaks. Any leaks identified shall be sealed and the NPE shall be documented to be operating at a minimum of -0.02 inches of negative pressure.
2. Electrical circuits in the enclosure shall be deactivated, unless equipped with ground-fault circuit interrupters.
3. The Competent Person shall determine when negative pressure filter changes are necessary and implement emergency measures when a breach is identified in the enclosure or when a drop in negative pressure is detected.

6.13.2 Glove bag systems may be used in lieu of or in addition to NPE systems to remove PACM and/or ACM from piping, elbows, other connections or other components they are designed to do removal from with the following specifications and work practices:

a) Specifications:

1. Glove bags shall be made of 6 mil thick plastic and shall be seamless at the bottom.
2. Glove bags used on elbows and other connections must be designed for that purpose and used without modifications.

b) Work Practices

1. Each glove bag shall be installed so that it completely covers the circumference of pipe or other structure where the work is to be done.
2. Glove bags shall be smoke-tested for leaks and any leaks sealed prior to use.
3. Glove bags may be used only once and may not be moved.
4. Glove bags shall not be used on surfaces whose temperature exceeds 150 degrees.
5. Prior to disposal, glove bags shall be collapsed by removing air within them using a HEPA vacuum.
6. Before beginning work, loose and friable material adjacent to the glove bag shall be wrapped and sealed in two layers of 6 mil plastic or otherwise rendered intact.
7. Where glove bag systems use attached waste bags, such bags shall be connected to the collection bag using hose or other material which shall withstand the pressure of ACM waste and water without losing its integrity, and a sliding valve or other device shall separate the waste bag from the hose to ensure no exposure occurs when the waste bag is disconnected:
8. At least two persons shall perform Class I glove bag removals.

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6.13.3 Negative Pressure Glove Bag systems may be used in lieu of or in addition to NPE systems to remove PACM and/or ACM from piping, elbows, other connections or other components they are designed to do removal from with the following specifications and work practices:

a) Specifications:

1. Compliance with specifications for Glove Bag Systems (See 6.13.2 a above).
2. HEPA vacuum system or other device shall be attached to the bag to prevent collapse during removal.

b) Work Practices

1. Compliance with the work practices for Glove Bags Systems (See work practices 6.13.2 b 1-8 above).
2. The HEPA vacuum cleaner or other device used to prevent collapse of the bag during removal shall run continually during the operation.
3. Where a separate waste bag is used along with a collection bag and discarded after on use, the collection bag may be used again if rinsed clean with amended water before reuse.

6.13.4 Negative Pressure Glove Box Systems may be used in lieu of or in addition to NPE Systems to remove PACM and/or ACM from pipe runs with the following specifications and work practices.

a) Specifications:

1. Glove boxes shall be constructed with rigid sides and made from metal or other material which can withstand the weight of the ACM waste and water used during removal.
2. A negative pressure generator shall be used to create negative pressure in the system.
3. An air filtration unit shall be attached to the box
4. The box shall be fitted with gloved apertures.
5. An aperture at the base of the box shall serve as a bagging outlet for waste ACM and water.
6. A back-up generator shall be present on site.
7. Waste shall be placed in 6 mil thick plastic bags, which are double-bagged before they are filled, or plastic bags thicker than 6 mil.

b) Work Practices:

1. At least two persons shall perform the removal.
2. The box shall be smoke tested for leaks and any leaks sealed prior to each use.



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3. Before beginning work, loose or damaged ACM adjacent to the box shall be wrapped and sealed in two layers of 6 mil plastic prior to the job, or otherwise rendered intact prior to the job.
4. A HEPA filtration system shall be used to maintain pressure barrier in the box.

6.13.5 Water Spray Process System may be used for removal of ACM and PACM from cold line piping instead of an NPE System if, employees performing the work have completed a 40-hour separate training course in its use, in addition to training required for employees performing Class I work. The system shall meet the following specifications and shall be performed by employees using the following work practices:

- a) Specifications:
  1. Piping shall be surrounded on 3 sides by rigid framing.
  2. b) A 360 degree water spray, delivered through nozzles supplied by a high pressure separate water line, shall be formed around the piping.
  3. The spray shall collide to form a fine aerosol which provides a liquid barrier between workers and the ACM and PACM.
- b) Work Practices:
  1. The system shall be run for at least 10 minutes before removal begins.
  2. All removal shall take place within the water barrier.
  3. The system shall be operated by at least three persons, one of whom shall not perform removal, but shall check equipment, and ensure proper operation of the system.
  4. After removal, the ACM and PACM shall be bagged while still inside the water barrier.

6.13.6 A small walk-in enclosure which accommodates no more that two persons (mini-enclosure) may be used if the disturbance or removal can be completely contained by the enclosure with the following specifications and work practices.

- a) Specifications:
  1. The fabricated or job-made enclosure shall be constructed of mil plastic or equivalent.
  2. The enclosure shall be placed under negative pressure (-0.02) by means of a HEPA filtered vacuum or similar ventilation unit.
- b) Work Practices:
  1. Before use, the mini-enclosure shall be inspected for leaks and smoke tested to detect breaches, and any breaches sealed.
  2. Before reuse, the interior shall be completely washed with amended water and HEPA-vacuumed.

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3. During use air movement shall be directed away from the employee's breathing zone within the mini-enclosure.

6.13.7 Class I work may be performed using a control method other than an NPE System which is not referenced in this section, if the following provisions are met:

- a) The control method shall enclose, contain or isolate the processes or source of airborne asbestos dust, or otherwise capture or redirect such dust before it enters the breathing zone of employees.
- b) A certified industrial hygienist or licensed professional engineer who is qualified as a project designer, shall evaluate the work area, the projected work practices and the engineering controls and shall certify in writing that the planned control method is adequate to reduce direct and indirect employee exposure to below the PELs under worst case conditions of use, and that the planned control method will prevent asbestos contamination outside the regulated area, as measured by compliant clearance sampling.
- c) Where the TSI or surfacing material to be removed is 25 linear or 10 square feet or less, the evaluation required in paragraph (b) above may be performed by a competent person, and may omit consideration of perimeter or clearance monitoring otherwise required.
- d) The evaluation of employee exposure shall include and be based on sampling and analytical data representing employee exposure during the use of such method under worst-case conditions and by employees whose training and experience are equivalent to employees who are to perform the current job.
- e) Before work which involves the removal of more than 25 linear or 10 square feet of thermal system insulation or surfacing material is begun using an alternative method, the company shall send a copy of the evaluation and certification required in paragraph b above to the national office of OSHA, Office of Technical Support, Room N3653, 200 Constitution Avenue, NW, Washington DC 20210.

#### 6.14 Additional Work Practices and Engineering Controls for Class II Work

6.14.1 All Class II work shall be supervised by a competent person.

6.14.2 For all indoor Class II jobs, where the company has not produced a negative exposure assessment, or where during the job changed conditions indicate there may be exposure above the PEL or where the company does not remove the ACM in a substantially intact state, the company shall use one of the following methods to ensure that the airborne asbestos does not migrate from the regulated area:

- a) Critical barriers shall be placed over all openings to the regulated area; or,
- b) The company shall use another barrier or isolation method which prevents the migration of airborne asbestos from the regulated area, as verified by perimeter area monitoring or clearance monitoring.

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- c) Impermeable drop cloth shall be placed on surface beneath all removal activities.
- d) All Class II work will use the engineering controls and work practices defined in Section 6.11 above (HEPA vacuums, wet methods, prompt cleanup).

6.15 Project Specific Work Practices and Engineering Controls for Class II Work

Class II asbestos work shall also be performed by complying with the work practices and controls designated for each type of Class II asbestos work to be performed. Where more than one control method may be used for a type of asbestos work, the company may choose one or a combination of designated control methods. Class II work also may be performed using a method allowed for Class I work, except that glove bags and glove boxes are allowed if they fully enclose the Class II material to be removed.

6.15.1 For removing vinyl and asphalt flooring materials which contain ACM or when the material has not been rebutted as containing asbestos in accordance with applicable regulatory requirements, the company shall ensure that employees comply with the following work practices and that employees are trained in these practices as required by regulation:

- a) Flooring or its backing shall not be sanded.
- b) Vacuums equipped with HEPA filter, disposable dust bag, and metal floor tool (no brush) shall be used to clean the floor.
- c) Resilient sheeting shall be removed by cutting with wetting of the snip point and wetting during delamination. Rip-up of resilient sheet floor material is prohibited.
- d) All scraping of residual adhesive and/or backing shall be performed using wet methods.
- e) Dry sweeping is prohibited.
- f) Mechanical chipping is prohibited unless performed in a negative pressure enclosure.
- g) Tiles shall be removed intact, unless the company demonstrates that intact removal is not possible.
- h) When tiles are heated and can be removed intact, wetting may be omitted.
- i) Resilient flooring material including associated mastic and backing shall be assumed to be asbestos-containing unless an industrial hygienist determines that it is asbestos-free using recognized analytical techniques.

6.15.2 For removing roofing material which contain ACM the company shall ensure that the following work practices are employed:

- a) Roofing material shall be removed in an intact state to the extent feasible.
- b) Wet methods shall be used to remove roofing materials that are not intact, or that will be rendered not intact during removal, unless such wet methods are not feasible or will create safety hazards.

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- c) Cutting machines shall be continuously misted during use, unless a competent person determines that misting substantially decreases worker safety.
- d) All loose dust left by sawing operations (a power roof cutter) must be HEPA vacuumed immediately.
- e) Unwrapped or unbagged roofing material shall be either, (A) immediately lowered to the ground via covered, dust tight chute, crane or hoist, or (B) place in an impermeable waste bag, or wrapped in plastic sheeting, and lowered to the ground no later than the end of the work shift.
- f) Upon being lowered, unwrapped material shall be transferred to a closed receptacle in a manner that precludes the dispersion of dust.
- g) Roof level heating and ventilating air intake sources shall be covered or the ventilation system shall be shut down.

6.15.3 When removing cementitious asbestos-containing siding and shingles or transite panels containing ACM, the company shall ensure that the following work practices are employed:

- a) Cutting, abrading or breaking siding, shingles, or transite panels shall be prohibited unless the company can demonstrate that methods less likely to result in asbestos fiber release cannot be used.
- b) Each panel or shingle shall be sprayed with amended water prior to removal.
- c) Unwrapped or unbagged panels or shingles shall be either, (A) immediately lowered to the ground via covered dust-tight chute, crane or hoist, or (B) placed on sheeting and lowered to the ground no later than the end of the work shift.
- d) Nails will be cut with flat, sharp instruments.

6.15.4 When removing gaskets containing ACM, the company shall ensure that the following work practices are employed:

- a) If a gasket is visibly deteriorated and unlikely to be removed intact, removal shall be undertaken within a glove bag
- b) The gasket shall be thoroughly wetted with amended water prior to its removal.
- c) The wet gasket shall be immediately placed in a disposal container.
- d) Any scraping to remove residue must be performed wet

6.15.5 When performing any other Class II removal of asbestos containing material for which specific controls have not been listed above, the company shall ensure that the following work practices are employed:

- a) The material shall be thoroughly wetted with amended water prior to and during its removal.
- b) The material shall be removed in an intact state unless the company demonstrates that intact removal is not possible.

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- c) Cutting, abrading, or breaking the material is prohibited unless the company can demonstrate that methods less likely to result in asbestos fiber release are not feasible.
- d) Removed asbestos-containing material shall be either, (A) immediately bagged or wrapped, or (B) kept wet until transferred to a closed receptacle, which transfer shall occur no later than the end of the work shift.

6.15.6 The company may use different or modified engineering and work practice controls from those specified in 6.15.1 to 6.15.5 above if it complies with the following procedures:

- a) The company demonstrates by data showing employee exposure during the use of such method under conditions which closely resemble conditions under which the method is to be used, that employee exposure will not exceed the PELs under any anticipated circumstances.
- b) A competent person evaluates the work area, the projected work practices and the engineering controls, and certifies, in writing, that the different or modified controls are adequate to reduce direct and indirect employee exposure to below the PELs under all expected conditions of use and that the method meets the requirements of 29 CFR 1926.1101. The evaluation shall include and be based on data representing employee exposure during the use of such method under conditions which closely resemble the conditions under which the method is to be used for the current job, and by employees whose training and experience are equivalent to employees who are to perform the current job.

#### 6.16 Class III and Class IV Work

6.16.1 All Class III asbestos work shall be conducted using engineering and work practice controls which minimize the exposure to employees performing the asbestos work and to bystander employees.

6.16.2 The work shall be performed using wet methods and to the extent feasible, using local exhaust ventilation.

6.16.3 Where the disturbance involves drilling, cutting, abrading, sanding, chipping, breaking, or sawing of thermal system insulation or surfacing material, the company shall use impermeable drop cloths, and shall isolate the operation using mini-enclosures or glove bag systems pursuant to 29 CFR 1926.1101 (g)(5) or another isolation method.

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6.1.6.4 Unless a compliant "negative exposure assessment" exists for the task, or where monitoring results show the PEL has been exceeded, the company shall contain the area using impermeable drop cloths and plastic barriers or their equivalent, or shall isolate the operation using a control system listed in and in compliance with 29 CFR 1926.1101 (g)(5) or another isolation method.

6.16.5 Class III tasks, which involve the disturbance of thermal system insulation or surfacing material, or where a compliant "negative exposure assessment" has not been prepared, or where monitoring results show a PEL has been exceeded, shall be conducted with respiratory protection that is selected, used and fitted pursuant to provisions of 29 CFR 1926.1101(h).

6.16.6 Class IV work is defined as maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities. Class IV asbestos jobs shall be conducted by employees trained, at a minimum, pursuant to the asbestos awareness training program requirements. In addition, all Class IV jobs shall be conducted using wet methods, HEPA vacuums, and prompt clean up of debris containing ACM or PACM. Employees cleaning up debris and waste in a regulated area where respirators are required shall wear respirators which are selected, used and fitted pursuant to provisions of section 6.9.1, Respirators, and the company Respiratory Protection Program. Clean up of waste and debris in, areas where friable thermal system insulation or surfacing material is accessible, shall assume that such waste and debris contain asbestos.

#### 6.17 Tools

Only tools which produce the lowest concentration of dust should be used. In no instance should powered rotary saws or similar equipment be employed. All hand-operated or power-operated tools that may produce or release asbestos fibers including, but not limited to, saws and drills shall be provided with approved, point-of-operation HEPA exhaust ventilating systems

#### 6.18 Encapsulation

6.18.1 Whenever asbestos-containing materials are to remain in place, all exposed surfaces must be properly sealed. Sealing with an encapsulant may also aid to control potential fiber releases from temporarily exposed surfaces between shifts and/or overnight.

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- 6.18.2 Encapsulant - The coating of asbestos-containing materials with a bonding or sealing agent to prevent the release of airborne fibers.
- a) Bridging Encapsulant- Sealant applied over the surface of asbestos-containing material to prevent the release of asbestos fibers.
  - b) Penetrating Encapsulant- Liquid material applied to asbestos-containing material to control airborne fiber release by penetrating into the material and binding its components together.

6.19 Handling

- 6.19.1 Removed insulation shall not be dropped or thrown to the ground or lower level. Unless other approved procedures are employed, insulation removed above ground level shall be transported to the ground adequately wetted and in sealed bags and must be carefully handled to minimize breaking.
- 6.19.2 All removed insulation must be **thoroughly wetted** and placed in sealed, leak-proof 6-mil polyethylene bags, that are marked with pre-printed labels as required by EPA and OSHA regulations.
- 6.19.3 Sealed bags must then be moved to a location outside the removal area and placed in an additional 6-mil polyethylene bag that is also sealed (double bagged).
- 6.19.4 Each bag must be labeled with an OSHA approved “Danger Contains Asbestos” label. (Bilingual labels must be included where required by state regulations.)
- 6.19.5 Labels shall bear the following information:

**DANGER  
CONTAINS ASBESTOS FIBERS  
AVOID CRATING DUST  
CANCER AND LUNG DISEASE HAZARD**

Note: Each waste container must include the name of the waste generator and the location where the waste was generated.

- 6.19.6 When removing metal lathe, mesh or chicken wire special care should be taken to avoid rupturing containers. The OSHA and the EPA require the material be double bagged and placed in leak-proof containers or leak-proof wrapping. All bags containing metal products that could puncture poly bags should be controlled by placing in burlap bags, Gaylord boxes, or placed in metal or fiber drums or other acceptable container. These containers must be labeled as stated above.

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## 6.20 Hygiene Facilities

6.20.1 The following requirements apply to employees performing Class I asbestos jobs involving over 25 linear or 10 square feet of TSI or surfacing ACM or PACM.

- a) Worker decontamination facilities shall include the following:
  1. Each abatement regulated area shall establish a decontamination area that is adjacent and connected to the regulated area for the decontamination of all entrants into the containment. The decontamination area shall consist of an equipment room, shower area, and clean room in series. All personnel shall enter and exit the regulated area through the decontamination area. Each component of the decontamination area (i.e., the equipment, shower, and clean rooms) are separated by triple-flap curtain doorways and commonly have an adjacent air lock area that separates them from the next component or room of the three-stage decontamination area.
  2. The equipment room is contiguous to the active abatement area on one end and shall be supplied with impermeable, labeled bags and containers for the containment and disposal of contaminated protective equipment. The equipment room is adjacent to the shower room on the side opposite of the active abatement area and separated by triple flap doorways and/or associated air locks.
  3. A clean room change area shall be provided for employees' street clothes, unused disposable clothing and respirator accessories. This area shall be separate from any other change area used by employees who are not involved in asbestos removal. No disposables that have been used or other contaminated items shall enter this area. The clean room shall be equipped with a locker or appropriate storage container for each employee's use. The clean room is the primary entrance into the regulated area and is adjacent to the shower room, and is separated with a triple-flap doorway and/or an associated air lock.
  4. Shower facilities that meet the requirements of 29 CFR 1910.141(d)(3) at a minimum must be provided unless demonstrated to be infeasible. Where feasible, showers shall be contiguous to the equipment room and the clean change room as shown in the diagram in Attachment ASB\_07. A shower may be provided separate to the decontamination area, if it is not feasible to install a shower between the equipment and clean room or when the work is performed outdoors, unless prohibited by local or state regulation. OSHA's general position on this issue is that showers are almost always "feasible" but that exceptions do exist. The burden to establish that it is not feasible to have a contiguous shower is the company's.



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Examples of instances in which OSHA generally acknowledges it is not feasible to establish a contiguous shower facility include: a) no water source is available at the project site; b) winter conditions exist and the lack of ability to prevent water from freezing due to utility unavailability for heat tape, temporary heaters, etc. is demonstrable; and c) the work is adjacent or contiguous to demonstrable high hazard areas that present greater potential safety hazards with a shower present than the lack of a contiguous shower.

5. When a contiguous shower facility is not feasible, employees may proceed to the shower via an enclosed walkway, a demarcated path from the work area to the shower that is not accessible to unauthorized personnel, or employees shall remove contaminated protective body clothing (disposable or laundry- capable) and don new disposable or laundry-capable protective body clothing before proceeding to a remote shower facility and clean change room that meet all of the requirements of the Standard.
  6. Prior to leaving the abatement regulated area, all workers shall remove gross asbestos contamination from their protective body covering in the equipment room using a HEPA equipped vacuum before proceeding to a shower that is not adjacent to the work area, or they may remove their contaminated protective body covering in the equipment room and then don a clean protective suit and proceed to the remote shower area.
  7. An equipment room shall be provided for employees to remove all contaminated disposable clothing and for storage of contaminated tools and equipment. The equipment room shall be supplied with impermeable, labeled bags and containers for the containment and disposal of contaminated protective equipment.
- b) When entering the work area through the decontamination area, each worker shall:
1. Remove street clothing and place in a separate locker or container.
  2. Put on clean coveralls, hood, gloves and foot covers.
  3. Inspect respirator with special attention to the calibration of the HEPA filters by the flow indicator supplied with the respirator (where so equipped). Change filters when applicable. Don respirator and mechanically check fit (positive and negative pressure fit check).
  4. Proceed through the shower room into the equipment room and put on any additional clothing, boots, hard hat, etc.
  5. Collect necessary tools and proceed to the work area.
- c) When leaving the work area, each employee must remove all gross debris from protective clothing, and:
1. Enter the equipment room, clean and store any contaminated articles, tools or equipment, and remove all clothing, except respirator.

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2. Place removed disposable clothing in a labeled impermeable bags or containers to be disposed of the same as removed asbestos material.
3. Wipe the outside of the respirator with a damp cloth and proceed to the clean room and/or shower room.
4. Enter shower and thoroughly rinse hair, face and respirator and then remove respirator and continue with shower and shampoo to remove residual asbestos contamination.
5. After showering and drying off, proceed to the clean change room.
6. Clean and disinfect respirator per manufacturer's recommendations.
7. Dress in clean coveralls or street clothes.
8. Inspect respirators for defects and seal respirator filters.

6.20.2 The following requirements apply to Class I work involving less than 25 linear or 10 square feet of TSI or surfacing ACM or PACM, and for Class II and III asbestos work operations where exposures exceed a PEL or where there is no negative exposure assessment produced before the operation:

- a) The company shall establish an equipment room or area that is adjacent to the regulated area for the decontamination of employees and equipment contaminated with asbestos which shall consist of an area covered by an impermeable drop cloth on the floor or a horizontal working surface.
- b) The area must be of sufficient size to accommodate cleaning of equipment and removing PPE without spreading contamination beyond the area (as determined by visible accumulations).
- c) Protective work clothing must be cleaned with a HEPA vacuum prior to being removed.
- d) All equipment and the surfaces of containers filled with ACM must be cleaned prior to removing them from the equipment room or area.
- e) The company shall ensure that employees enter and exit the regulated area through the equipment room or area.

#### 6.21 Work Stoppage and Cleanup

6.21.1 No smoking, eating, drinking, chewing of gum or tobacco, or applying cosmetics shall be permitted in the regulated area.

6.21.2 Except for emergencies, employees shall not be permitted to leave their work stations between breaks, except to address safety-related concerns or needs.

6.21.3 Disposable clothing must be removed each time the employee leaves the removal area, including showering and proper decontamination.

6.21.4 Separate break and lunch areas shall be totally isolated away from both the removal and the "clean" change areas.

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6.21.5 Periodically vacuum all areas where dust is visible and wet vacuum all water used to wet materials. HEPA filters shall be used in all vacuums. Do not employ dry sweeping methods at any time.

6.21.6 At the end of the day, vacuum all removal areas, wet wipe all surfaces (pipes, ducts, hangers, crevasses, etc.) and equipment (tools, scaffolding, etc.) Wet mop or wash down the entire area with clean water.

6.21.7 Protective clothing must be disposed of at the end of each work period or shift.

6.21.8 All protective clothing, cloths, filters, filter bags, debris and non-integral polyethylene must be disposed of at the end of each work period or shift.

6.21.9 Other good housekeeping steps should be adopted where appropriate.

6.21.10 At the end of the job, repeat cleaning steps 24 hours after first cleaning. Do not remove polyethylene until assured that asbestos levels are safe through the final clearance sample results.

## 6.22 Disposal

6.22.1 When feasible, exclude this work as part of the contract and have customer or others perform the disposal.

6.22.2 If disposal cannot be performed by the customer, sublet disposal to a licensed asbestos disposal company.

6.22.3 If disposal by others is not possible, contact the Regional Safety Manager or Corporate Safety Director to coordinate applicable insurance, licensing, placarding, waste shipment records, etc. are properly identified and implemented prior to transporting waste.

6.22.4 All vehicles used to transport ACM shall be marked with the proper placards during loading, transportation, and unloading to warn people of the presence of asbestos.

6.22.5 A waste shipment record (WSR), or related document, must be provided to the waste site owner or operator at the time the waste is delivered to the waste disposal site. The owner or operator of an active waste disposal site is required to send a signed copy of the WSR back to the waste generator no more than 30 days after receipt of the waste.

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### 6.23 Communication Among Employers

Other employers on the site must be informed of the nature of any work with asbestos-containing products that require the establishment of regulated areas. Ensure all other employers with workers working on the site or adjacent to regulated areas established by the company are informed of the nature of the company's work with asbestos and/or PACM, of the existence of and requirements pertaining to regulated areas, and the measures taken to ensure that employees of such other employers are not exposed to asbestos.

### 6.24 Emergency Planning

Employees shall be trained in evacuation procedures in the event of a workplace emergency.

6.24.1 For non-life-threatening and non-serious injury situations, employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers, if necessary, before exiting the workplace to obtain proper medical treatment.

6.24.2 For life-threatening and serious injury or illness situations, worker decontamination shall take second priority to measures to stabilize the injured worker, remove them from the workplace and secure proper medical treatment.

6.24.3 In the event of mechanical emergencies such as negative air shutdown, tear in the enclosure, power failures, etc., removal activities shall stop until the emergency situation has been corrected. On-site backup equipment is required for those projects where it is necessary to deal appropriately with potential emergency situations.

### 6.25 Other Safety Considerations

6.25.1 Shut down and lock out electric power to all work areas.

6.25.2 Ensure safe installation including ground faulting of temporary power sources and equipment by compliance with all applicable electrical code requirements and OSHA requirements for temporary electrical systems.

6.25.3 Shut down and lock out all heating, cooling and air conditioning system components that are in, supply or pass through the work area.

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6.25.4 Avoid stringing electrical wiring across floors. Elevate wiring, if possible, to keep it away from water on the floor and damage from foot traffic and rolling scaffolding.

## **7 PROCEDURE C - OTHER CONTACT WITH ASBESTOS-CONTAINING MATERIALS**

(Tie-in with installed insulation, re-jacketing, remudding, encapsulation, or any form of retrofitting.)

### **7.1 Class III Asbestos Work (Dust-Creating Contact)**

If contact can be expected to result in any release of asbestos fibers into the air, the full asbestos removal procedures for the class of asbestos work being performed as identified in Section 6, Removal of Asbestos-Containing Materials, must be followed. Typically, this type of activity would be considered Class III asbestos work and the procedures associated with Class III work for the type and quantity of material to be disturbed shall be followed.

### **7.2 Class IV Asbestos Work (Potential - Dust Creating Contact)**

Maintenance and custodial activities during which employees contact but do not disturb ACM or PACM and activities to clean up dust, waste and debris resulting from Class I, II, and III activities is Class IV asbestos work. The procedures associated with Class IV work for the type and quantity of material to be disturbed shall be followed.

#### **7.2.2 Procedures**

- a) Worker training, medical surveillance, PPE, respiratory protection, air monitoring, and all work practices applicable to the class of asbestos work being performed shall be followed.
- b) Prior to tie-in with asbestos-bearing material, the product shall be identified with OSHA-approved "Danger-Asbestos" warning signs, and employees should be instructed to use extreme caution around such products so as not to permit the release asbestos fibers into the air.
- c) Seal any exposed asbestos-bearing products which will remain in place using encapsulant, tape, or other appropriate containment method, prior to making tie-in.
- d) It is recommended that tie-in and other work involving contact with asbestos containing materials be completed by a single employee or crew at one time instead of being done piecemeal by various employees.

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- e) Any asbestos materials which are encapsulated, rejacketed, or otherwise enclosed shall be labeled with OSHA-approved “Danger-Asbestos” warning stickers to avoid future unexpected contact.

<b>FORMS</b>	<b>ATTACHMENT #</b>
Removal or Contact with Existing Insulation--9926	ASB_01
Insulation Removal/Contact Report and Checklist – 9927 <b>Rev 2/01</b>	ASB_02
List of EPA Regional Offices	ASB_03
Asbestos Paperwork Summary Administrative Procedures	ASB_04
Schematic of Typical Decontamination Unit Design	ASB_05

**REPORT OF PRODUCT IDENTIFICATION**

REMOVAL OR CONTACT WITH EXISTING INSULATION

BRANCH \_\_\_\_\_ JOB NAME \_\_\_\_\_

CONTRACT NUMBER \_\_\_\_\_

**PART I** REMOVAL OR CONTACT WITH ASBESTOS-CONTAINING PRODUCTS

INSTRUCTIONS: List all asbestos-containing products to be encountered on this job. All of the following installed insulation products must be checked; calcium silicate; mineral wool; 85% magnesia; expanded perlite (careytemp, calsilite, etc.); armabestos, unibestos, k-matt, and related products; air cell; diatomaceous earth (superex, Hy temp, etc.); spray applied insulation; insulating and finishing cement; any mastic; and any cloth, felt or paper products.

SYSTEM/LOCATION	MATERIAL	QUANTITY	DOCUMENTATION
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**PART II** REMOVAL OR CONTACT WITH NON-ASBESTOS CONTAINING PRODUCTS

INSTRUCTIONS: List all installed materials to be encountered on this job. For any products which appear on the above list (part 1), documentation verifying that product contained no asbestos must be attached to this report.

SYSTEM/LOCATION	MATERIAL	QUANTITY	DOCUMENTATION
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

**PART III** REMOVAL OR CONTACT WITH REFRACTORY PRODUCTS

SYSTEM/LOCATION	MATERIAL	QUANTITY	DOCUMENTATION
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

A copy of this report and all supporting documents must be forwarded to the Risk Management Department, Lancaster for extended retention.

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



**INSULATION REMOVAL/CONTACT REPORT**

CONTRACT NO.: \_\_\_\_\_ JOB NAME: \_\_\_\_\_

BRANCH: \_\_\_\_\_ ADDRESS: \_\_\_\_\_  
\_\_\_\_\_

THICKNESS AND ESTIMATED QUANTITY OF ASBESTOS-CONTAINING MATERIALS  
REMOVED: \_\_\_\_\_

JOB DESCRIPTION: Describe removal or contact in detail including materials involved, job condition, and location. Use additional pages if necessary. \_\_\_\_\_  
Class I Class II

▪ **RECORDKEEPING** **Comments**

Form 9926 Product Identification  
Form 9927 Removal/Contact Report  
Appropriate Notification Letters. (Federal, State, Local)

▪ **MEDICAL EXAMINATION**

Made available to employee  
Results to Risk Management Department

▪ **TRAINING**

Procedures explained to employees.  
Verification employees have valid asbestos license on file.  
Verification that employees have current asbestos training certificate on file.

▪ **AIR-MONITORING**

Performed by: \_\_\_\_\_ Dates \_\_\_\_\_  
Pre-job environmental sample  
Daily monitoring: Environmental \_\_\_\_\_ Personal \_\_\_\_\_  
Periodic monitoring: Environmental \_\_\_\_\_ Personal \_\_\_\_\_  
Clearance sample  
Results sent to Risk Management Department

▪ **PERSONAL PROTECTIVE EQUIPMENT**

Respiratory equipment provided to each employee.  
Powered air purifying respirator. \_\_\_\_\_  
Current Respirator Fit Test Performed (minimally annually and on file).  
Ambient air pump-supplied air. Type: \_\_\_\_\_  
Type "C" grade D supplied air. Type \_\_\_\_\_  
1/2 Mask air purifying respirator – Only for Glove Bag and/or removal non-friable asbestos materials outside an enclosure  
Respirator program reviewed with employees.  
Head-to-toe disposable clothing provided to all employees.  
Explanation of how to don respirator and clothing

▪ **ISOLATION**

Access to areas restricted  
Areas roped off with "Danger" barrier tape.  
Access points posted with "Danger-Asbestos" signs.

▪ **ENCLOSURE**

Removal area enclosed with 6 mil poly  
Ceiling: \_\_\_\_\_ Walls: \_\_\_\_\_ Floor \_\_\_\_\_ 2 Layers: \_\_\_\_\_  
Decontamination Facility constructed. Clean room \_\_\_\_\_ Shower room \_\_\_\_\_ Dirty room \_\_\_\_\_  
Waste load-out facility. Holding/wash room \_\_\_\_\_ Bagging/clean room--- \_\_\_\_\_  
Air locks constructed at each exit.  
Exit marked restricted personnel only.  
Equipment and gratings covered.

▪ **DECONTAMINATION FACILITY**

Contiguous with enclosure.  
Trailer facility away from removal site.  
Separate lockers provided.

▪ **ENGINEERING CONTROLS**

Wet removal  
Surfactants and wetting agents used. Type: \_\_\_\_\_  
Negative air filtration units used, How many: \_\_\_\_\_ Back-up on site \_\_\_\_\_  
Type: \_\_\_\_\_  
Encapsulant or lockdown used.  
Type: \_\_\_\_\_  
All remaining surfaces sealed.  
List all tools: \_\_\_\_\_  
Decon. Are filters being checked or changed?

▪ **HANDLING**

All removed insulation doubled bagged and sealed.  
Bags labeled with OSHA "DANGER" label.

▪ **WORK STOPPAGE AND CLEAN UP**

Disposable clothing disposed of at each shift.  
All areas HEPA vacuumed at end of each day.  
All surfaces and equipment wet wiped each day.  
All excess debris bagged at end of each shift.  
All cloths, filters, poly, etc. disposed as asbestos waste.  
All equipment cleaned and checked before storage/exiting job site. HEPA filter changed/wrapped before existing job site.

▪ **DISPOSAL**

Performed by: \_\_\_\_\_  
Location: \_\_\_\_\_

▪ **GLOVE BAG REMOVAL**

- Area isolated
- Area roped off with "Danger" barrier tape.
- Access points posted with "Danger – Asbestos" signs.
- Glove bag sealed to pipe with tape, glue, staples.
- Disposable clothing worn.
- Respiratory protection worn. Type: \_\_\_\_\_
- Wet removal.
- Garden sprayer
- Surfactant or wetting agent. Type: \_\_\_\_\_
- HEPA vacuum.
- Separate change area.
- Ends sealed with encapsulant.
- Double bagged and sealed.

A copy of this report and all supporting documentation should be forwarded to the Risk Management Department, Lancaster for extended retention.

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

**LIST OF EPA REGIONAL OFFICES**

All notices shall be submitted to the appropriate regional office of the environmental protection agency, to the attention of the director, enforcement division.

- REGION I: Connecticut, Maine, New Hampshire, Massachusetts, Rhode Island, Vermont.  
John F. Kennedy Federal Building  
Boston, Massachusetts 02202
- REGION II: New York, New Jersey, Puerto Rico, Virgin Islands.  
Woodbridge Avenue,  
Edison, New Jersey 08837
- REGION III: Delaware, District of Columbia, Pennsylvania, Maryland, Virginia, West Virginia.  
Curtis Building  
Sixth and Walnut Streets  
Philadelphia, Pennsylvania 19106
- REGION IV: Alabama, Florida, Georgia, Mississippi, Kentucky, North Carolina, South Carolina, Tennessee.  
345 Cortland Street  
Atlanta, Georgia 30365
- REGION V: Illinois, Indiana, Minnesota, Michigan, Ohio, Wisconsin.  
230 South Dearborn Street  
Chicago, Illinois 60604
- REGION VI: Arkansas, Louisiana, New Mexico, Oklahoma, Texas.  
First International Building  
1219 Elm Street  
Dallas, Texas 75270
- REGION VII: Iowa, Kansas, Missouri, Nebraska.  
324 East 11th Street  
Room 1411  
Kansas City, Missouri 64106
- REGION VIII: Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming.  
196 Lincoln Towers  
1860 Lincoln Street  
Denver, Colorado 80203
- REGION IX: Arizona, California, Hawaii, Nevada, Guam, American Samoa.  
215 Fremont Street  
San Francisco, California 94105
- REGION X: Washington, Oregon, Idaho, Alaska.  
1200 Sixth Avenue  
Seattle, Washington 98101

**A copy of the notice must be sent to the Risk Management Department.**

ASBESTOS PAPERWORK  
SUMMARY ADMINISTRATIVE PROCEDURES

The primary documentation requirements for all asbestos abatement projects are part of the JD Edwards computer system. Listed below is a summary of the administrative process for transmitting the required asbestos abatement documents to the Risk Management Department in Lancaster.

**PLEASE NOTE: Failure to send the required Asbestos Paperwork to Lancaster for long-term retention will allow the surcharge to the contract to remain until the obligation is satisfied.**

1. During project set-up in JDE, the Form 9926, "Report Of Product Identification" will appear on screen whenever a new job is entered with the applicable criteria. A "Y" in the CONT W INST MAT field on the contract master setup triggers the 9926 screen requesting the type of material involved. Complete the form in JDE. **PRINT A COPY FOR THE FILE.**
  - a. Use ONLY the following Job Types for Asbestos Abatement

AA	Architectural/Abatement
CA	Commercial/ Abatement
IHA	Industrial Heavy/Abatement
ILA	Industrial Light/Abatement
CLA	Cleaning/Abatement
  - b. For Required Respirator Labor use ONLY Respirator Codes 20, 22, or 24.
2. During project set-up in JDE a "Y" in the CONST W INST MAT field on the contract master setup will also trigger the 9927 form. Upon completion of an asbestos abatement project, Form 9927 "Insulation Removal/Contact Report must be completed in JDE. **PRINT A COPY FOR THE ASBESTOS FILE.**
3. Upon completion of the Form 9927, the Asbestos Abatement Transmittal Form will appear in JDE. **PRINT THE FORM FROM JDE.**
4. Hard copy documentation of a current employee medical examination, asbestos license & training certificate, and respirator fit test must be included in the file sent to Lancaster.
5. A 5% surcharge against gross profit earned on each contract, with a minimum amount of \$200 will be accrued for any contract. The surcharge would be accrued on a monthly basis. When the asbestos paperwork is received in Lancaster, and Risk Management advises that all necessary information has been submitted, the surcharge will be relieved (i.e. the branch's P&L will be credited). The information will be tracked via JDE's job set up screen so that reporting will be automated.

Here are some respective surcharges based on gross profit earned:

<u>Gross Profit</u>	<u>Surcharge</u>
100,000	5,000
50,000	2,500
20,000	1,000
10,000	500
2,000	Minimum 200

- The required Asbestos Abatement documentation shall be sent to Ineida Almodovar, Risk Management Department in Lancaster. If after review the file is either missing or incomplete, a report will be issued to the office requesting the missing file or documentation. A report will be generated each month showing all open asbestos abatement projects for which the paperwork has not been received in Lancaster.
- The surcharge amount will remain until the necessary information is submitted, reviewed and approved by Risk Management in Lancaster.

**ASBESTOS REMOVAL DOCUMENTATION SUBMITTAL**

**TO:** Donna Ridinger, Risk Management Department, Lancaster

**FROM:** \_\_\_\_\_

**DATE:** \_\_\_\_\_

**JOB:** \_\_\_\_\_

**INTERIOR** \_\_\_\_\_ **EXTERIOR** \_\_\_\_\_

**Attached please find the following Asbestos Removal documentation for the subject job:**

\_\_\_\_\_ 9926 \_\_\_\_\_ Containment Logs

\_\_\_\_\_ 9927 \_\_\_\_\_ Waste Manifest

\_\_\_\_\_ State, Local or Federal Notifications \_\_\_\_\_ Air Sampling/Monitoring Results

\_\_\_\_\_ Respirator Fit Test Valid for this project

\_\_\_\_\_ AB Workers' State License Valid for this project

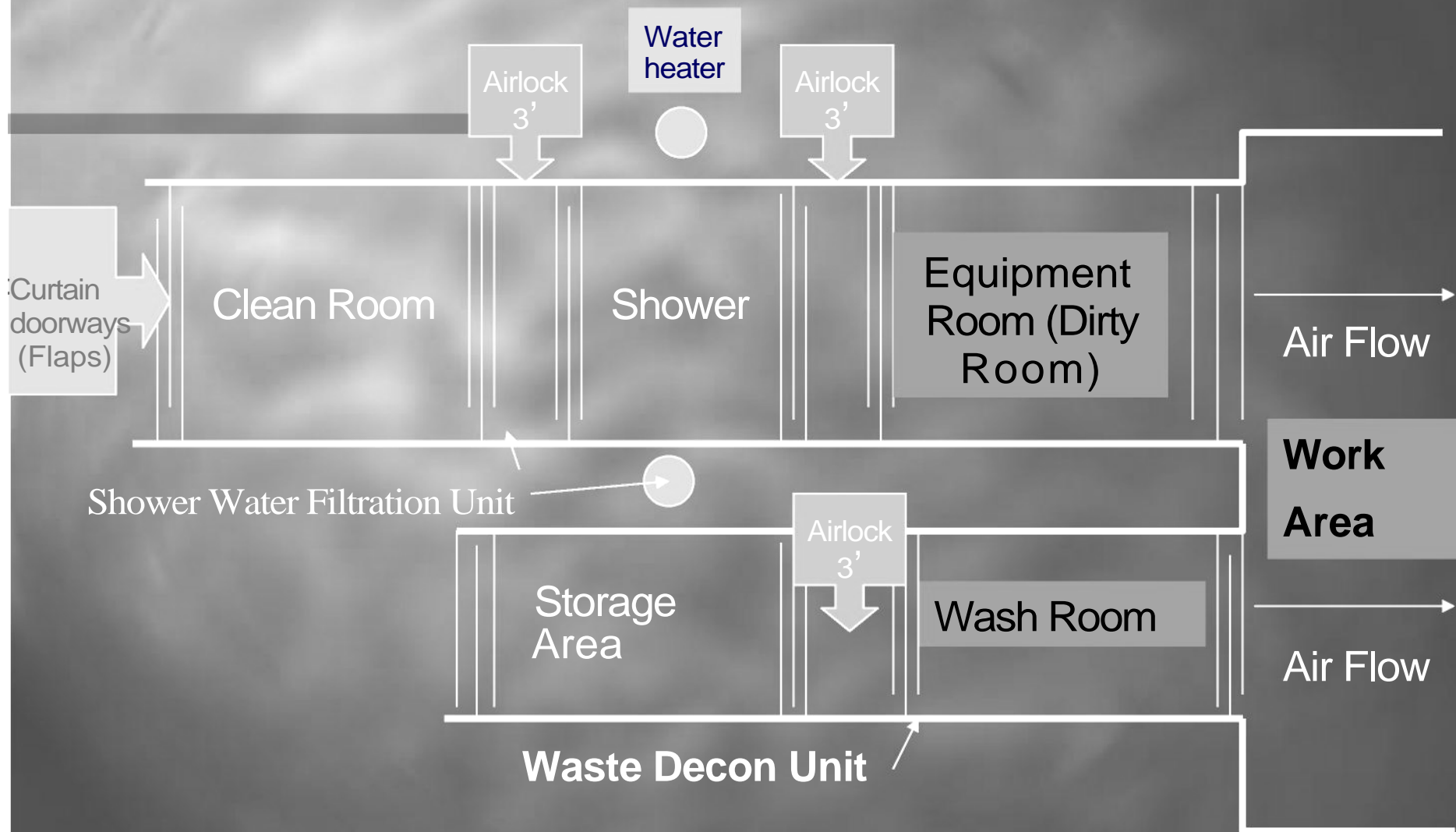
\_\_\_\_\_ AB Workers' Physical Exam Note: Physicians written opinion stating worker is medically fit to wear a negative pressure respirator and to work with asbestos removal Must show 29 CFR 1926.1101

Class of work being performed	Quantity
Class I	
Class II	
Class III	
Class IV	

The attached documentation has been reviewed for accuracy and approved for submittal by the following person:

Manager/Superintendent: \_\_\_\_\_ Date: \_\_\_\_\_

# Decontamination Units



■ Denotes contaminated area



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Report of Lead Determination (Form 9900)	1
Lead Abatement Job-Walk Survey (Form 7017) and Pre-bid Review Form/Approval Form 7033	2
Lead Abatement/Removal/Contact Report (Form 9901)	3
Information to Employees regarding the Abatement/Removal/Contact of Lead-Containing Materials (Form 9902)	4
Site Lead Inspection (Form 9903)	5
Lead Bulk Sampling Procedures	6
Lead Compliance Plan	7
Lead Removal Material Checklist	8
Waste Sampling and Testing Procedure	9
Sampling Labels	10

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## **1 PURPOSE AND SCOPE**

- 1.1 The purpose of this procedure is to minimize employee exposure to lead. Exposure to lead at the construction job sites can occur during abatement, removal and/or contact with lead containing products such as paints, mastics coatings mortars, cements, roofs cornices, tank linings, electrical conduit, solders, manufacturing and occupational lead dust. Additional materials that may contain lead include pipes, circuit boards, batteries, leaded glass, cathode ray tubes, and demolition/salvage items.
- 1.2 The company shall maintain employee lead exposure below the minimum exposure limit (i.e. the action level) by using engineering and work practice controls whenever feasible. The company shall also minimize lead emissions to the environment by controlling releases to air, water or soil and ensuring the proper handling and disposal of lead-contaminated waste.
- 1.3 This procedure applies to situations where abatement, removal, maintenance and repair tasks involve the disturbance of known or suspected lead-based paint using abrasive blasting, welding, burning, cutting, brazing, sanding, grinding, chipping, manual scraping and sanding, power washing, chemical stripping and heat gun applications. As applicable, this procedure also establishes awareness level training requirements for workers whose work contacts but does not disturb lead-containing materials.
- 1.4 On multi-employer work sites, the company shall protect our workers from the potential for overexposure due to the activities of other contractors. When workers are working adjacent to a lead disturbance or abatement activity, the company shall either remove them from the work area or conduct representative initial exposure assessments to document actual exposure levels and shall take appropriate actions to protect the workers based on the exposure data generated.

## **2 REFERENCES**

- 2.1 OSHA 29 CFR 1910.1025 Lead – (Standard for General Industry)
- 2.2 OSHA 29 CFR 1926.62 Lead in Construction
- 2.3 EPA 40 CFR 260-268, Hazardous Waste Regulations; Resource, Conservation, and Recovery Act (RCRA)

## **3 DEFINITIONS**

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- 3.1. Action Level - An employee exposure, without regard to the use of respirators to an airborne concentration of lead of 30 micrograms per cubic meter (30  $\mu\text{g}/\text{m}^3$ ), calculated as an 8-hour time weighted average (TWA).
- 3.2. Contact - Means any operation that might create chipping, flaking or dust generation in materials that contain lead.
- 3.3. Competent Person - One who is capable of identifying existing and predictable lead hazards in the surroundings or working conditions and who has authorization to take prompt corrective measures to eliminate them. Refer to Supervisor Training, Section 5.6 for Certification Requirements (exceeds OSHA) as a Competent Person for the Company.
- 3.4. Heat Gun Application - Involves use of a heat gun that produces a stream of hot air which is directed to surfaces to melt lead-based paint which is subsequently scraped off.
- 3.5. Leachate - The amount of a specific substance (e.g. lead) that is carried off or dissolved out of a material. For example, the amount of leachable lead that classifies paint debris as being hazardous is 5 mg/L (ppm) when tested by Toxic Characteristics Leaching Procedure (TCLP).
- 3.6. Lead-Based Paint - Paint or other similar surface coating material containing lead or lead compounds in which the lead content calculated as lead metal is in excess of 0.06% (600 parts per million) by weight of the total non-volatile content of the paint or of the dried film. The Company has established a lower limit for "lead-free" paints as less than 0.05% lead which is equivalent to 500 mg/kg of lead in paint, **This is in line with the Department of the Navy recommendations.**
- 3.7. Permissible Exposure Limit (PEL) - An employee exposure, without regard to the use of respirators, to an airborne concentration of lead of  $50\mu\text{g}/\text{m}^3$ , calculated as an 8-hour TWA. This is the maximum 8-hour average concentration of lead that an employee may be exposed to during each work day. For workdays longer than 8 hours in a given day the PEL is reduced using the following formula:  
Permissible Exposure Limit =  $(\text{PEL} \times 8) \div (\text{hours worked in a day})$
- 3.6. Regulated Area - A controlled area, limited to authorized personnel, which is demarcated and segregated from the areas of the plant where lead-based paint is being disturbed and where exposure levels to lead, without regard to respiratory protection, are in excess of the PEL.

#### 4 RESPONSIBILITIES

##### 4.1 EMPLOYEE

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- 4.1.1 Know the health hazards associated with exposure to lead and the selection of appropriate PPE.
- 4.1.2 Wear proper protective equipment and follow recommended work practice controls as identified in the Lead Compliance Plan when working in a Regulated Area.
- 4.1.3 Properly wear monitoring equipment for the instructed time when requested.
- 4.1.4 Report all unsafe conditions and activities to your supervisor.

#### 4.2 SUPERVISORS

- 4.2.1 Determine prior to the performance of the job whether lead is present
- 4.2.2 Ensure ALL REQUIRED REPORTS (See Section 5.3.1) and supporting documentation are completed and copies submitted to Lancaster - Construction Services Department AND your Area Manager.
- 4.2.3 Ensure the workers have received proper training (See Section 5.5) and participate in the Medical Surveillance Program.
- 4.2.4 Ensure adequacy of any employee monitoring data and exposure assessments.
- 4.2.5 Ensure that all employees wear the required protective work clothing and personal protective equipment (PPE) and are trained in the use and appropriate control methods and work practices.
- 4.2.6 Ensure that proper hygiene facilities are provided and that employees are trained and use those facilities.
- 4.2.7 Ensure that engineering controls are designed, operated and maintained properly.
- 4.2.8 Demarcate lead work areas and take effective measures to reduce lead hazards.
- 4.2.9 Document ventilation specification and checks to verify the performance of any mechanical ventilation.

#### 4.3 SAFETY & HEALTH DIRECTOR/MANAGER

Audit work being conducted to assure exposure monitoring is performed, work procedures and controls are followed, and regulated areas are established as required.

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#### 4.4 CONSTRUCTION/AREA MANAGER

- 4.4.1 Ensure that a Competent Person meeting the training requirements in Section 5.6 is present on the site at all times during lead abatement/removal/contact operations and that evidence of required training has been posted and made available for inspection.
- 4.4.2 If sub contractors are used for lead abatement/removal/contact jobs verify that they meet or exceed all requirements as related to this procedure.
- 4.4.3 Ensure all records of exposure assessments, medical surveillance, and medical removal are maintained in the Lancaster Office for extended retention: Minimum 30 years.

NOTE: Medical record retention is part of the company's national contract with Concentra Medical Centers when their clinics provide the medical surveillance.

### 5 PROCEDURES

#### 5.1 GENERAL INFORMATION

- 5.1.1 Lead has been used in the formulation of protective coatings in industrial applications for more than 100 years. The application of coatings containing lead has declined over the past 20 years. Lead and other heavy metals contained in the coatings are toxic and could be inhaled or ingested into the human body in harmful doses whenever these coatings are disturbed during abrasive blasting, sanding, burning, cutting or other tasks. These methods create airborne particulates which may pose a significant threat to human health both through inhalation and ingestion. Material generated in the removal processes such as spent abrasive and removed coatings may be hazardous waste requiring special handling and disposal. Engineering controls, work practices and PPE have been identified to minimize employee exposure to the health effects of lead.

The health effects of overexposure to lead include both acute (short term) and chronic (long term) conditions. The short term conditions include loss of appetite, nausea, stomach cramps, vomiting, constipation, fatigue, moodiness, headache, joint and muscle aches and anemia. The long term conditions from overexposure to lead include severe damage to the blood-forming, nervous, urinary and reproductive systems.

- 5.1.2 The main source of lead exposure at the company's construction job site is from lead-based paint and coatings on various facility surfaces.

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5.1.3 Tasks involving welding, cutting, torch burning, sand blasting, brazing, grinding, sanding, chipping and band saw cutting have been identified as sources of lead exposure. Therefore all painted materials, unless indicated otherwise by bulk sampling or descriptive data, are to be treated as lead containing.

5.2 LEAD DETERMINATION

5.2.1 Before any work involving the abatement, removal or contact with leading containing materials is performed, and preferably before the job is bid, it must be determined if any of the following installed materials contain lead.

Paints	Mortars	Cornices	Electrical Conduit
Mastics	Cements	Tank Linings	Mfg & Occupational Lead Dust
Coatings	Roofs	Solders	

NOTE: If a questionable material is present, but not in the above listing, the material must also be checked for the presence of lead.

5.2.2 Among the possible methods of determining the composition of materials are the following:

- a) Determine the composition from specification sheets, material safety data sheets (MSDS) or other reliable written information
- b) Obtain a report of the product composition from an AIHA accredited laboratory.

1. If laboratory testing is necessary to check for the presence of lead, bulk samples must be taken of any unidentified or questionable material. Each sample should be taken by penetrating the entire depth of the material to ensure all layers present are included. Refer to Attachment 7.6 - Lead Bulk Sampling Procedure.

5.2.3 A Lead Abatement Pre-Bid Review Form 7033 must be completed with a copy submitted to Construction Services in Lancaster. Lead Abatement Job-Walk Survey Form 7017 can be used in conjunction with Form 7033. See Attachment 7.2

5.2.4 If the bulk sampling results are negative, no air monitoring is required although controls to minimize nuisance type dust generation are highly recommended especially for renovation of existing occupied facilities.

5.2.5 **IN ALL CASES OF DOUBT, TREAT THE PRODUCT IN QUESTION AS LEAD CONTAINING.** This situation would arise most often when contact was not anticipated and time does not allow for formal analysis.

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5.2.6 A REPORT OF LEAD DETERMINATION (Attachment 7.3 - Form 5026) together with all backup reports must be submitted to Risk Management Department in all cases where abatement, removal or contact with lead containing material is encountered. This report should be submitted prior to job start-up, if possible.

### 5.3 PROJECT START-UP

5.3.1 Review / Approval - All abatement /removal / contact jobs must be **reviewed and approved** by Construction Services in Lancaster prior to bidding. Documents submitted for review include the following:

- a) Report of Lead Determination Form 9900 (Attachment 7.1)
- b) Pre-Bid Review Form 7703 (Attachment 7.2)
- c) Lead Abatement / Removal / Contact Report including all other forms and documents required by the checklist on the reverse side (Attachment 7.3, Form 9901). Includes written Lead Compliance Plan (Attachment 7.7 - See Section 5.13.2 for requirements).

5.3.2 Notification - Some states (e.g. MD, NJ) local and Provincial governments have special regulations covering lead abatement / removal. In particular, provisions regarding contractor licensing, supervisor certification, employee training, notification requirements, and disposal regulations are common. These issues should be discussed during the review/approval process noted above in 5.3.1

#### 5.3.3 Personnel Selection

- a) Previous lead exposures - It is mandatory to select employees for work on lead jobs who have not had previous occupational lead exposure without proper precautionary measures (e.g. respiratory protection).
- b) Confirmation - To achieve compliance with personnel selection procedures, all employees employed for lead abatement / removal / contact work must submit Form 9902 (Attachment 7.4). This form need only be obtained once each year from each individual. Forms should be sent to the Regional Area Office for extended retention. Field office locations should keep such copies or records as needed to determine who has submitted the form.

### 5.4 PROJECT EXPOSURE ASSESSMENT

5.4.1 Prior Data - In instances where the Company has data from previous projects demonstrating that the operation or activity to be performed will not result in employee exposure to lead at or above the action level (30 ug/m3), exposure assessment need not be performed. Approval must be obtained from Risk Management to eliminate exposure assessment procedures.



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5.4.2 Personal Samples - Unless prior data can be used, air monitoring must be conducted initially to determine if any employee may be exposed to lead at or above the action level (See Section 5.10 Air Monitoring). Monitoring must include representative full shift (at least 7 hours) personal air samples with at least one sample for each job classification in each work area. For site working multiple shifts, samples must be taken for each shift or for the shift with the highest exposure level.

5.4.3 Protection of Employees During Assessment of Exposure - Where lead is present, until an employee exposure assessment is performed which documents that no employee is exposed above the PEL (50 ug/m3), all employees must be treated as if the employee were exposed above the PEL. This requires implementing employee protective measures for the activities listed below. These protective measures include but are not limited to, protective clothing, respirators, training, change areas, medical surveillance, and implementation of good personal hygiene practices (e.g. washing of hands, forearms and faces). The protective measures are modified, as necessary, according to the results of the monitoring. The table below identifies the work activities, presumed exposure concentrations, and required respiratory protection mandated by the standard:

<b>Activity</b>	<b>Assumed Exposure</b>	<b>Respirator * Required</b>
1. Manual demolition of structures (e.g. dry wall), manual scraping, manual sanding, heat gun application, or power tool cleaning with dust collection system.	50 ug/m3 - 500 ug/m3	Full facepiece, negative pressure with HEPA filters
2. Lead burning, rivet busting, power tool cleaning w/o dust collection systems, cleanup activities where dry expendable abrasives are used and abrasive blasting enclosure movement and removal.	500 ug/m3 - 2500 ug/m3	Full facepiece, tight fitting PAPR with HEPA filters
3. Abrasive blasting, welding, cutting and torch burning.	>2500 ug/m3	Full facepiece, supplied air operated in pressure demand or other positive pressure demand

\* See Section 5.11 for additional respiratory protection requirements.

5.4.4 Determination of Required Protection - Once air monitoring results are available, a determination of the required worker protection must be made based on the monitoring results, and the following additional factors:

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- a) Any information, observations, or calculations which would indicate differing employee exposure to lead:
- b) Any previous measurements of airborne lead; and
- c) Any employee complaints of symptoms which may be attributable to exposure to lead.

In the absence of any additional factors, procedures shall be followed based on the air monitoring results. If any air monitoring results exceed the PEL (50 ug/m<sup>3</sup>) all procedures, including those in Section 5.16.2 *Above the PEL Procedures* must be implemented. If none exceed the PEL, all procedures, including those in Section 5.16.1 *Below- PEL Procedures* must be implemented. Respiratory protection shall be utilized as indicated in Section 5.11.

## 5.5 EMPLOYEE INFORMATION AND TRAINING

- 5.5.1 Employee Training - All employee who are selected to work on projects where airborne lead exposures are known to be or expected to be at or above the Action Level on any single day shall be provided information and training on the hazards of lead and measures for controlling these hazards and protecting their health. The Supervisor shall ensure that training is provided in a manner that the employee is able to understand before work begins and at least on an annual basis thereafter.

All employees whose work activities may contact lead containing materials but do not disturb the material during their work activities shall receive Lead Awareness training at the time of hire, during orientation or prior to assignment to work in areas where lead is present. The training shall be repeated annually and shall be documented to include the date(s), content, employee's name and name of the trainer or course identification if online training is used.

- 5.5.2 All lead training shall be documented and include the date of the training, the employee's name, the name and signature of the instructor and a synopsis of the training content. At a minimum, the content of the lead training shall include:
- a) The contents of the OSHA Lead Standard 29 CFR 1926.62 and its appendices;
  - b) The specific nature of the operation which could result in exposure above the Action Level;
  - c) The purpose, proper selection, fitting, use and limitations of respirators;
  - d) The purpose and a description of the medical surveillance program, and medical removal protection program including information concerning the adverse health effects associated with excessive exposure to lead (with particular attention to the adverse reproductive effects on both males and females and hazards to the fetus and additional precautions for employees who are pregnant;

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- e) The engineering controls and work practices associated with the employee's job assignment including training of employees to follow relevant good work practices/containment described in Sections 5.13 and 5.14.
- f) The contents of the compliance plan in effect for the project;
- g) Instructions to employees that chelating agents should not be used routinely to remove lead from their bodies and should not be used at all except under the direction of a licensed physician; and
- h) The employee's rights of access to records under OSHA 29 CFR 1910.20.

5.5.3 Information To Employees Regarding Abatement / Removal / Contact Of Lead-Containing Materials Form 9902 (Attachment 7.4)

- a) After this form has been reviewed and modified to reflect any specific requirements, it must be presented to all new employees prior to start-up. Whenever possible, Form 9902 should be signed by the employee, or company representative if the employee will not sign. This form must be completed **annually** and retained at the Regional Area Office for a period of one year. This form must be kept in a separate employee file. When the form is updated, the previous form must be sent to Lancaster for extended record retention.
- b) Training Form 9902 must be reviewed with each employee at each job site prior to start-up, even if the form has already been filled out for the employee for the year. A training video entitled *Lead Safety* is available from the Office Services Department - Lancaster, to supplement the training to employees.
- c) Each employee shall also receive a copy of the OSHA Booklet, *Working with Lead in the Construction Industry*. Additional copies of this booklet are available from the Office Services Department - Lancaster.

5.6 SUPERVISOR TRAINING

- 5.6.1 Every Construction Manager/Construction Superintendent, and/or Project Manager/Supervisor who will direct or supervise a construction site or work force involving hazardous waste i.e., lead-based paint, shall maintain a current certification of compliance. This is a federal requirement that varies by State. A copy of your current certificate **must be on file** in Lancaster. Construction Services maintains a database for all supervisors involved with hazardous waste. Certified Supervisors in Hazardous Waste is required by the Company to meet the "Competent Person" definition in Section 3.3.

NOTE: It is the policy of the Company to prohibit the supervision of lead removal operations without a current certificate of compliance.

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5.6.2 On all projects involving lead abatement / removal / contact operations a *Competent Person* shall be on site at all times during operations. He or she may have other duties, but will inspect the work on a frequent and regular schedule for hazards or deficiencies and complete the Site Inspection Form 9903 (Attachment 7.8) and/or ensure that oversight work performed by others has been appropriately performed. Evidence that the required training has been completed shall be posted and made available for inspection.

5.6.3 Training for Certified Supervisors for Hazardous Waste requires completion of a 4-day course. For assistance in locating a training or accreditation facility, contact Construction Services who will provide the necessary information for your area.

#### 5.7 INITIAL MEDICAL SURVEILLANCE PROGRAM

5.7.1 Procedure - The initial medical surveillance program must be made available to exposed employees on any day to lead above the Action Level (30 ug/m<sup>3</sup>) without considering the protection factor of a respirator.

5.7.2 Medical Examination - The initial medical surveillance program described in 5.7.1 above must include blood sampling and analysis for lead and zinc protoporphyrin (ZPP).

5.7.3 Frequency - For each employee at least every 2 months for the first 6 months and every 6 months thereafter for the duration of the job.  
For employees whose last blood sampling and analysis indicated a blood level at or above 40 micrograms per deciliter (ug/dl) of blood least every 2 months. These frequencies shall continue until 2 consecutive blood samples and analysis indicate a blood level below 40 ug/dl.

For employees who are removed from exposure to lead due to an elevated blood level (50 ug/dl or higher) a second (follow-up) blood sampling test shall be provided within two weeks after the results of the first blood sampling test. Test must be performed at least monthly thereafter during the removal.

5.7.4 Notification - Within five (5) working days after the initial receipt of biological monitoring results, each employee shall be notified in writing of his/her blood lead levels.

5.7.5 Each employee shall be notified whose blood lead level exceeds 40 ug/dl that the OSHA Standard requires temporary medical removal with Medical Removal Protection Benefits when an employee's blood lead level exceeds 50 ug/dl.

#### 5.8 MEDICAL SURVEILLANCE PROGRAM

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- 5.8.1 Procedure - A medical surveillance program shall be instituted for biological monitoring and physical examination for all employees who are or may be exposed by the employer at or above the Action Level for more than 30 days in any 12 month period, without considering the protection factor of the respirator.
- 5.8.2 Medical Examination Content - The surveillance program described in 5.8.1 above shall include:
- a) I requested by an employee, pregnancy testing or laboratory evaluation of male fertility
  - b) A detailed work history and a medical history, with particular attention to past lead exposure (occupational and non-occupational), personal habits (smoking, hygiene), and past gastrointestinal, hematologic, renal, cardiovascular, reproductive and neurological problems.
  - c) A thorough physical examination, with particular attention to teeth, gums, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems. Pulmonary status should also be evaluated.
  - d) Tests for blood pressure
  - e) Blood sample and analysis for blood lead hemoglobin and hematocrit determinations, red cell indices, peripheral smear morphology, zinc protoporphyrin, blood urea nitrogen, and serum creatinine.
  - f) Routine urinalysis with microscopic examination.
  - g) Other examinations or tests deemed necessary by the examining physician.
- 5.8.3 Frequency -
- a) At least annually for each employee for whose blood level is at or above 40 ug/dl at any time during the preceding 12 months.
  - b) As soon as possible, upon notification an employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice concerning the effects of current or past exposures to lead on the employee's ability to procreate a healthy child, that the employee is pregnant, or that the employee has demonstrated difficulty in breathing during respirator fitting test or during use.
  - c) As medically appropriate for each employee either removed from exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited pursuant to a medical determination.
- 5.8.3 Second Medical Opinion - The Company will promptly inform employees of their right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation.
- 5.8.4 Information Provided to Physician - The following information will be provided by every Construction Manager/Construction Superintendent, and/or Project Manager/Supervisor to the examining physician prior to the examination.

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- a) A copy of the OSHA Construction Lead Standard 29 CFR 1926.62, including Appendices.
- b) A description of the employee's duties as they relate to lead exposure
- c) The employee's representative or anticipated exposure level to lead and other toxic substances he/she may be exposed to at work.
- d) A description of protective clothing and respirators to be used.
- e) Prior blood lead determinations.
- f) All prior written medical opinions concerning the employee in the Company's possession or control.

5.8.5 Written Medical Opinion - A copy of the written medical opinion from the examining physician shall be obtained and furnished to the Company which contains the following information:

- a) The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from exposure to lead;
- b) Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead;
- c) Any recommended limitation upon the employee's use of respirators, including a determination of whether the employee can wear a powered air purifying respirator if a physician determines that the employee cannot wear a negative pressure respirator; and
- d) The results of the blood lead determinations.

5.8.6 Chelation - The Company shall assure that any person whom he/she retains, employs, supervises, or controls does not engage in prophylactic chelation of any employee at any time.

5.8.7 Documentation - Medical records of examinations and tests shall be forward to the Risk Management Department in Lancaster for extended retention for 30 years following employment. For those field locations using Concentra Medical clinics, they will maintain the medical records in accordance with the Company's national contract.

## 5.9 MEDICAL REMOVAL PROGRAM

5.9.1 Employees with blood lead levels at or above 50 ug/dl and as described in Section 5.7 are temporarily removed from any work where airborne lead exposure may exceed the Action Level. They will be assigned to other duties on-site or at a location where there is not lead exposure above the Action Level.

5.9.2 Employees will be assigned to other duties that do not result in lead exposure. The Company provides the employees up to eighteen (18) months of medical removal protection benefits (protection of wages, benefits, and seniority) on each occasion that an employee is reassigned from a work site due to exposure to lead

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resulting in an elevated blood lead level or a final medical determination. The benefits are provided in accordance with 29 CFR 1926.62. The employee benefits end when the employee is approved to return to work in accordance with 5.9.5 below.

- 5.9.3 Employees determined by a physician to be at increased risk of health impairment from exposure to lead are also temporarily removed from any work where airborne lead exposure may exceed the Action Level. The Company implements and acts consistent with the physician's recommendations for any special protective measures or lead exposure limitations for the employees.
- 5.9.4 Any employee temporarily removed from lead exposure activities due to elevated blood lead levels for a physician's recommendation is provided blood lead tests for at least monthly.
- 5.9.5 Employees temporarily removed from lead exposure activities are returned to their normal lead exposure duties after two (2) consecutive blood tests indicate that blood lead levels are at or below 40 ug/dl, or when the physician indicates it is no longer necessary to limit exposure (for those workers removed due to a medical determination rather than elevated blood level),

#### 5.10 AIR MONITORING

- 5.10.1 Exposure Assessment - Monitoring for Exposure Assessment shall be conducted initially on each project as provided in Section 5.4.
- 5.10.2 Follow-up Monitoring - If the initial determination or subsequent determination reveals employee exposure to be at or above the Action Level but below the PEL (50 ug/m<sup>3</sup>) the Company shall perform additional monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the Action Level (30 ug/m<sup>3</sup>) at which time Company may discontinue monitoring.

If the initial determination reveals that employee exposure is above the PEL the Company shall perform monitoring quarterly. The Company shall continue monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are at or below the PEL but at or above the Action Level at which time the Company shall repeat monitoring for that employee at the frequency stated above. The Company shall continue monitoring at the required frequency until at least 2 consecutive measurements, taken at least 7 days apart, are below the action level at which time the Company may discontinue monitoring.

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Monitoring must be performed by an accredited industrial hygiene firm (AIHA) or similar third party with samples analyzed in accordance with the NIOSH Method 7082, or an equivalent method by a certified laboratory. Monitoring must include sampling based on an 8-hour, time-weighted average.

- 5.10.3 Additional Exposure Assessment - Whenever there has been a change of equipment, process, control, personnel or a new task has been initiated that may result in additional employees being exposed to lead at or above the Action Level or may result in employees already exposed at or above the Action Level being exposed above the PEL, the Company shall conduct additional monitoring.
- 5.10.4 Employee Notification - No employee may be exposed to lead at concentration greater than fifty micrograms per cubic meter of air (50 ug/m<sup>3</sup>) averaged over an 8-hour period. The Risk Management Department should be contacted immediately in all cases where air monitoring results indicate exposure to airborne concentrations of lead in excess of 50 ug/m<sup>3</sup>.

Additionally, any employee found to have been exposed to such concentrations shall be notified in writing as soon as practical but not later than five (5) consecutive days after determination of exposure. Such employees shall also be timely notified of the corrective action taken in the circumstances.

- 5.10.5 Documentation - Monitoring reports must include details of samples, personnel monitored, dates, duration of sampling, and resulting concentrations. Personnel sampling must include an 8-hour time-weighted average. A copy of all air monitoring results must be forwarded to the Risk Management Department for extended retention.
- Owner supplied monitoring is performed on some projects. Results of such owner performed monitoring must be forwarded to the Risk Management Department.

## 5.11 PERSONAL PROTECTIVE EQUIPMENT

- 5.11.1 Respiratory Protection - The Company maintains a respiratory protection program in accordance with 29 CFR 1910.134 (revised 1/8/98). Refer to the Respiratory Protection Program in the Company Safety Manual. Respiratory protection requirements specific to lead are as follows:
- Full face air-purifying (negative pressure) respirator shall be the minimum acceptable respiratory protection for lead contact activity.
  - Powered air-purifying respirators (PAPR) shall be used in all situations where personal monitoring results exceed or are anticipated to exceed 1,250 ug/m<sup>3</sup>.
  - Type "C" supplied air respirators must be used in all situations where personal monitoring results exceed or are anticipated to exceed 50,000 ug/m<sup>3</sup>. Further, Type "C" protection may be used on any project, regardless of expected exposure limits.



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1. A Type “C” supplied air system normally consists of a compressor, air delivery lines, air cleaning apparatus, a reserve air supply, and NIOSH approved masks. At a minimum, Type “C” systems should provide the following:
  - A continuous sufficient supply of Grade D air.
  - Adequate escape time
  - NIOSH-approved respirators and supply hoses.
2. The air source for Type “C” supplied air respirators must be within 300 feet when using low pressure air-supply lines in accordance with the OSHA regulations.
- d) The Health and Safety Director serves as the respirator program administrator and is responsible for proper implementation of the company respirator program.
- e) The Project Manager is responsible for enforcing the program.
- f) Table 2 below sets minimum requirements for respiratory protection for lead as provided by Company Policy and OSHA regulations.

**Table 2 - Respiratory Protection for Lead Aerosols**

Airborne Concentration of Lead or Conditions of use:	Required Respirator
Not in excess of 2,500 ug/m <sup>3</sup> (50 X PEL)	<ol style="list-style-type: none"> <li>1. Full facepiece air purifying respirator with HEPA filter.</li> <li>2. Tight fitting PAPR with HEPA filters.</li> <li>3. Full facepiece supplied air respirator operating in demand mode.</li> <li>4. ½ mask or full facepiece supplied air respirator operating in continuous flow mode.</li> </ol>
Not in excess of 50,000 ug/m <sup>3</sup> (1000 X PEL)	<ol style="list-style-type: none"> <li>1. ½ mask supplied air respirator operating in pressure demand or other positive-pressure mode.</li> </ol>
Not in excess of 100,000 ug/m <sup>3</sup> (2000 X PEL)	<ol style="list-style-type: none"> <li>1. Full facepiece supplied air respirator operating in pressure demand or other positive pressure mode - e.g. abrasive blasting respirator operating in a positive-pressure mode.</li> </ol>
Greater than 100,000 ug/m <sup>3</sup>	<ol style="list-style-type: none"> <li>1. Full facepiece SCBA operated in pressure-demand or other positive-pressure mode.</li> </ol>

#### 5.11.2 Protective Clothing

- a) All employees must be provided with head-to-toe disposable clothing, including hoods, gloves and shoe covers. One-piece clothing is acceptable. Wearing disposable clothing is preferred. Disposable protective clothing is

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used for no more than one work day. It is disposed of as hazardous or non-hazardous waste as appropriate.

- b) If launderable clothing is to be worn underneath or over protective disposable clothing for protection against the cold weather and is not discarded at the end of the shift, it must be laundered.
  - 1. The Company shall ensure that contaminated protective clothing is placed in a closed container in the change area which prevents dispersion of lead outside the container.
  - 2. If contaminated clothing is given to another person or entity for laundering, the Company shall inform in writing such person or entity of the potentially harmful effects of exposure to lead.
  - 3. Contaminated clothing shall be transported in sealed impermeable bags, or other closed impermeable containers and labeled with the following:

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.

- c) Lead-contaminated clothing, shoes, shoelaces, hard hats, gloves, or equipment do not go home with any Company employee unless decontaminated at the end of the project. Removal of any contaminated items from the site by Company employees is strictly prohibited. HEPA vacuums or wet methods may be used to clean workers personal items before leaving the site. HEPA vacuums are furnished for all work sites where lead contamination may be produced.

## 5.12 ISOLATION AND SIGNS

5.12.1 Isolate removal areas with labeled barricade tape, ropes, walls, containments, or other visible means. These are designated as regulated areas or zones. Post all access areas that are easily visible from a distance with OSHA approved warning signs so that employees and bystanders can take necessary protective measures before entering the work area.

5.12.2 All workers shall obey all warning signs, labels, exposure assessment reports, and/or barriers and not enter into any identified areas where lead disturbing activities are taking place. The warning signs shall bear the following information:

WARNING  
LEAD WORK AREA  
POISON  
NO SMOKING OR EATING

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5.12.3 Remove as much unnecessary equipment as possible. DO NOT PERMIT ENTRY INTO THE AREA OF UNAUTHORIZED PERSONNEL OR ANY PERSONNEL TAKEING INADEQUATE PROTECTIVE MEASURES. In some cases work may be performed after hours so as to avoid unintended contact with plant or office personnel.

5.12.4 Regulated Areas (Zones)

- a) The Company will utilize either visual assessments or instrument monitoring to establish regulated areas or zones around activities which generate airborne lead above the Action Level of 30 ug/m<sup>3</sup>.
- b) Visual Assessment or Historical Data method for establishing regulated areas is used when the operation being performed is of short duration or if the source generates little or no airborne emissions. It is also used when initial instrument monitoring data is available to establish the appropriate distances for setting up zones.
  - 1. Unless initial monitoring data indicates otherwise, a zone approximately 15 feet in all directions of the work area is isolated using tape, ropes etc. If initial instrument monitoring is available, the distance is modified appropriately.
  - 2. Visual assessments of emissions are made routinely as part of the work process. Emissions observed passing beyond the regulated area are cause for immediate corrective action. The work activities or containment are modified or the zone is reestablished.
- c) Instrument monitoring is used, initially and when the operations being performed generate moderate to maximum amounts of airborne emissions, and the project is of long duration.
  - 1. Air monitoring is performed at the perimeter (approximately 15 feet in all directions) of the work area collecting air samples in accordance with the NIOSH Method 7082 using either high volume pumps calibrated at a flow rate between 10 - 15 liters per minute or personal sampling pump calibrated at a flow rate of 2 - 4 liters per minute.

5.13 METHODS OF COMPLIANCE

5.13.1 Engineering and Work Practice Control - Engineering and work practice controls, shall be implemented to reduce and maintain employee exposure to lead at or below the permissible exposure limits to the extent such controls are feasible. Whenever all feasible engineering and work practice controls that can be instituted are not sufficient to reduce employee exposure to or below the permissible exposure limit, the Company shall nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them by the

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use of respiratory protection that complies with the requirement. Negative air machines with or without enclosures may be used to limit and control lead dust on some projects. Work Practices for various lead cleaning and removal activities are further described in Section 5.14.

- a) Specifically, respirators shall be selected and used in accordance with Table 2 above during the period of time necessary to install or implement engineering or work practice controls, where engineering and/or work practice controls are insufficient to maintain exposure levels below applicable regulatory limits, and in emergencies where exposure levels are not yet determined.

5.13.2 Compliance Program - Prior to the commencement of the job, the Company shall establish and implement a written compliance program. Complete the Lead Compliance Plan located in Attachment 7.7.

Written plans for the compliance program shall include:

- 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;
- b) A description of the specific means that will be employed to achieve compliance and, where engineering controls are required engineering plans and studies used to determine methods selected for controlling exposure to lead;
- c) A report of the technology considered in meeting the PEL;
- d) Air monitoring data which documents the source of lead emission;
- e) A detailed schedule for implementation of the program, including documentation such as copies of the purchase orders for equipment, construction contracts, etc.;
- f) A work practice program which includes items required for protective work clothing and equipment, housekeeping, hygiene facilities and practices, and incorporates other relevant work practices.
- g) An administrative control schedule if required.
- 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 section as established in OSHA 1926.16, *Rules of Construction*.

Other relevant Information - The compliance program shall provide for frequent and regular inspections of job sites, materials and equipment to be made by the competent person. See Attachment 7.5 for an Inspection Report. The written program shall be submitted upon request to any affected employee or authorized employee representatives, to the Assistant Secretary and the Director, and shall be available at the work site for examination and copying by the Assistant Secretary and the Director.

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5.13.3 Mechanical Ventilation - When ventilation is used to control lead exposure, the employer shall evaluate the mechanical performance of the system in controlling exposure as necessary to maintain its effectiveness.

5.13.4 Administrative Controls - If administrative controls are used as a means for reducing employee TWA exposures to lead, the Company shall establish the implement a job rotation schedule which includes:

- a) Name or identification number of each affected employee:
- b) Duration and exposure level at each job or work station where each affected employee is located; and,
- c) Any other information which may be useful in assessing the reliability of administrative controls to reduce exposure to lead.

#### 5.14 WORK PRACTICES

5.14.1 General - The Company selects the level of containment and work practices based upon the method of cleaning or removal as well as any permit requirements by local authorities or client specific requirements. The Work Practices listed below are to be used in conjunction with those applicable procedures listed in Section 5 of this directive. A Lead Removal Material Checklist is shown in Attachment 7.9 to assist with establishing the level of containment and the proper work practice(s) to utilize.

##### 5.14.2 Pressure Washing (For Cleaning Purposes)

- a) Use extreme care to remove surface contamination (cleaning only) without disturbing the paint.
- b) Protect the ground beneath the work area with water impenetrable materials such as tarpaulins, or impermeable polyethylene sheeting, and seal all seams with duct tape. The integrity of the materials are maintained throughout the duration of the project to avoid losing water or debris through rips, tears, or breaks in the coverings.
- c) Collect visible paint chips or debris that may be unintentionally dislodge during pressure washing on a daily basis. The area is controlled so that dislodged paint chips or debris do not contaminate the unprotected ground or water, or enter storm sewers.
- d) Filter visible paint chips and debris prior to placing water and debris in separate containers.
- e) Maintain controls until all debris is containerized for disposal in accordance with Section 6.0
- f) Use pressure washing equipment at less than 5,000 pounds per square inch (psi).
- g) Operate all equipment in accordance with the manufacturers instructions.
- h) Operate the equipment to minimize the removal of paint from the surface.

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#### 5.14.3 Hand Tool and Vacuum-Shrouded Power Tool Removal

##### a) General Requirements -

- Protect the ground surrounding the work area with air and dust impermeable materials such as solid panels of plywood or flexible materials such as tarpaulins. The integrity of the materials is maintained throughout the project to prevent debris escaping through rips, tears, or breaks in the coverings.
- Extend the ground covers at least 15 feet in all directions, where possible, around the perimeter of the areas being worked.
- Control the area so that dislodged paint chips or debris do not contaminate unprotected ground or water, or enter storm sewers. Visible paint chips or debris is removed at least daily from unprotected surfaces.
- Maintain controls until debris is containerized for disposal in accordance with Section 6.0.
- Construction of an enclosure, if specified, shall be placed under negative pressure air (at least .05 inches of water), with HEPA equipped negative air machines. The interior of the plastic enclosure shall be thoroughly rinsed to remove lead containing residue on the plastic. This rinse water shall be captured and filtered prior to discharge. Following rinsing, after the enclosure is dry and prior to tear down, perform aggressive air clearance of the area to ensure air levels are below the Action Level for airborne lead.

##### b) Hand Tools - Select clean and properly sized hand tool equipment to accomplish the work. Remove loose, flaking and deteriorated paint by scraping which minimizes the dispersion of dust and debris.

##### c) Vacuum-Shrouded Power Tools ( e.g. grinder, grinders, etc.)

- Under standard operating conditions, only grinders and needle guns equipped with vacuum attachments shall be used
- Maintain HEPA vacuum attachments in operation during all paint removal operations
- Select the proper shroud to match the configuration of the surface being prepared.
- Maintain the tool and shroud in contact with the surface to provide the maximum containment of dust and debris generated by the paint removal process.
- Reposition the vacuum shrouded power tool to improve the efficiency of the vacuum collection if visible emissions are observed.

#### 5.14.4 Wet Abrasive Blast Cleaning

- Protect the ground surrounding the work area with water and dust impenetrable materials such as solid panels of plywood covered with tarpaulins, or a minimum of two (2) layers of 6 mil polyethylene sheeting. All

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seams are sealed with duct tape. The integrity of the materials are maintained throughout the duration of the project to avoid losing water and debris through rips, tears, or breaks in the coverings.

- Erect “nuisance” tarps to minimize the dispersion of airborne debris or emissions from going beyond the property line.
- Extend ground covers at least 15 feet in all directions, where possible, around the perimeter of the areas being worked.
- Control the area so dislodged paint chips or debris do not contaminate the unprotected ground or water, or enter storm sewers. Visible paint chips or debris are removed at least daily from unprotected surfaces.
- Filter visible paint chips and particulate from any free pooling water prior to placing the water and debris into separate containers.
- Maintain controls until all debris is containerized for disposal in accordance with Section 6.0 of this directive.
- Maintain water injection in operation during all blast cleaning operations.
- Operate all equipment in accordance with the manufacturer’s instructions.
- Adjust the air flow, abrasive feed, and water injection to minimize the generation of visible emissions.

#### 5.14.5 Chemical Strippers

- Must be approved by the client as well as the Risk Management Department prior to use. Chemical strippers containing methylene chloride, a suspect carcinogen, shall not be used unless approved by the Risk Management Department. Most strippers contain corrosive, caustic chemicals and must be handled in accordance to the manufacturer’s requirements.
- Risk Management Department must define PPE prior to use
- Waste must be characterized to ensure proper disposal
- Employees must receive training prior to use.

5.14.5 Burning of Paint - Paint removal by burning with a torch, welding or any method which volatilizes the paint into a fume is prohibited. If hot work is to be performed, the lead-based paint must be removed at least four (4) inches on either side of the hot work using one of the approved methods.

5.14.6 Removal of Roof Flashing, Sheet Lead - If manual methods are used, then only PPE such as gloves and safety glasses (no respirators) are typically required. Some of these manual methods could be pry-bar, tin snips, sledge hammers and hand saws. Only power tools approved by Risk Management Department may be used.

5.14.7 Installation of Lead-lined Dry Wall (sheetrock) - Historical air monitoring data indicates that installing lead-lined dry wall will not result in exposure concentrations above the Action Level provided the following safety practices are used:

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- a. The use of power tools to cut the sheetrock is **STRICTLY PROHIBITED**.
- b. Razor knives shall be used to score the sheet wearing cut resistant gloves.
- c. Lifting lead-lined dry wall sheets is a two-person operation since these sheets weigh approximately 100 pounds or more, depending on the thickness of the lead laminate.
- d. Employees must wash their hands thoroughly prior to eating, drinking and smoking.
- e. Dust or particulates should be HEPA vacuumed or wet swept where vacuuming is infeasible.

#### 5.15 HOUSEKEEPING

5.15.1 All surfaces shall be maintained as free as practical of accumulations of lead.

5.15.2 Clean-up of floors and other surfaces where lead accumulates shall, whenever possible, be cleaned by vacuuming or other methods that minimize the likelihood of lead becoming airborne.

5.15.3 Shoveling, dry or wet sweeping, and brushing may be used only when vacuuming or other equivalent methods have been tried and found not to be effective.

5.15.4 Where vacuuming methods are selected, the vacuums shall be equipped with HEPA filters and used and emptied in a manner which minimizes the reentry of lead into the workplace.

5.15.5 Compressed air shall not be used to remove lead from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the airborne dust created by the compressed air.

#### 5.16 HYGIENE FACILITIES AND PRACTICES

##### 5.16.1 Below - PEL Procedures:

- a) Work Area Rules - Food or beverages may not be present or consumed; tobacco products may not be present or used; and cosmetics may not be applied in the work area. All workers who contact lead-containing dusts or materials shall practice good personal hygiene and wash hands, face, and any other exposed skin areas.
- b) Change Area - Clean change rooms must be provided for employees.
- c) Hand Washing Facilities - Adequate hand washing facilities must be provided for the employees.

##### 5.16.2 Above - PEL Procedures:



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- a) Work Area Rules - Food or beverages may not be present or consumed, tobacco products may not be present or used, and cosmetics may not be applied in the work area.
- b) Change Area
  - Clean change areas must be provided for employees.
  - The change areas shall be equipped with separate storage facilities for protective work clothing and equipment and for street clothing which prevents cross contamination.
  - The employees must not leave the workplace wearing any protective clothing or equipment that is required to be worn during the work shift.
- c) Showers
  - Showers facilities must be provided, where feasible.
  - The employee shall be required, where shower facilities are available, to shower at the end of the work shift. The Company shall provide an adequate supply of cleansing agents and towels for use by affected employees.
- d) Eating Facilities
  - Separate lunchroom facilities or eating areas shall be provided for employees.
  - The lunchroom facilities or eating areas shall be as free as practical from lead accumulation and are readily accessible to employees.
  - Employees must wash their hands and face prior to eating, drinking, smoking or applying cosmetics.
  - Employees must not enter lunchroom facilities or eating areas with protective work clothing or equipment unless surface lead dust has been removed by vacuuming, down-draft booths, or another cleaning method that limits the dispersion of lead dusts.
- e) Hand Washing Facilities
  - Adequate hand washing facilities must be provided for use by employees exposed to lead.
  - Where showers are not provided, employees must wash their hands and face at the end of the work shift.

NOTE: All personal waste water shall be disposed of in accordance with all local, state and federal regulations.

## 5.17 WORK STOPPAGE AND CLEANUP

- 5.17.1 Except for emergencies, employees shall not be permitted to leave their work stations between breaks.

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5.17.2 Disposable clothing must be removed or vacuumed each time the employee leaves the removal area. See Section 5.16 for proper hygiene practices.

5.17.3 Periodically vacuum all areas where dust is visible and wet vacuum all water used to wet materials. Special HEPA filters shall be used in all vacuums. Do not employ dry sweeping methods at any time, except as ruled in Section 5.15.3.

5.17.4 At the end of the day, vacuum all removal areas, wet wipe all surfaces (pipes, ducts, hangers, crevasses, etc.) and equipment (tools, scaffolding, etc.). Wet mop or wash down the entire area with clean water.

5.17.5 All protective clothing, cloths, filters, filter bags, debris and polyethylene must be tested to determine the proper method of disposal.

#### 5.18 COMMUNICATION AMONG EMPLOYERS

Other employers on the site must be informed of the nature of any work with lead-containing products that require the establishment of regulated areas. This communication shall include requirements pertaining to regulated areas.

#### 5.19 EMERGENCY PLANNING

Employees shall be trained in evacuation procedures in the event of a workplace emergency.

- a) For non-life threatening situations, employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers, if necessary, before exiting the workplace to obtain proper medical treatment.
- b) For life threatening situations, injury or illness, worker decontamination shall take second priority to measures to stabilize the worker, remove them from the workplace and secure proper medical treatment.

#### 5.20 OTHER SAFETY CONSIDERATIONS

5.20.1 Shut down and lock out electric power to all work areas.

5.20.2 Ensure safe installation including ground faulting of power sources and equipment by compliance with all applicable electrical code requirements and OSHA requirements for temporary electrical systems.

5.20.3 Shut down and lock out all heating, cooling and air conditioning system components that are in, supply or pass through the work area.

5.20.4 Avoid stringing electrical wiring across floors. Elevated wiring, if possible, to keep it away from water on the floor and damage from foot traffic and rolling scaffolding.

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## 6 WASTE MANAGEMENT

### 6.1 GENERAL

- 6.1.1 Waste generated by lead-based paint activities may be subject to the Resource Conservation and Recovery Act (RCRA) Subtitle C hazardous waste regulations.
- 6.1.2 Toxicity Characteristic Leaching Procedure (TCLP) testing may be necessary to determine if the waste must be handled and disposed of as a hazardous waste.
- 6.1.3 The decision for the need to complete TCLP analysis will be determined on a case-by-case basis. The type and volume of waste resulting from a job will help to determine if TCLP analysis is necessary.
- 6.1.4 If analysis from bulk sampling shows lead to be present at levels greater than 5 parts per million (ppm), or if documentation exists to suspect that a waste material may be contaminated, contact Risk Management Department for further guidance on classifying, handling and disposing of the waste.
- 6.1.5 Disposal - Preference
  - a) Exclude this work as part of the contract and have the customer or others perform the transportation and disposal.
  - b) If transportation and disposal cannot be performed by the customer, sublet the disposal to a licensed hazardous waste disposal company.
  - c) If disposal by other is not possible, contact the Regional Safety and Health Manager or Corporate Director of Safety and Health to determine the location of the nearest EPA approved waste disposal site.

### 6.2 WASTE SAMPLING AND TESTING

- 6.2.1 The Company shall assure that solid waste generated from paint removal activities (i.e. paint chips) is tested in accordance with the EPA Method 1311, Toxicity Characteristic Leaching Procedure (TCLP) as outlined in 40 CFR 261, Appendix II, unless otherwise dictated by state or local regulations.
- 6.2.2 The collection, handling and documentation of samples is carefully controlled in accordance with this directive. Attachment 7.9 provides guidance on the number of samples to collect, sample collection procedure, laboratory analysis and reporting of waste sampling results.

### 6.3 WASTE HANDLING, PACKAGING AND STORAGE

- 6.3.1 The Company shall comply with 40 CFR 262 and 265 and all other state and local regulations for the on-site handling and storage of all hazardous waste generated

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on projects. The Company shall comply with state and local regulations for the on-site handling and storage of all non-hazardous waste generated on projects.

#### 6.3.2 Job-Site Waste Collection

- a) All waste is deposited and sealed in containers or roll-offs concurrent with generation. The frequency of collection and storage of the paint removal waste depends on the rate of generation and containment techniques. **As a minimum, the waste is collected and stored in containers at the end of each working day such that no waste is left exposed overnight.**
- b) The Company shall use only compatible DOT-approved containers for hazardous and non-hazardous waste storage.
- c) Storage drums shall have lids attached except when being filled. Drums shall be in good condition when brought on site and show no visible signs of rust or corrosion. Drums shall be sealed with tamper resistant fasteners.
- d) No container or roll-off shall be filled to a capacity in excess of that marked on the container or roll-off as the maximum dry volume capacity.

#### 6.3.3 Waste Storage Requirements

- a) Drums containing potentially hazardous materials shall be placed on concrete or asphalt, or on pallets and tarps/poly to prevent corrosion attack from moist soil. They should be stored in a protected area or within a room, with signs around the perimeter. The storage area should be designed to prevent run-off debris. When stored outside, the secure area shall be located on well-drained ground, to the extent feasible and away from any flood plain areas. Drums are covered to prevent rain accumulation in or on the drums.
- b) Drums are stored in rows with no more than two drums high and two drums wide, with the labels on all eight drums facing outward.
- c) Different types of waste (hazardous and non-hazardous) are not co-mixed.
- d) Hazardous waste storage is segregated from non-hazardous waste.
- e) Hazardous waste may not be stored for greater than the required number of days. (e.g. more than 90 days for large quantity generators). Check with the customer to ensure compliance. The storage period begins when the first accumulation of waste is placed into a container. The date is clearly marked on the container.
- f) All containers are inspected weekly for leaks and corrosion.

6.3.4 Labeling of Containers ( Initial ) - All containers of project waste and debris are immediately labeled to identify the contents. Until the TCPL test results are received, the containers are labeled as "Lead-containing Debris".

#### 6.3.5 Labeling of Containers - Hazardous Waste

- a) Hazardous waste labels are applied after the test results are received, if the debris test hazardous.

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- b) Each container or roll-off of hazardous waste is labeled with a U.S. Department of Transportation ORM-D label in accordance with 40 CFR 262.34 and 49 CFR 172.304. Check requirements for state regulations.
- c) For compliance with 40 CFR 262.32, the hazardous waste labels includes: Generator Information (Name/Address), EPA ID No./Manifest Document No. and the Accumulation Date (Date Materials is First Placed in Container).
- d) For compliance with 49 CFR 172.304, the hazardous waste label includes:
  1. DOT Shipping Name (found in 49 CFR 172.101, Hazardous Material Table). For ORM-D waste, the proper DOT shipping name is “Hazardous Waste Solid, n.o.s.”
  2. If the hazardous waste shipment exceeds the reportable quantity (RQ) as defined in Appendix A to 49 CFR 172.101 “List of Hazardous Substances and Reportable Quantities”, the DOT shipping name (as noted in 6.3.5.d.1 above) should be preceded with RQ.
  3. Hazard Class (found in 49 CFR 172,11). For ORM-D wastes, the hazard class is 9.
  4. The UN (United Nations) or NA (North American) Number (49 CFR 172.01). For hazardous waste solids, n.o.s., use NA 3077 (i.e. lead, cadmium, and chromium).
- e) Each container or roll-off of hazardous waste is labeled with DOT specification diamond shaped decals indicating the hazard class/division of the contents. For ORM-D waste, the hazard class/division is Class 9.

#### 6.3.6 Labeling of Containers - Non-Hazardous Waste

- a) Waste labels are applied after the test results are received, if debris tests are non hazardous but with detectable amounts of heavy metals (e.g. lead)
- b) Waste Debris Contains \_\_\_\_\_
- c) Generator Name: \_\_\_\_\_
- d) Date of Generation : \_\_\_\_\_
- e) Location: \_\_\_\_\_
- f) All drums or containers of non-hazardous waste are marked using weather resistant labels with the 1) Type of waste and 2) Start date of accumulation.
- g) All labeling is located away from other markings that could substantially reduce it effectiveness.
- h) All containers are arranged so that labels are visible at all time while on the project site.
- i) Sample labels can be found in Attachment 7.10.

6.3.7 Personnel Training - Personnel involved with the storage and handling of hazardous waste are trained (e.g. annually) in this procedure, the Preparedness, Prevention and Contingency Plan and Hazard Communication per OSHA 1926.59.

## 6.4 WASTE RECORD KEEPING

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- 6.4.1 The Company shall comply with all manifesting, certification, and reporting requirements as outlined in 40 CFR 262.40 and State and Local regulations.
- 6.4.2 The Company will maintain an inventory of waste generated, including type, volume, and disposal.
- 6.4.3 After the nature of the waste is determined (e.g. hazardous or non hazardous) the Customer/Company will contact the Waste Transportation Contractor to arrange for waste pick-up.
- 6.4.4 When the waste is hazardous, the Waste Transportation Contractor will prepare a manifest in compliance with the State or Federal Form. The manifest includes:
  - a) Customer EPA identification Number;
  - b) The manifest document number;
  - c) Customer's name mailing address and telephone number;
  - d) The TSD contractor's name, EPA identification number, State hazardous waste transporter license number and telephone number;
  - e) The designated disposal facility's name, site address, EPA identification number and telephone number;
  - f) The US DOT proper Shipping Name, Hazard Class and the UN (United Nations) or NA (North America) identification number.
  - g) The number of containers and container type, and the total quantity of waste by either weight or volume.
  - h) The RCRA hazardous waste number for each waste (e.g. D008 for lead); and
  - i) The physical state and hazard code for each waste.
- 6.4.5 The Customer's on-site representative will review the manifest prepared by the Waste Transportation Contractor. The authorized representative will sign and date the manifest and witness that the TSD contractor signs and dates the manifest.
- 6.4.6 The customer's authorized representative will detach the appropriate copies of the manifest and will forward one copy to the State's Environmental Department.
- 6.4.7 When the waste is non-hazardous, the Waste Transportation Contractor will prepare the waste tracking documents that include: 1) a complete description of the waste; 2) the name and location of the disposal facility; and 3) any available waste analysis data.
- 6.4.8 Copies of all records relating to waste handling and storage shall be maintained by the Customer. Records of hazardous waste are retained for 20 years, and records of non-hazardous waste are retained for 5 years.

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6.5 TRANSPORTATION AND DISPOSAL

- 6.5.1 The Customer contracts with the Waste Transportation Contractor to arrange for the proper transportation and disposal of all paint debris waste in accordance with 40 CFR 263, 264 and 268, and State and local regulations.
- 6.5.2 The Customer/Company verifies that all containers are properly labeled in accordance with 40 CFR 264; 40 CFR 268; 49 CFR 172 and the State and Local regulations.
- 6.5.3 The Customer verifies that the manifest is properly completed in accordance with all regulations.
- 6.5.4 The waste transporter is responsible for properly placarding for the type of waste being hauled.

6.6 SPECIAL HANDLING AND DISPOSAL CONDITIONS FOR WASTE (GREY) WATER

- 6.6.1 Containers will be used for the collection and retention of all waste water, including but not limited to the water used for hygiene purposes (i.e. gray water) and cleanup activities.
- 6.6.2 Visible paint chips and particulate will be filtered from the water prior to placing it into containers.
- 6.6.3 The water will be tested for toxic metals following filtration (e.g. through a multi-stage filtration system ending in 5 microns or better if needed) until the water is not classified as hazardous, prior to disposal.
- 6.6.4 The Customer/Company will make disposal arrangements with its Waste Transporter Contractor to transport and dispose of the waste water.

6.7 PREPAREDNESS, PREVENTION, AND CONTINGENCY PLAN (PPCP) AND TRAINING

- 6.7.1 The Customer and Company shall control conditions at all storage sites as described below in order to control inadvertent releases.
- 6.7.2 The storage areas will be maintained and operated to minimize the possibility for fire, explosion, or release of hazardous waste into the environment.
- 6.7.3 The following required equipment will be maintained:

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- a) An internal communication system for providing emergency instructions to personnel;
- b) Telephone or two way radio capable of summoning emergency assistance;
- c) Portable fire extinguishers at the storage areas where flammable or combustible waste are present.
- d) Water, when flammable, combustible, or caustic waste are present.

6.7.4 Post on site the telephone numbers of the local police, fire and local emergency response personnel.

6.7.5 The Company will utilize the following for the control of spills of hazardous waste.

- a) Dry Debris - 1) Workers are equipped with appropriate personal protective equipment in accordance with this procedure; 2) Dry spills or releases are collected using HEPA vacuums.
- b) Water Spills and Releases - 1) Workers are equipped with personal protective equipment in accordance with this procedure; 2) Shovels, mops, absorbent materials and HEPA equipped wet vacuums are used to capture and containerize the debris.

6.7.6 Training - All personnel involved with handling of hazardous waste are trained in the requirements of 40 CFR 265.16. This program ensures that personnel are able to effectively respond to emergency situations. Employees shall receive at least an annual refresher on hazardous waste handling requirements. The training program includes, at a minimum:

- a) The components of a PPC Plan outlined in Section 6.7.1 - 6.7.5;
- b) Procedures for the use and care of emergency response and monitoring equipment;
- c) Review of internal communications system;
- d) Procedures to be followed for fire, explosions, or releases; and,
- e) Emergency response drills.

## 7 **RECORDKEEPING**

For the protection of the company, it is critical that complete records be prepared and maintained at the home office of all lead contact operations. The following documents must be completed and forwarded to the Risk Management Department for extended retention as part of the contract file.

7.1 The REPORT OF LEAD DETERMINATION (Form 9900), and all supporting documents as described in these procedures. See Attachment 7.1.



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- 7.2 A completed PRE-BID REVIEW / APPROVAL FORM 7033 and LEAD ABATEMENT / REMOVAL / CONTACT REPORT (Form 9901) See Attachments 7.2 and 7.3.
- 7.3 A completed INFORMATION TO EMPLOYEES REGARDING THE ABATEMENT / REMOVAL / CONTACT OF LEAD -CONTAINING MATERIALS (Form 9902 - Attachment 7.4). See Section 5.5.3 for further details on training requirements .
- 7.4 All records pertaining to medical examinations, medical removal and exposure assessments and monitoring results shall be maintained by the Risk Management Department - Lancaster for the employee's length of employment plus 30 years.
- 7.5 Any other records which may be relevant to the removal operations, (i.e., EPA notification, state notification, specifications, job logs, diary, etc.) including pictures where necessary to facilitate documentation of the project.

<b>FORMS</b>	<b>ATTACHMENT #</b>
Report of Lead Determination (Form 9900)	1
Lead Abatement Job-Walk Survey (Form 7017) and Pre-bid Review Form/Approval Form 7033	2
Lead Abatement/Removal/Contact Report (Form 9901)	3
Information to Employees regarding the Abatement/Removal/Contact of Lead-Containing Materials (Form 9902)	4
Site Lead Inspection (Form 9903)	5
Lead Bulk Sampling Procedures	6
Lead Compliance Plan	7
Lead Removal Material Checklist	8
Waste Sampling and Testing Procedure	9
Sampling Labels	10

REPORT OF LEAD DETERMINATION

BRANCH \_\_\_\_\_ JOB NAME \_\_\_\_\_  
CONTRACT NUMBER \_\_\_\_\_

PART I REMOVAL AND/OR CONTACT WITH LEAD-CONTAINING PRODUCTS

INSTRUCTIONS: List all lead-containing products to be encountered on this job. All of the following products must be checked for lead;

PAINTS, MASTICS, COATINGS, MORTARS, CEMENTS, ROOFS, CORNICES,  
TANK LININGS, ELECTRICAL CONDUIT, SOLDERS, SIDING,  
SOUNDPROOFING.

SYSTEM/LOCATION	MATERIAL	QUANTITY	DOCUMENTATION
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

A copy of this report and all supporting documents must be forwarded to the Risk Management Department, Lancaster, for extended retention.

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

**LEAD ABATEMENT  
PRE-BID REVIEW / APPROVAL FORM**

BRANCH OFFICE/CONTACT: \_\_\_\_\_  
BID DUE DATE: \_\_\_\_\_  
JOB LOCATION: \_\_\_\_\_  
CUSTOMER: \_\_\_\_\_  
OWNER: \_\_\_\_\_  
APPROX. DOLLAR SIZE: \_\_\_\_\_  
APPROX. JOB DURATION: \_\_\_\_\_  
CREW SIZE: \_\_\_\_\_  
WHO'S OUR COMPETITION? \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

WHO IN YOUR OFFICE HAS LEAD ABATEMENT TRAINING? \_\_\_\_\_

IS A TRAINED WORK FORCE AVAILABLE?     YES     NO     DON'T KNOW

DESCRIPTION OF WORK: \_\_\_\_\_

WHAT TESTING HAS BEEN DONE AND BY WHOM? \_\_\_\_\_

WHAT OTHER HAZARDOUS MATERIALS PRESENT? \_\_\_\_\_

PLANNED METHOD(S) FEASIBILITY OF REMOVAL: \_\_\_\_\_

PLANNED PERSONNEL PROTECTIVE MEASURES: \_\_\_\_\_

WHO HANDLES DISPOSAL OF WASTE? \_\_\_\_\_

WHO IS CERTIFIED TO DO THIS WORK IN YOUR OFFICE ? \_\_\_\_\_

TO BE COMPLETED AND RETURNED TO:

- 1. JOHN LAMBERTON - LANCASTER OFFICE
- 2. AREA MANAGER

LEAD ABATEMENT/REMOVAL/CONTACT REPORT

CONTRACT NO. \_\_\_\_\_ JOB NAME \_\_\_\_\_  
BRANCH \_\_\_\_\_ ADDRESS \_\_\_\_\_  
\_\_\_\_\_

ESTIMATED QUANTITY OF LEAD-CONTAINING MATERIALS REMOVED:

MATERIAL	QUANTITY
_____	_____
_____	_____
_____	_____
_____	_____

JOB DESCRIPTION: Describe removal or contact in detail including materials involved, job Conditions, and location. Use additional pages if necessary \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

REPORT BY \_\_\_\_\_ DATE \_\_\_\_\_  
Signature

AREA MANAGER \_\_\_\_\_ DATE \_\_\_\_\_  
Signature

This report is to be forwarded to the Risk Management Department along with supplemental documents indicated on the checklist.

LEAD REMOVAL/CONTACT CHECKLIST

RECORDKEEPING	Comments
<input type="checkbox"/> Form 9900 Lead Determination	
<input type="checkbox"/> Form 9901 Abatement/Removal/Contact	
<input type="checkbox"/> Form 9902 Information To Employees Regarding The Abatement/ Removal/Contact Of Lead-Containing Materials.	

REVIEW  
 Project Reviewed With Field Operations and Risk Management and Construction Services.  
 Appropriate Notification Letters Submitted.

PROJECT EXPOSURE ASSESSMENT  
 Used Prior Company Data Indicating Exposure Below "Action Level".  
 Conducted Initial Personal Samples.  
 Respiratory Protection Used During Assessment Period.  
Type: \_\_\_\_\_

TRAINING

- Procedures Explained To Employees.
- Form 9902 Given To Each New Employee.
- Verification That Employees Are Trained.
- OSHA Booklet Distributed To Employees.
- On-site Supervision Meets "Competent Person" Requirement.

MEDICAL EXAMINATION

- Made Available To Employee.
- Initial Medical Surveillance Program Implemented.
- Medical Surveillance Program Implemented.
- Medical Removal Program Implemented.
- Results To Risk Management Department.

AIR MONITORING

- Performed By: \_\_\_\_\_ Dates: \_\_\_\_\_
- Initial Exposure Assessment Monitoring Performed.
- Follow-Up Monitoring Performed.
- Additional Exposure Monitoring Performed.
- Results Sent To Risk Management Department.

PERSONAL PROTECTIVE EQUIPMENT

- Respiratory Equipment Provided To Each Employee.
- Full Faced Air-Purifying (Negative Pressure) Respirator.  
Type: \_\_\_\_\_
- Powered Air-Purifying Respirator (PAPR).  
Type: \_\_\_\_\_
- Type "C" Grade D Supplied Air.  
Type: \_\_\_\_\_
- Respirator Program Reviewed With Employees.
- Head-To-Toe Disposable Clothing Provided To All Employees
- Explanation Of How To Don Respirator And Clothing.

ISOLATION

- Access To Work Areas Restricted.
- Areas Isolated With "Warning - Lead Work Area" Barrier Tape.
- Access Points Posted With "Warning - Lead" Signs.

ENCLOSURE

- Removal Area Enclosed With 6 Mil Poly.  
Ceiling \_\_\_\_\_ Walls \_\_\_\_\_ Floor \_\_\_\_\_ 2 Layers \_\_\_\_\_
- Waste Load-Out Facility.  
Holding/Wash Room \_\_\_\_\_ Bagging/Clean Room \_\_\_\_\_
- Air Locks Constructed At Each Exit.
- Exit Marked Restricted Personnel Only.

ENGINEERING CONTROLS

- Compliance Program Written.
- Administrative Controls Used.  
Type: \_\_\_\_\_
- Wet Removal \_\_\_\_\_ Dry Removal \_\_\_\_\_

- Surfactants And Wetting Agents Used.  
Type: \_\_\_\_\_
- Mechanical Ventilation or Negative Air Filtration Units Used.  
How Many: \_\_\_\_\_ Back-up On Site: \_\_\_\_\_  
Type: \_\_\_\_\_
- Encapsulant or Lockdown Used.  
Type: \_\_\_\_\_
- All Remaining Surfaces Sealed.

TOOLS

- List All Tools Used: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- List All Tools Equipped With Approved HEPA Exhaust Filters: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

HOUSEKEEPING, WORK STOPPAGE AND CLEAN-UP

- Disposable Clothing Disposed Of At Each Shift.
- All Areas HEPA Vacuumed.
- All Surfaces And Equipment Wet Wiped.
- All Excess Debris Bagged At End Of Each Shift As Lead Contaminated.

HYGIENE FACILITIES AND PRACTICES

- Contiguous With Enclosure.
- Trailer Facility Away From Removal Site.
- Separate Lockers Provided.
- Decontamination Facility Constructed.  
Clean Room \_\_\_\_\_ Shower Room \_\_\_\_\_ Dirty Room \_\_\_\_\_
- Hand And Face Washing Facilities Provided.
- Separate Lunchroom Or Eating Facilities Provided.

HANDLING

- All Removed Debris Doubled Bagged And Sealed.
- Bags Labeled With OSHA "WARNING - LEAD" label.

TRANSPORTATION

- Performed By: \_\_\_\_\_
- Location: \_\_\_\_\_

DISPOSAL

- Performed By: \_\_\_\_\_
- Landfill: \_\_\_\_\_

INFORMATION TO EMPLOYEES REGARDING THE REMOVAL OF  
LEAD CONTAINING MATERIAL

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

To: \_\_\_\_\_ S.S. last 4 # \_\_\_\_\_

BRANCH: \_\_\_\_\_

OCCUPATION OR CRAFT: \_\_\_\_\_

Contact for Medical Examination: \_\_\_\_\_  
Company Rep. Phone #

You are being considered for assignment to work involving the abatement, removal or contact with lead-containing materials. As you know, lead has been poisoning workers for thousands of years. In the construction industry, traditionally most over exposures to lead are found in trades, such as plumbing, welding and painting. But, significant lead exposure can arise from removing paint from surfaces previously coated with lead-containing paint.

**PRECAUTIONARY MEASURES:** In order to assure maximum health protection of all employees involved, the following specific precautionary measures will be taken through the duration of the work.

1. The employee will be provided with head-to-toe disposable clothing, including hoods, gloves, and shoe covers. This clothing must be worn at all times in the removal area.
2. Each employee must wear a full faced air-purifying (negative pressure) respirator, powered air purifying respirator (PAPR) or supplied air respirator at all times while in the removal area.
3. Air in the removal area will be periodically monitored for the levels of lead that is airborne. Each employee is required to cooperate in all air monitoring conducted. Test results are available to each employee upon request.
4. We make available to each employee a medical examination at our expense. Such medical examination includes, at a minimum, the following tests:

The initial medical surveillance program must be made available to employees exposed on any day to lead at or above the action level (30 ug/m<sup>3</sup>) without considering the protection factor of the respirator.



1. Blood lead and ZPP (zinc protoporphyrin) level sampling and analysis.

A medical surveillance program shall be instituted for biological monitoring and physical examination for all employees who are or may be exposed by the employer at or above the action level for more than 30 days in any consecutive 12 month period, without counting the protection factor of the respirator.

1. If requested by an employee, pregnancy testing or laboratory evaluation of male fertility.
2. A detailed work history and a medical history, with particular attention to past lead exposure (occupational and non-occupational), personal habits (smoking, hygiene), and past gastrointestinal, hematologic, renal, cardiovascular, reproductive and neurological problems.
3. A thorough physical examination, with particular attention to teeth, gums, hematologic, gastrointestinal, renal, cardiovascular, and neurological systems. Pulmonary status should also be evaluated.
4. A blood pressure measurement.
5. A blood sample and analysis which determines;
  - i. Blood lead levels;
  - ii. Hemoglobin and hematocrit determinations, red cell indices, and examination of peripheral smear morphology.
  - iii. Zinc protoporphyrin.
  - iv. Blood urea nitrogen.
  - v. Serum creatinine.
6. A routine urinalysis with microscopic examination.
7. Any laboratory or other test relevant to lead exposure which the examining physician deems necessary by sound medical practice.

In accordance with OSHA regulations, results are retained for the duration of employment plus 30 years and made available to the employee or the employee's authorized representative upon his or her request.

5. All removal areas are to be roped off, sealed with polyethylene, and marked with "Warning - Lead" signs.
6. To keep dust levels low, all material to be removed will be thoroughly wetted at various stages in the removal process.
7. No power-operated saws may be used at any time without an approved HEPA exhaust ventilating systems..
8. Exposed surfaces that will remain in place will be properly sealed.

9. Removed material and all disposable clothing, cloths, vacuum debris, polyethylene and other waste will be properly containerized and marked with "Warning - Lead" labels.
10. A separate change area will be provided for employees involved in removal, and separate areas for work clothes and street clothes will be provided. In addition, all employees engaged in removal above the PEL will be required to shower.
11. No smoking, eating or drinking shall be permitted in removal area.
12. Visible dust shall be promptly vacuumed, and the entire area shall be vacuumed at the end of each day. Water used to wet materials shall be wet vacuumed and treated as lead waste.
13. The break and lunch areas will be separate from the change area.
14. All surfaces and equipment shall be wiped at the end of each day.
15. For the employees exposed to lead, a copy of the applicable OSHA regulations and appendices are available upon request to all employees performing lead work.

You are required to follow these procedures and the other instructions of your supervisors. You are also required to inform us promptly of any violations of the above precautionary measures or other hazards you may note.

You are free to decline this work without affecting your standing with the company on any other jobs.

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

The employee refused to sign this acknowledgment that he/she received this information.

\_\_\_\_\_  
Date

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

The employee refused the available medical examination.

\_\_\_\_\_  
Date

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

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

SITE LEAD INSPECTION

DATE OF INSPECTION: _____	TIME OF INSPECTION _____
INSPECTOR (NAME): _____	
SIGNATURE: _____	
WORK LOCATION: _____	
COMPETENT PERSON: _____	FOREMAN: _____
SHIFT (START TIME) _____	(FINISH TIME) _____
DESCRIPTION OF EMPLOYEES ON SITE: (NUMBER & JOB CATEGORY) _____	
DESCRIPTION OF WORK COMPLETED (OR IN PROGRESS)/COMMENTS _____	
COMPETENT PERSON REVIEW _____	
SIGNATURE _____	

<u>Mechanical Ventilation System</u>	<b>Yes</b>	<b>No</b>	<u>Comments</u>
• Running Continuously	( )	( )	_____
• Adequate duct layout	( )	( )	_____
• Visually clean of settled dust	( )	( )	_____
• Make-up air inlets operational	( )	( )	_____
• Tarps and seals intact	( )	( )	_____
• Weekly inspection performed	( )	( )	_____
<u>Regulated Area</u>	<b>Yes</b>	<b>No</b>	<u>Comments</u>
• Clearly identified	( )	( )	_____
• Signs posted	( )	( )	_____
• Entry log posted	( )	( )	_____
• Periodic sampling performed	( )	( )	_____
<u>Respiratory Protection</u>	<b>Yes</b>	<b>No</b>	<u>Comments</u>
• Assigned respirators worn correctly	( )	( )	_____
• Clean functional condition	( )	( )	_____
• Supplied air system operating	( )	( )	_____
• Air purification installed	( )	( )	_____
• Carbon Monoxide Monitoring	( )	( )	_____

SITE LEAD INSPECTION

**Personal Protective Equipment**

	<b>Yes</b>	<b>No</b>	<b><u>Comments</u></b>
• Assigned work clothes, overalls worn	( )	( )	_____
• Clothing clean & in good condition	( )	( )	_____

**Hygiene Practices**

	<b>Yes</b>	<b>No</b>	<b><u>Comments</u></b>
• Food, beverages in lunch area only	( )	( )	_____
• All street clothing stored separate	( )	( )	_____
• Gross decon prior to leaving regulated area	( )	( )	_____
• Wash prior to eat, drink or smoke	( )	( )	_____
• Final decon/shower prior to leaving	( )	( )	_____
• Lunch, toilet & decon units clean	( )	( )	_____

**Housekeeping Procedures**

	<b>Yes</b>	<b>No</b>	<b><u>Comments</u></b>
• Debris cleaned from containment	( )	( )	_____
• Visible accumulation cleaned from regulated area	( )	( )	_____
• Vacuum or other non-dust producing methods used	( )	( )	_____
• End of shift cleanup adequate	( )	( )	_____

**Air Monitoring Performed**

	<b>Yes</b>	<b>No</b>	<b><u>Comments</u></b>
• Regulated Area	( )	( )	_____

**Visible Emission Noted**

	<b>Yes</b>	<b>No</b>	<b><u>Comments</u></b>
	( )	( )	_____

**Waste Management**

	<b>Yes</b>	<b>No</b>	<b><u>Comments</u></b>
• Waste Containerized	( )	( )	_____
• On-site Storage Minimized	( )	( )	_____
• Inspection of Storage Area performed	( )	( )	_____
• Waste Samples collected	( )	( )	_____
• Waste properly labeled	( )	( )	_____

**LEAD BULK SAMPLING PROCEDURE**

The purpose of this procedure is to provide guidelines for the collection of valid bulk samples which will be used to confirm the absence or presence of lead in materials and coatings. The analytical result of lead from a sample that detects any quantity of lead shall be treated as a lead-containing material or coating for the purpose of complying with OSHA's Lead in Construction Rule (29 CFR 1926.62). Be aware that the Environmental Protection Agency (EPA) generally regulates lead in concentrations equal to or greater than 1.0 milligram per square centimeter of surface area (as a dust) or greater than 0.05% (500 parts per million – (ppm)) as a component of the coating or material. All sample results or other analytical data obtained in relation to a child-occupied facility are to be reviewed and interpreted in conjunction with your Regional Safety Manager (RSM).

The following bulk sample procedure shall be followed:

1. Select representative sample site(s). Approximately 5 grams (the approximate weight of a nickel) of the material is necessary. For most coatings, this will be approximately a 2-to-3-inch square sample.
2. Place sample material in a suitable sample container such as a whirl-pak sample bag.
  - a. By using a sharp knife or scalpel, score the area of the paint in question with closely spaced parallel cuts and attempt to lift the paint off by sliding the thin blade along the score and underneath the paint. Thicker coatings may be removed more easily with a small wood chisel. All layers of paint or coating must be removed since the primer coat generally contains lead.
  - b. For steel substrates with coatings difficult to scrape, direct hot air from a heat gun about 4-6 inches from the surface while pressing the edge of a putty knife into the paint. Do not overheat the paint. All samples collected with the assistance of heat shall be collected using a full face respirator equipped with P-100 cartridges. All personnel collecting bulk lead samples shall obtain a blood lead and zinc protoporphyrin test prior to collecting samples.
3. Record the sample information on the sample container. Include the sample date, facility name, specific location of the sample, name of the person collecting the sample and the name(s) of the individual(s) that is/are to receive copies of the written report summarizing the sample results.
4. Send collected samples to any lab accredited by the American Industrial Hygiene Association (AIHA).
5. If the concentration of total lead equals or exceeds 100 ppm, then the Toxicity Characteristic Leaching Procedure (TCLP) must be run to determine leachable lead so that the proper waste determination can be made. (Note: TCLP will only be performed by the laboratory if requested by the party submitting the samples, as indicated on the Chain-of-Custody.) Be aware that coatings commonly contain other regulated metals such as cadmium, chromium, mercury, etc., typically in quantities substantially below the concentration of lead or that affect waste determination. The method requires TCLP samples be at least 100 grams. All sampling done on multiple waste streams mixed together shall be performed in conjunction with the RSM.

SECTION I - DESCRIPTION OF WORK ACTIVITY			
Site: _____	Location / Structure _____	Date Performed _____	
Does substance contain lead ? Yes      No	Amount of total lead present (ppm)	Amount to be Removed (In <sup>2</sup> or Ft <sup>2</sup> )	
Environmental Services contacted to discuss disposal requirements ? (if necessary)		Yes	No      N/A
Safety Engineer contacted to discuss work procedure ? (if necessary)		Yes	No      N/A
Crew Members	Responsibilities	Crew Members	Responsibilities
Supervisor _____			
SECTION II - LEAD REMOVAL METHOD			
Chemical stripper - name _____		Abrasive blasting cleanup	
Manual scraping		Abrasive blasting	
Manual sanding		Welding	
Power Tool Cleaning (with dust collection) systems		Cutting	
Power tool cleaning (without dust collection) systems		Torch burning	
SECTION III - CONTROL METHOD			
Area demarcated		HEPA vacuuming	
Signs posted		Local ventilation	
Floor covered		General ventilation	
Partial enclosure		Wet methods	
Full enclosure		Other (specify) _____	
Negative pressure ventilation _____			
SECTION IV EMPLOYEE PROTECTION			
Change areas		Respirator types _____	
Shower facilities		Employee fit tested within 6 mos for type respirator worn	
Handwashing facilities		Coverall with head / foot coverings	
Training provided		Blood lead test current	
SECTION V - WASTE MANAGEMENT			
Waste generated      Yes      No		EPA facility ID # _____	
Waste classification completed		Weekly inspection performed	
Waste containers present		Disposal arrangements made	
Containers labeled		Storage time limits	
Tools for containing release present		Records maintained at location	
Emergency response plan present			
SECTION VI - SIGNATURE			
Supervisor (competent person) _____		(Signature)	(Date)

**LEAD REMOVAL MATERIAL CHECK LIST**

	Air Hose(s)
	Bucket(s)
	Body Harness
	Black Poly
	Clear Poly
	Chemical Remover
	Disposable Coveralls with hoods, shoe covers, etc.
	Duct Tape
	Electric Grinder(s) with vacuum attachments
	Extension Cord(s)
	Fire Extinguisher(s)
	Enclosures - Plywood, 2 x 4s
	Ground Fault Circuit Interrupter(s)
	HEPA Vacuum (s)
	Hand Tools (scrapers, knives, brushes, sprayer/pressure washer, etc.)
	Hot Work Permit(s)
	Ladder(s)
	Lead Barrier Tape
	Lead Warning Sign(s)
	Needle Gun(s) with vacuum attachments
	Respirator(s)
	Tarpaulin(s)
	Traffic Cone(s)
	Vacuum Hose(s)
	Wipe Cloth(s)

**WASTE SAMPLING AND TESTING PROCEDURE**

1. Mandatory Protocol

- a) All waste sampling and testing for disposal shall adhere to *ASTM Standard E 1908 - 97 - Standard Guide for Sample Selection of Debris Waste from a Building Renovation or Lead Abatement Project for Toxicity Characteristic Leaching Procedure (TCLP) Testing for Leachable Lead (Pb)*.
- b) All waste sampling and testing for disposal shall be coordinated with the Corporate Safety Department and performed in conjunction with the Regional Safety Manager.

2. Laboratory Analysis

- a) Samples are submitted to an American Industrial Hygiene Association (AIHA) accredited laboratory for metals analysis or other qualified laboratory.
- b) Any one sample testing as hazardous will cause the debris to be classified as hazardous.
- c) Waste is classified as hazardous if after testing by the Toxicity Characteristic Leaching Procedure (TCLP), the leachate contains any of the 8 Resource Conservation and Recovery Act (RCRA) metals or other hazardous substances in concentrations above the limits established in 40 CFR 261:

<u>EPA ID No.</u>	<u>METAL</u>	<u>LEACHATE THRESHOLDS</u>
D004	Arsenic	5.0 mg/L
D005	Barium	100.0 mg/L
D006	Cadmium	1.0 mg/L
D007	Chromium	5.0 mg/L
D008	Lead	5.0 mg/L
D009	Mercury	0.2 mg/L
D010	Selenium	1.0 mg/L
D011	Silver	5.0 mg/L

- e) Other substances or knowledge of process or the waste source are taken into account which may cause debris to be classified as hazardous waste as defined in 40 CFR Part 261.
- f) If the waste is hazardous, it must be disposed in a hazardous waste permitted facility. The facility selected for disposal will provide the sampling and analysis requirements necessary to meet their waste profile requirements.

3. Reporting

- a) Written documentation of the waste sampling shall include the following information:



- i. Name and location of job site
  - ii. Date and time of sample collection
  - iii. Sampling methodology
  - iv. Number of containers sampled, number of samples taken and number of samples analyzed
  - v. Chain of custody form
  - vi. Name and address of laboratory used
  - vii. Laboratory test procedure utilized
  - viii. Laboratory test results, expressed in mg/L
  - ix. Name(s) of the person collecting the samples.
- b) Copies of all records relating to sampling, testing, and project specific requirements are to be forwarded to the Risk Management Department for long term retention for (30 years whether waste is hazardous waste or non-hazardous waste).

ORM-D  
**HAZARDOUS  
WASTE**

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL  
IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY  
AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY

---

PROPER D.O.T.  
SHIPPING NAME HAZARDOUS WASTE SOLID N.O.S. D008/NA 3077

MANIFEST DOCUMENT# PA960001

GENERATOR Pacific Union Company

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

EPA ID NO. PA-96-4242424      MANIFEST NO. J888888888

DATE OF  
ACCUMULATION 5/25/98      EPA WASTE NO. D008

CONTAINS HAZARDOUS OR TOXIC WASTE  
**HANDLE WITH CARE**

---

# HAZARDOUS WASTE

FEDERAL LAW PROHIBITS IMPROPER DISPOSAL.  
IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY  
AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY.

GENERATOR INFORMATION:

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_ PHONE \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_

EPA /MANIFEST  
ID NO./ DOCUMENT NO. \_\_\_\_\_ / \_\_\_\_\_

ACCUMULATION START DATE \_\_\_\_\_ EPA WASTE NO. \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

D.O.T. PROPER SHIPPING NAME AND UN OR NA NO. WITH PREFIX

## HANDLE WITH CARE!

STYLE WM6

Printed by LABELMASTER, Div. of AMERICAN LABELMARK CO., CHICAGO, IL 60646 (800) 621-5808

## WORKPLACE ACCUMULATION CONTAINER

<p>Proper D.O.T. Shipping Name: _____</p> <p>UN or NA# _____</p> <p>Generator Information:</p> <p>Name: _____</p> <p>Facility: _____</p> <p>Address: _____</p> <p>Phone: _____</p> <p>City: _____</p> <p>State: _____ Zip: _____</p> <p>EPA / Manifest ID No. / Document No. _____</p> <p>State Manifest Document No. _____</p> <p>EPA Waste No. _____</p>	<h3>HAZARDOUS WASTE</h3> <p>FEDERAL LAW PROHIBITS IMPROPER DISPOSAL.</p> <p>IF FOUND, CONTACT THE NEAREST POLICE OR PUBLIC SAFETY AUTHORITY OR THE U.S. ENVIRONMENTAL PROTECTION AGENCY.</p> <h3>HANDLE WITH CARE!</h3>	<p>Workplace Accumulation Start Date: <input style="width: 100px; height: 20px;" type="text"/></p> <p>Waste Accumulation Area: <input style="width: 100px; height: 20px;" type="text"/></p> <p style="text-align: center;"><b>MANEJESE CON CUIDADO CONTIENE DESPERDICIOS TOXICOS</b></p>
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<b>Fiberglass &amp; Mineral Wool Products Handling</b>	Issue Date: January 2001 Revised: December 2006 Issued By: Safety Dept.
Safety Directive No. 8.3	Page 1 of 2

## 1 **PURPOSE AND SCOPE**

The company will take all necessary measures to assure the safe use and handling of fiberglass and mineral wool products.

## 2 **REFERENCES**

- 2.1 OSHA General Industries Standard 1910.134 Respiratory Protection.
- 2.2 Insulation Fact Sheet # 62 "Health and Safety Facts for Fiberglass", North American Insulation Manufacturers Association, Publication No. 40 Dated Feb 2002.
- 2.3 Insulation Fact Sheet # 59 "Exposure Data for Fiberglass, Rock Wool and Slag Wool under the Health and Safety Partnership Program," North American Insulation Manufacturers Association, Publication No. 39 Dated Nov 2001.
- 2.4 Thermal Insulation Manufacturers Association Publication "Health and Safety Aspects of Fiber Glass" TIMA-048, "Recommended Health Safety Work Practices for Handling and Applying Glass Fiber Products" TIMA-019 and "Facts About Man-Made Vitreous Fibers" TIMA-006 Dated October 1987. See also CSG Reference Bulletin Dated February 1988.

## 3 **DEFINITIONS**

SVF – Synthetic Vitreous Fibers

## 4 **RESPONSIBILITIES**

- 4.1 Supervisors shall assure that all affected employees are trained in this procedure.

## 5 **PROCEDURES**

- 5.1 3M™ models 8210 N95, 8240 N95 (used in high humidity), or 8233 N100 (HEPA) particulate respirator, or equivalent, must be worn when handling these products in the following circumstances:
  - a) When performing fabrications involving power tools
  - b) When installing loose fill
  - c) When spray applying the product
  - d) When removing a previously installed product
  - e) When working in any other dusty working environment
  - f) When working in confined or poorly ventilated space
  - g) Exposure exceeds 1 f/cc measured as an 8-hour time-weighted average.
- 5.2 When respirators are worn, they must be fit tested according to manufactures' instructions. Refer to the Respiratory Protection Program, Safety Directive No. 3.3 for all requirements.

<b>Fiberglass &amp; Mineral Wool Products Handling</b>	Issue Date: January 2001 Revised: December 2006 Issued By: Safety Dept.
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- 5.3 Waste disposal equipment should be kept as close to working areas as possible, to avoid unnecessary handling of scrap materials. Scrap material and debris should be cleaned up frequently. On projects where excess debris is expected, clean up should be performed at a minimum, at the end of each shift.
- 5.4 Employees working with fiberglass or mineral wool products (classified as synthetic vitreous fibers - SVF) must be instructed concerning implementation of these procedures.
- 5.5 Employees should also be instructed that their work clothing should be washed separately to prevent fibers from being transferred to other clothing. The washing machine should be rinsed thoroughly after laundering the work clothes, and the clothes should be presoaked and rinsed prior to laundering if there is a lot of fiber on them.
- 5.6 In addition, all workers should be told that one manufacturer, USG, advises that workers who use these fibers should not smoke.
- 5.7 Long-sleeved loose-fitting clothing of materials that do not retain dust, should be worn.
- 5.8 Gloves and safety glasses should also be worn.
- 5.9 After external exposure, affected areas should be washed gently with soap and warm water. If skin irritation develops and persists, use of a good commercial skin cream or lotion afterwards is recommended.

## 6 **RECORDKEEPING**

Employee training records for SVF must be kept for three (3) years.

## 7 **ATTACHMENTS**

None

<b>Refractory Ceramic Fiber (RCF)</b>	Issue Date: January 2001 Revised: December 2006 Issued By: Safety Dept.
Safety Directive No. 8.4	Page 1 of 5

## 1 **PURPOSE AND SCOPE**

The Company will take all necessary measures to assure the safe use, handling, storage and disposal of refractory ceramic fiber (RCF) products.

Exposures can occur whenever employees are installing or removing materials containing RCF. This safety directive has been developed to minimize exposure to dust in the form of airborne fibers. Exposure to airborne dust containing crystalline silica is possible during activities such as repair or removal of after-service insulation fibers. However, analysis of data associated with after-service RCF furnace lining removals has revealed only minimal workplace exposure to crystalline.

## 2 **REFERENCES**

- 2.1 “Safe Management of Industrial Fiber” Refractory Ceramics Fibers Coalition (RCFC) Unifrax Corporation, Niagara Falls, NY, dated October 1996
- 2.2 “Product Stewardship Program “ (PSP 2002) Unifrax Corporation
- 2.3 Material Safety Data Sheet (No. M0001- dated 03/09/2004) for Refractory Ceramic Fiber Products, Unifrax Corporation.
- 2.4 “Respirable Crystalline Silica Exposure Associated with the Installation and Removal of RCF and Conventional Silica-Containing Refractories in Industrial Furnaces, Regulatory Toxicology and Pharmacology 29, 44-63 (1999)

## 3 **DEFINITIONS**

- 3.1 Refractory Ceramic Fibers(RCF) – are part of a family of man-made vitreous fibers, including fibrous glass and mineral wools. RCF is an amorphous glass fiber composed of roughly 50% amorphous silica (SiO<sub>2</sub>) and 50% alumina (Al<sub>2</sub>O<sub>3</sub>) and does NOT contain crystalline silica as produced, but can partially devitrify and form quartz and cristobalite after being heated. RCF is used synonymously with common names of Kao-wool and cerafiber among others and is used for higher temperature insulation application than fibrous glass or mineral wool.
- 3.2 After-Service – A term used to identify refractory ceramic fiber materials that have been used at temperatures over 1800 degrees F (982 degrees C) for extended periods of time. Devitrification is the process of change in a fiber from an amorphous (glassy), non-crystalline structure to a crystalline structure.
- 3.3 Crystalline Silica – A naturally occurring mineral, chemically defined as SiO<sub>2</sub> Silica Dioxide . Quartz and cristobalite are both forms of crystalline silica and have been designated as a carcinogen (Group 1) to humans by the International Agency for Research on Cancer (IARC). Installation of RCF does NOT result in respirable crystalline silica exposure. Exposure to respirable crystalline silica from removal of

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after-service insulation has shown airborne 8-hr TWA concentrations at or below limits of detection.

- 3.4 Recommended Exposure Guideline (REG) – This guideline of one half fiber per cubic centimeter (0.5 f/cc) averaged over an 8- hr workshift has been established, independent of any federal regulations, by the RCFC. OSHA PEL – None.

#### 4 **RESPONSIBILITIES**

- 4.1 Supervisors shall assure that they identify unknown fibrous materials prior to removal and follow this safety directive to install or removal of RCF materials. Supervisors shall ensure all affected employees are trained in this procedure and meet the respiratory protection requirements including medical evaluation, fit testing and training.

#### 5 **PROCEDURE**

##### 5.1 Health Hazards of Refractory Ceramic Fiber

- 5.1.1 RCF can be irritating to the respiratory tract (nose and throat) skin and eyes. Individuals who have allergies may experience greater amounts of irritation.
- 5.1.2 To date, studies of RCF workers have not shown significant long term health effects attributed to exposure to RCF. Extensive lifetime inhalation studies of rodents have shown that very high levels of exposure to RCF can cause lung scarring (fibrosis) and tumors. RCF has maintained the classification by IARC in October 2001 of a 2B “possible carcinogenic to humans” while fibrous glass and mineral wool have been downgraded and reclassified as a 3 “not classifiable as to human carcinogenicity”.
- 5.1.3 RCF materials do NOT contain crystalline silica as produced and therefore there is no exposure during installation. Exposure to airborne dust containing crystalline silica is possible during activities associated with after-service fibers (e.g., repair or removal of after-service man-made mineral fibers). Analysis of data associated with 42 different after-service RCF furnace lining removal projects has revealed only minimal work place exposure to crystalline silica. Nine-one (91%) of samples collected did not detect crystalline silica.

##### 5.6 Respiratory Protection

- 5.3.1 Respirators – For all projects involving the installation and removal of RCF materials, respiratory protection is required to be worn. The following table is provided to determine the required level of respiratory protection.

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<b>Respirable Airborne Fiber Concentration</b>	<b>Respirator</b>
Not yet determined but expected to be below 5.0 f/cc	Half-mask, air purifying respirator equipped with NIOSH certified P-100 (HEPA) particulate filter cartridge * Minimum respirator required by Company
0.5 f/cc to 5.0 f/cc	Half-mask, air purifying respirator equipped with NIOSH certified P-100 (HEPA) particulate filter cartridge
5 to 25 f/cc	Full facepiece, air purifying respirator equipped with NIOSH certified P-100 (HEPA) particulate filter cartridge or PAPR *
> 25 f/cc	PAPR with tight-fitting full face piece or a supplied air respirator in continuous flow mode

Notes:

- (a) Manufacturer's currently recommend an exposure limit of 0.5 f/cc for respirable airborne ceramic fiber measured as an 8-hour time weighted average exposure.
- (b) Manufacturers recommends the use of a full-facepiece air purifying respirator equipped with P-100 filter cartridge during furnace tear-out events (i.e. large tear-out projects) and the removal of used RCF to control exposures to airborne fiber and the potential presence of crystalline silica.
- (c) The single use disposable "dust respirators" N95 e.g. 3M 8210 is not permitted
- (d) Ensure all workers receive a medical evaluation (respiratory medial clearance) and a respirator fit test. Refer to Safety Directive 3.3 "Respiratory Protection Program".

5.3.2 Air monitoring tests should be conducted as necessary to determine airborne concentrations when selecting appropriate respiratory protection. Airborne fiber concentrations are determined by time weighted air samples collected and analyzed using NIOSH Method 7400 ("B" counting rules). Exposures are expressed as 8- hour time weighted averages. The Regional Manager Safety and Health must be consulted concerning implementation of company air monitoring procedures.

## 5.7 General Recommended Work Practices

### 5.3.1 When installing RCF products:

- a) Use engineering controls, such as local exhaust or dust collection systems to minimize airborne dust. Wear the appropriate respirator.
- b) Limit the use of power tools unless in conjunction with local exhausts. Use hand tools whenever possible.



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- c) Clean up with high efficiency particulate air (HEPA) filtered vacuum or wet sweeping.
- d) Long-sleeved shirts, loose at the neck and wrist, along with long pants and cap will protect the skin area from coming in contact with ceramic fiber. Loose clothing also helps prevent fibers from rubbing into the skin.

5.3.2 When removing RCF products:

- a) Wear the appropriate respirator
- b) Dampen the insulation with a light water spray before and during the work unless such wetting creates a hazard to workers.
- c) Do not use compressed air to clean up or remove dust and materials from the surfaces or clothing. Clean-up techniques should include vacuuming with a vacuum fitted with a HEPA filter, wet sweeping or damp mopping.
- d) Where necessary, use plastic drop sheets or similar materials to prevent the spread of RCF dust to other work areas.
- e) For large tear-out projects, disposable coveralls are preferred.

5.3.3 Do not smoke, eat or drink in the work area.

5.3.4 Workers must wash hands and face before eating, drinking or smoking. Break and lunch areas will be thoroughly cleaned before eating, drinking or smoking. Workers must refrain from smoking, eating or drinking in the work area.

5.8 Training – All workers should receive training in the following:

- a) Potential hazards associated with RCF products
- b) Work practices that protect you from potential hazards
- c) Use and limitations of respiratory protection
- d) A video tape produced by the RCFC is available from the safety dept for training.

5.9 Waste Management - Waste generated during tear out of ceramic fiber is not hazardous waste as defined by the Environmental Protection Agency (RFC 40 CFR Part 261). Method of disposal - landfill.

5.10 Special After-Service Exposure Considerations

- 5.5.1 Ceramic fiber poses an additional health concern in its "after-service" state due to the formation of crystalline silica (cristobalite). Crystalline silica has been classified as a human carcinogen and can cause lung damage (silicosis) when breathed in excessive concentrations. Ceramic fiber which has been in service at elevated temperatures (greater than 2200 degrees F may undergo a partial conversion to cristobalite, a form of crystalline silica which can cause respiratory disease (silicosis). This is a consequence of the crystallization or devitrification of the fibers which occurs at high temperatures.

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5.5.2 Analysis of data associated with after-service RCF furnace linings has revealed only minimal workplace exposures to crystalline silica. Contact the Safety Department to discuss particular project exposure conditions.

5.5.3 The only definite way to determine if the formation of cristobalite has occurred is to have a bulk sample analyzed.

5.6 Waste Management - Waste generated during tear out of ceramic fiber is not hazardous waste as defined by the Environmental Protection Agency (RFC 40 CFR Part 261). Method of disposal - landfill.

## 6 **RECORDKEEPING**

None

## 7 **ATTACHMENTS**

None

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\* NOTE: A vertical line on the right side of the page indicates a revision, e.g. paragraph 4.3.

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## **PURPOSE AND SCOPE**

- 1.1 To establish standard operating procedures and guidelines for the safe removal, handling, disposal and mitigation of mold contaminated materials. Many fungi (mold) at elevated levels in indoor environments have been identified as toxic agents or may cause or exacerbate symptoms of allergies such as wheezing, chest tightness, shortness of breath, nasal congestion and eye irritation.
- 1.2 It is the objective of the Company to implement standard operating procedures for the handling and disposal of mold contaminated materials to protect the health and safety of building occupants and the Company workers. Currently, there are no U.S. Federal, State or municipal regulations for evaluating the potential health effects of mold contamination and remediation.
- 1.3 These procedures address mold contamination of building components (walls and wall cavities, ventilation systems, support beams, windows, etc.) furniture and other household contents that are chronically moist or damaged by “clean” water. If the water source is known or suspect to be contaminated with sewage or chemical or biological pollutants, the Company’s Safety and Health Department must be consulted.

## **2 REFERENCES**

- 2.1 *Guidelines on Assessment and Remediation of Fungi in Indoor Environments*, New York City Department of Health, April 2000.
- 2.2 *Bioaerosols: Assessment and Control*, American Conference of Governmental Industrial Hygienists. ISBN 1-882417-29-1. 1999.
- 2.3 *Mold Remediation in Schools and Commercial Buildings*, U.S. EPA, Office of Air and Radiation Indoor Environments Division, EPA 402-K-01-001, March 2001.

## **3 DEFINITIONS**

- 3.1 Allergen – Substance (such as mold) that can cause an allergic reaction.
- 3.2 Levels of Abatements (Refer to Section 6 for details)
  - 3.2.1 *Level I*: Small Isolated Areas ( 10 sq. ft. or less) e.g. ceiling tiles, small areas on walls.
  - 3.2.2 *Level II*: Mid-Sized Isolated Areas (10 – 30 sq. ft. ) e.g., individual wallboard panels.

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- 3.2.3 *Level III: Large Isolated Areas (30 – 100 sq. ft.)* e.g., several wallboard panels. A safety and health professional with experience performing microbial investigations should be consulted prior to remediation activities to provide third-party oversight for the project.
- 3.2.4 *Level IV: Extensive Contamination (> 100 continuous sq. ft. in the area)* A safety and health professional with experience performing microbial investigations should be consulted prior to remediation activities to provide third-party oversight for the project.
- 3.2.5 *Level V: Remediation of HVAC Systems*
- a. A Small Isolated Area Of Contamination (<10 sq. ft.) in the HVAC System
  - b. Areas of Contamination (> 10 sq. ft.) in the HVAC System. A safety and health professional with experience performing microbial investigations should be consulted prior to remediation projects involving more than an isolated area in a HVAC system to provide third-party oversight for the project
- 3.3 Competent Person - means one who is capable of identifying existing mold hazards in the workplace and selecting the appropriate control strategy for mold exposure. One who has the authority to take prompt corrective measures to eliminate them, who has successfully completed a training course which meets the criteria of *Indoor Air Quality Association* for supervisor, or its equivalent, and who otherwise meets the criteria set out in Section 5.5 below.
- 3.4 Critical Barriers - means one or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne fungi in a work area from migrating to an adjacent area.
- 3.5 Fungi - are neither animals nor plants and are classified in a kingdom of their own. Fungi include molds, yeast, mushrooms and puffballs. In this safety directive, the terms fungi and mold are used interchangeably.
- 3.6 Mold – A subset of the group “fungi”, which includes yeasts and mildews and are ubiquitous on earth. Molds grow on cloth, carpets, leather, wood, sheet rock, and insulation when moist conditions exist and reproduce by making spores. Mold spores or fragments that become airborne can expose people indoors through inhalation or skin contact creating health effects involving allergy, infection, irritation (mucous membrane and sensory), and toxicity. Refer to 7.1 for additional information on the *Health Effects and Symptoms Associated with Mold Exposure*.
- 3.7 Moisture Meter – a device used to determine if the building materials are dry prior to remediation measures.

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- 3.8 Negatively Pressurized Containment – To control airflow, worker traffic patterns and prevent cross contamination of work areas. HEPA filtered negative air devices shall be installed in the containment areas to maintain a negative pressure.
- 3.9 Regulated Area – A controlled area, limited to authorized personnel, that is demarcated and segregated from the areas of the facility where mold contaminated materials is being disturbed.

#### 4 **RESPONSIBILITIES**

##### 4.1 **EMPLOYEE**

- 4.1.1 Know the health hazards associated with exposure to mold and the selection of appropriate PPE.
- 4.1.2 Wear proper protective equipment and follow recommended work practice controls as identified in the Mold Mitigation Plan when working in a Regulated Area.
- 4.1.3 Properly wear monitoring equipment for the instructed time when requested.
- 4.1.4 Report all unsafe conditions and activities to your supervisor.

##### 4.2 **SUPERVISORS**

- 4.2.1 Owner/Customer or third party consultant shall determine prior to the performance of the job whether mold is present.
- 4.2.2 Ensure the workers have received proper training (See Section 5.4) and have obtained a medical evaluation to wear a respirator.
- 4.2.3 Ensure that all employees wear the required protective work clothing and personal protective equipment (PPE) and are trained in the use and appropriate control methods and work practices.
- 4.2.4 Ensure that proper hygiene facilities are provided and that employees are trained and use those facilities.
- 4.2.5 Ensure that engineering controls are designed, operated and maintained properly.
- 4.2.6 Demarcate mold work areas and take effective measures to reduce mold hazards.
- 4.2.7 Document ventilation specification and checks to verify the performance of any mechanical ventilation.

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#### 4.3 SAFETY & HEALTH DIRECTOR/MANAGER

Audit work being conducted to assure exposure monitoring is performed, work procedures and controls are followed, and regulated areas are established as required. In addition, ensure adequacy of any employee monitoring data and exposure assessments.

#### 4.4 CONSTRUCTION/PROJECT MANAGER

- 4.4.1 Ensure that a Competent Person meeting the training requirements in Section 5.5 is assigned to each branch office when performing mold abatement projects and that evidence of required training has been documented and made available for inspection.
- 4.4.2 If sub contractors are used for mold abatement verify that they meet or exceed all requirements as related to this procedure.
- 4.4.3 Ensure all records of exposure assessments and respirator medical clearances are maintained in the Lancaster Office for extended retention: Minimum 30 years.

### 5 GENERAL PROCEDURES

#### 5.1 PROJECT START-UP

- 5.1.1 Review the environmental assessment performed by the third-party consultant and the mold mitigation plan to ensure a thorough understanding of the scope, hazards and project requirements. The mold mitigation plan shall be revised as necessary if more damage is discovered during remediation.
- 5.1.2 Asbestos and Lead– Due to the age of some buildings, asbestos and/or lead-based paint may be present in numerous materials. Samples must be collected to determine asbestos and lead content in certain materials in the loss area. Results of the asbestos and/or lead testing must be included in the environmental assessment report as well as referenced in the Mold Mitigation Plan.
- 5.1.3 Any tasks involving disturbance and/or removal of asbestos containing materials or lead-based paint must adhere to applicable regulations and Company Safety Directives.
- 5.1.4 Notification – Some states (e.g., CA) and local governments may have special regulations covering mold abatement. In particular, provisions regarding contractor licensing, supervisor certification, employee training and notification requirements could exist. These issues should be discussed in the review process noted above in 5.1.1.



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5.1.5 Hazard Communication – When fungal growth requiring large-scale remediation is warranted, the building owner, facilities management and/or the employer should notify occupants in the affected area (s). Group meetings held before and after remediation with full disclosure of plans and results can be an effective communication mechanism and are an essential component of all remedial efforts. If warranted, **the Project Manager shall verify that building occupants have been notified.**

5.1.6 Personnel Selection – Whenever feasible, we should select employees for work on mold abatement projects who DO NOT have severe allergies or respiratory ailments or persistent health problems that appear to be related to fungi or other bioaerosol exposures. A medical evaluation will be provided to all employees required to wear a respirator.

5.1.7 HVAC System – Do not run the HVAC system if it is known or suspect that it is contaminated with mold. This should be noted in the mold mitigation plan.

## 5.2 PROJECT EXPOSURE ASSESSMENT

5.2.1 At the present time, there are NO regulatory personnel exposure limits for mold (e.g., no PEL or TLV (Threshold Limit Value)). Since there is no exposure limits, nor sufficient company data at this time to determine what is considered a “safe” level when exposed to airborne mold dust and spores, employees will be required to wear PPE for various tasks performed in the work area.

## 5.3 EMPLOYEE INFORMATION AND TRAINING

5.3.1 Employee Training - All employees who are selected to work on mold abatement projects shall be provided information and training on the hazards of mold and measures for controlling these hazards and protecting their health. The Supervisor shall ensure that training is provided in a manner that the employee is able to understand **before** work begins.

5.3.2 The content of the mold abatement training includes the following:

- a) The contents of this Safety Directive including attachments;
- b) The specific nature of the operation which could result in elevated airborne exposures levels;
- c) The purpose, proper selection, fitting, use and limitations of respirators;
- d) The purpose and contents of the mold mitigation plan in effect for the project;
- e) The engineering controls and work practices associated with the employee’s job assignment including training of employees to follow relevant good work practices/containment described in Sections 6; and,
- f) The employee’s rights of access to records under OSHA 29 CFR 1910.1020.

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### 5.3.3 Information To Employees Regarding Mold Abatement (Attachment 7.1)

- a) After this form has been reviewed and modified to reflect any specific requirements, it must be presented to all new employees prior to start-up.

## 5.4 SUPERVISOR TRAINING

5.4.1 Every Construction Manager and Project Manager, who will direct or supervise a construction site or work force involving mold abatement, shall have completed a course in mold abatement to qualify as the “Competent Person.”

5.4.2 On all projects involving mold abatement a *Competent Person* shall be assigned to each project. He or she may have other duties, but will inspect the work on a frequent and regular schedule for hazards or deficiencies. The Site Inspection Form (Attachment 7.2) may be used to ensure that oversight work performed by others has been appropriately performed.

## 5.5 PERSONAL PROTECTIVE EQUIPMENT (PPE)

5.5.1 Respiratory Protection - The Company maintains a respiratory protection program in accordance with 29 CFR 1910.134 (revised 1/8/98). Refer to the Respiratory Protection Program in the Company Safety Manual, Safety Directive No. 3.3.

Respiratory protection requirements specific to mold abatement are as follows:

- a) Half mask air-purifying (negative pressure) respirator with high efficiency particulate air (HEPA) cartridges shall be the minimum acceptable respiratory protection for mold contact activity.

NOTE: Disposable respirators commonly referred to as “dust mask” (e.g., N95 disposable) or equivalent are NOT permitted to be used since they are not considered to be a face-sealing respirator.

- b) Either a full-face respirator or powered air-purifying respirators (PAPR) with HEPA cartridges shall be used in all situations where abatement procedures are expected to generate a lot of dust (e.g., abrasive cleaning of contaminated surfaces, demolition of plaster walls) or the visible concentration of fungi is heavy (blanket coverage as opposed to patchy).
- c) The Health and Safety Director serves as the respirator program administrator and is responsible for proper implementation of the company respirator program.
- d) The Project Manager is responsible for enforcing the program.

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### 5.5.2 Protective Clothing

- a) All employees performing abatement activities must be provided with head-to-toe disposable clothing, including hoods, gloves and shoe covers. One-piece clothing is acceptable. Wearing disposable clothing is preferred. Disposable protective clothing should be used for no more than one workday and disposed of with other mold-contaminated materials.
- b) If clothing is to be worn underneath protective disposable clothing for protection against the cold weather and is not discarded at the end of the shift, it must be laundered. The abatement worker is responsible for laundering his/her personal clothing.
  1. The Company shall ensure that contaminated protective clothing is placed in a closed container in the change area that prevents dispersion of mold outside the container.
  2. If contaminated clothing is given to another person or entity for laundering, the Company shall inform in writing such person or entity of the potentially harmful effects of exposure to mold.
  3. Contaminated clothing shall be transported in sealed impermeable bags, or other closed impermeable containers and labeled with the following:

**CAUTION: CLOTHING CONTAMINATED WITH MOLD  
DO NOT REMOVE DUST BY BLOWING OR SHAKING**

- c) Mold-contaminated clothing, shoes, shoelaces, hard hats, gloves, or equipment do not go home with any Company employee unless decontaminated at the end of the project. Removal of any contaminated items from the site by Company employees is strictly prohibited. HEPA vacuums or wet methods may be used to clean workers personal items before leaving the site. HEPA vacuums are furnished for all work sites where mold contamination may be produced.

### 5.5.3 Other PPE

- a) Eye Protection – minimum eye protection is safety glasses with side shields. If considerable dust is generated, eye protection may be upgraded to goggles.
- b) Hand Protection – Gloves must be worn at all times during abatement activities. Cut resistant gloves e.g. Kevlar® or leather are required when removing walls containing metal studs or damaged windows.

## 5.6 ISOLATION AND SIGNS

- 5.6.1 Isolate removal areas with labeled barricade tape, ropes, walls, containments, or other visible means. These are designated as regulated areas or zones. Post all

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access areas that are easily visible from a distance with caution signs so that employees and bystanders can take necessary protective measures before entering the work area.

5.6.2 The warning sign(s) shall bear the following information:

<b>RESTRICTED AREA</b> AUTHORIZED PERSONNEL ONLY
--

5.6.3 Remove as much unnecessary equipment as possible. Do not permit entry into the areas of authorized personnel or any personnel taking inadequate protective measures. In some cases work may be performed after hours so as to avoid unintended contact with facility or office personnel.

## 5.7 CONTENT PACK-OUT

On large projects where the contents of the space (furniture, files, and personal household/office items) must be removed off site for decontamination prior to remediation of the space, the items are packaged and transported to the warehouse. Various operating procedures dealing with Content Pack-Out are presented in Attachment 7.4A – 7.4E. Key safety issues addressing pack-out are listed below.

- 5.7.1 Proper lifting techniques must be utilized to minimize back injuries. Materials weighing more than 50 pounds (NIOSH lifting guideline for male) require two-person lift. Back belts are not recommended for “prevention” of back injuries but may be useful for rehabilitation from back surgery as prescribed by a physician. Refer to Safety Directive No. 4.1 paragraph 5.1 and 5.2 for safe material handling techniques.
- 5.7.2 Hand Injury Prevention – Moving furniture, office equipment and household/office personal effects creates potential hazards to pinch-points and cuts to the hands and fingers, the most frequent injured body part. To prevent hand and finger injuries:
- a) Think before acting – Ask, “What are the ways that doing this job could injure my hands?”
  - b) Defensive body positioning – Keep hand out of the path of applied force.
  - c) Conscious hand placement – Never place your hand without visually confirming intended location.
  - d) Select gloves that help protect you from hazards as well as provide adequate grip.
  - e) Take care of one another – Look out for co-workers and caution them if you observe at-risk behaviors.

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## 6 REMEDATION PROCEDURES

### 6.1 GENERAL

- 6.1.1 In all situations, the underlying cause of water accumulation must be rectified or fungal growth will recur. Any initial water infiltration should be stopped and cleaned immediately. An immediate response (within 24 to 48 hours) and thorough clean up, drying, and/or removal of water damaged materials will prevent or limit mold growth. If the source of water is elevated humidity, relative humidity should be maintained at levels below 60% to inhibit mold growth. Emphasis should be on ensuring proper repairs of the building infrastructure, so that water damage and moisture buildup does not recur.
- 6.1.2 The goal of remediation is to remove or clean contaminated materials in a way that prevents the emission of fungi and dust contaminated with fungi from leaving a work area and entering an occupied or non-abatement area, while protecting the health of workers performing the abatement.
- 6.1.3 Five different levels of abatement are described below. The size of the area impacted by fungal contamination primarily determines the type of remediation. The sizing levels below are based on professional judgment and practicality. Currently there is not adequate data to relate the extent of contamination to frequency or severity of health effects.
- 6.1.4 The listed remediation methods were designed to achieve this goal, however, due to the general nature of these methods it is the responsibility of the Project Manager conducting remediation to ensure the methods enacted are adequate. **The Project Manager will use professional judgment and experience to adapt the listed remediation methods to particular situations.** The listed remediation methods are not meant to exclude other similarly effective methods. Any changes to the remediation methods listed below, however, should be carefully considered prior to implementation. Refer to 7. 3 for a Material Removal Checklist.

**NOTE:** In the vast majority of projects performed by the Company, the mold mitigation plan as established by the third-party consultant will determine the appropriate remedial actions.

- 6.1.5 Non-porous (e.g., metals, glass, and hard plastics) and semi-porous (e.g., wood, and concrete) materials that are structurally sound and are visibly moldy can be cleaned and reused. Cleaning should be done using a detergent solution. Porous materials such as ceiling tiles and insulation, and wallboards with more than a small area of contamination should be removed and discarded. Porous materials (e.g., wallboard, and fabrics) that can be cleaned, can be reused, but should be discarded if possible. A professional restoration consultant should be contacted when restoring porous materials with more than a small area of fungal

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contamination. All materials to be reused should be dry and visibly free from mold. Routine inspections should be conducted to confirm the effectiveness of remediation work.

6.1.6 The use of gaseous ozone or chlorine dioxide for remedial purposes is prohibited. Both compounds are highly toxic, require supplied air respirator protection during application and contamination of occupied space may pose a health threat. Furthermore, the effectiveness of these treatments is unproven.

6.1.7 A health and safety professional with experience performing microbial investigations shall be consulted prior to remediation activities for Level III- V to provide oversight for the project.

6.2 Level I: Small Isolated Areas (10 sq.ft. or less) – e.g. ceiling tiles, small areas on walls

6.2.1 PPE - Respiratory protection (half-face respirator with HEPA cartridges). Gloves and eye protection should be worn.

6.2.2 The work area should be unoccupied. Vacating people from spaces adjacent to the work area is not necessary but is recommended in the presence of infants (less than 12 months old), persons recovering from recent surgery, immune suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).

6.2.3 Containment of the work area is not necessary. Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.

6.2.4 Contaminated materials that cannot be cleaned should be removed from the building in a sealed plastic bag. There are no special requirements for the disposal of mold-contaminated materials.

6.2.5 The work area and areas used by remedial workers for egress should be cleaned with a damp cloth and/or mop and a detergent solution.

6.2.6 All areas should be left dry and visibly free from contamination and debris.

6.3 Level II: Mid-Sized Isolated Areas (10 – 30 Sq.ft.) – e.g. individual wallboard panels.

6.3.1 PPE - Respiratory protection (half-face respirator with HEPA cartridges). Gloves and eye protection should be worn.

6.3.2 The work area should be unoccupied. Vacating people from spaces adjacent to the work area is not necessary but is recommended in the presence of infants (less

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than 12 months old), persons recovering from recent surgery, immune suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).

- 6.3.3 The work area should be covered with a plastic sheet(s) and sealed with tape before remediation, to contain dust/debris.
  - 6.3.4 Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.
  - 6.3.5 Contaminated materials that cannot be cleaned should be removed from the building in sealed plastic bags. There are no special requirements for the disposal of moldy materials.
  - 6.3.6 The work area and areas used by remedial workers for egress should be HEPA vacuumed (a vacuum equipped with a High-Efficiency Particulate Air filter) and cleaned with a damp cloth and/or mop and a detergent solution.
  - 6.3.7 All areas should be left dry and visibly free from contamination and debris.
- 6.4 Level III: Large Isolated Areas (30 – 100 sq.ft.) – e.g., several wallboard panels
- 6.4.1 Respiratory protection (half-face respirator with HEPA cartridges). Gloves and eye protection should be worn.
  - 6.4.2 The work area and areas directly adjacent should be covered with a plastic sheet(s) and taped before remediation, to contain dust/debris.
  - 6.4.3 Seal ventilation ducts/grills in the work area and areas directly adjacent with plastic sheeting.
  - 6.4.4 The work area and areas directly adjacent should be unoccupied. Further vacating of people from spaces near the work area is recommended in the presence of infants (less than 12 months old), persons having undergone recent surgery, immune suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).
  - 6.4.5 Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.
  - 6.4.6 Contaminated materials that cannot be cleaned should be removed from the building in sealed plastic bags. There are no special requirements for the disposal of moldy materials.

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6.4.7 The work area and surrounding areas should be HEPA vacuumed and cleaned with a damp cloth and/or mop and a detergent solution.

6.4.8 All areas should be left dry and visibly free from contamination and debris.

If abatement procedures are expected to generate a lot of dust (e.g., abrasive cleaning of contaminated surfaces, demolition of plaster walls) or the visible concentration of the fungi is heavy (blanket coverage as opposed to patchy), then remediation procedures for Level IV should be followed.

6.5 Level IV: Extensive Contamination (>100 contiguous sq.ft in an area)

6.5.1 Personnel trained in the handling of hazardous materials (e.g., asbestos, mold) equipped with:

- a) Full-face respirators with high efficiency particulate air (HEPA) cartridges
- b) Disposable protective clothing covering both head and shoes
- c) Gloves and safety glasses with sideshields or goggles if excessive dusts.

6.5.2 Containment of the affected area

- a) Complete isolation of work area from occupied spaces using plastic sheeting sealed with duct tape (including ventilation ducts/grills, fixtures, and any other openings)
- b) The use of an exhaust fan with a HEPA filter to generate negative pressurization
- c) Airlocks and decontamination room

6.5.3 Vacating people from spaces adjacent to the work area is not necessary but is recommended in the presence of infants (less than 12 months old), persons having undergone recent surgery, immune suppressed people, or people with chronic inflammatory lung diseases (e.g., asthma, hypersensitivity pneumonitis, and severe allergies).

6.5.4 Contaminated materials that cannot be cleaned should be removed from the building in sealed plastic bags. The outside of the bags should be cleaned with a damp cloth and a detergent solution or HEPA vacuumed in the decontamination chamber prior to their transport to uncontaminated areas of the building. There are no special requirements for the disposal of moldy materials.

6.5.5 The contained area and decontamination room should be HEPA vacuumed and cleaned with a damp cloth and/or mop with a detergent solution and be visibly clean prior to the removal of isolation barriers.

6.5.6 Air monitoring should be conducted prior to occupancy to determine if the area is fit to reoccupy.



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## 6.6 Level V: Remediation of HVAC System

### 6.6.1 A Small Isolated Area of Contamination (<10 sq. ft) in the HVAC System

- a) Respiratory protection (half-face respirator with HEPA cartridges). Gloves and eye protection should be worn.
- b) The HVAC system should be shut down prior to any remedial activities.
- c) The work area should be covered with a plastic sheet(s) and sealed with tape before remediation, to contain dust/debris.
- d) Dust suppression methods, such as misting (not soaking) surfaces prior to remediation, are recommended.
- e) Growth supporting materials that are contaminated, such as the paper on the insulation of interior lined ducts and filters, should be removed. Other contaminated materials that cannot be cleaned should be removed in sealed plastic bags. There are no special requirements for the disposal of moldy materials.
- f) The work area and areas immediately surrounding the work area should be HEPA vacuumed and cleaned with a damp cloth and/or mop and a detergent solution.
- g) All areas should be left dry and visibly free from contamination and debris.
- h) HVAC manufacturers for use with HVAC components recommend a variety of biocides. such as, cooling coils and condensation pans. HVAC manufacturers should be consulted for the products they recommend for use in their systems. Consult the MSDS for the correct PPE to wear. Note. A pesticide applicator's license is NOT required to spray biocides/disinfectants.

### 6.6.2 Areas of Contamination (>10 sq. ft.) in the HVAC System

- a) Personnel trained in the handling of hazardous materials equipped with:
  1. PPE Respiratory protection (half-face respirator with HEPA cartridges). Gloves and eye protection must be worn.
  2. Full-face respirators with HEPA cartridges and disposable protective clothing covering both head and shoes should be worn if contamination is greater than 30 square feet.
- b) The HVAC system should be shut down prior to any remedial activities.
- c) Containment of the affected area:

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1. Complete isolation of work area from the other areas of the HVAC system using plastic sheeting sealed with duct tape.
  2. The use of an exhaust fan with a HEPA filter to generate negative pressurization.
  3. Airlocks and decontamination room if contamination is greater than 30 square feet.
- d) Growth supporting materials that are contaminated, such as the paper on the insulation of interior lined ducts and filters, should be removed. Other contaminated materials that cannot be cleaned should be removed in sealed plastic bags. When a decontamination chamber is present, the outside of the bags should be cleaned with a damp cloth and a detergent solution or HEPA vacuumed prior to their transport to uncontaminated areas of the building. There are no special requirements for the disposal of moldy materials.
  - e) The contained area and decontamination room should be HEPA vacuumed and cleaned with a damp cloth and/or mop and a detergent solution prior to the removal of isolation barriers.
  - f) All areas should be left dry and visibly free from contamination and debris.
  - g) Air monitoring should be conducted prior to re-occupancy with the HVAC system in operation to determine if the area(s) served by the system are fit to reoccupy.
  - h) HVAC manufacturers for use with HVAC components recommend a variety of biocides/advanced cleaning systems, such as, cooling coils and condensation pans. HVAC manufacturers should be consulted for the products they recommend for use in their systems. Consult the MSDS for the proper selection of PPE.

## 6.7 AIR MONITORING

In general, personnel conducting the sampling **must** be trained in air sampling methods for microbial contaminants. An accredited microbial laboratory **must** analyze the samples.

- 6.7.1 Post Remediation Samples – Post remediation air samples shall be collected only by a third-party consultant/owner representative for all Level III through Level V projects prior to occupancy to document the effectiveness of the cleaning and to demonstrate that post cleaning fungal levels are normal.
  - a) Containment and HEPA filtered air differentials should remain in place until it has been demonstrated that fungal levels have been reduced to acceptable post remediation levels as defined in the third party consultant mitigation mold plan.

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- b) Sampling will only be performed when the structure is visually a dust-free environment.
- c) The negative air equipment should be left on except for the 24-hour period prior to post remediation sampling. The negative air equipment should be sealed prior to shutting it off to prevent the unwanted release of spores in the equipment from being released into the indoor environment.
- d) Additional remediation or cleaning should be performed as necessary until post remediation level is achieved.

6.7.2 Documentation – Monitoring reports must include details of samples, dates, sample duration and resulting concentrations. A copy of all air monitoring results both personal and post remediation results shall be forwarded to the Risk Management Department for extended retention. OSHA regulations require these records be maintained for the duration of employment plus 30 years

## 6.8 WORK STOPPAGE AND CLEANUP

- 6.8.1 No smoking, eating, or drinking shall be permitted in the removal area.
- 6.8.2 Disposable clothing must be removed each time the employee leaves the removal area.
- 6.8.3 Separate break and lunch areas shall be totally isolated away from work areas.
- 6.8.4 Periodically vacuum/clean all areas where dust is visible. Special filters (HEPA) shall be used in all vacuums
- 6.8.5 Protective clothing must be disposed of at the end of each work period or shift.
- 6.8.6 All protective clothing, cloths, filters, filter bags and debris must be disposed of at the end of each work period or shift.
- 6.8.7 Other good housekeeping steps should be adopted where appropriate.
- 6.8.8 At the end of the job, the work area shall be inspected by the owner/consultant to ensure that all visible mold growth has been adequately removed and the underlying surface is disinfected.
- 6.8.9 Only upon verification of inspection and/or monitoring results by the third party consultant shall the workspace be released for reconstruction and subsequent re-occupancy.

## 6.9 EMERGENCY PLANNING

Employees shall be trained in evacuation procedures in the event of a workplace emergency.

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- 6.9.1 For non-life-threatening situations- employees injured or otherwise incapacitated shall decontaminate following normal procedures with assistance from fellow workers, if necessary, before exiting the workplace to obtain proper medical treatment.
- 6.9.2 For life-threatening situations injury or illness, worker decontamination shall take second priority to measures to stabilize the injured worker, remove them from the workplace and secure proper medical treatment.
- 6.9.3 In the event of mechanical emergencies such as negative air shutdown, tear in the enclosure, power failures, etc., removal activities shall stop until the emergency situation has been corrected. On site backup equipment is required for those projects where it is necessary to deal appropriately with potential emergency situations.

#### 6.10 OTHER SAFETY CONSIDERATIONS

- 6.10.1 Shut down and lock out electric power to any wall that is to be demolished. The lockout/tagout should include removing the circuit breakers that supply power to the wall that is to be demolished.
- 6.10.2 Ensure safe installation including ground faulting of temporary power sources and equipment by compliance with all applicable electrical code requirements and OSHA requirements for temporary electrical systems.
- 6.10.3 Shut down and lock out all heating, cooling and air conditioning system components that are in, supply or pass through the work area.
- 6.10.4 Avoid stringing electrical wiring across floors. Elevate wiring, if possible, to keep it away from water on the floor and damage from foot traffic and rolling scaffolding.

#### 6.11 WAREHOUSE FOR CONTENTS CLEANING AND STORAGE

On large projects the decontamination contents of the remedial space (s) are packed and transported to the warehouse or other designated storage facilities as determined by the Construction Manager. The items will be either cleaned or disposed. Protocols for warehouse cleaning operations and laundering are provided in Attachments 7.5 and 7.6. In general, the same safety precautions that are utilized in the field are followed when cleaning and decontaminating items in the warehouse. Specific safety issues relating to warehouse operations are listed below.

- 6.11.1 Housekeeping is critical. Items must be properly stored to prevent slips, trips and

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falls. Aisleways and exit doors must be kept clear. Good housekeeping is a primary ingredient in prevention of fires. Refer to Safety Directive No. 4.1 “Materials Handling, Storage, Use and Disposal. Special consideration should be given to the following material handling issues.

- a) Material handling should be performed with mechanical equipment whenever feasible. Manual lifting techniques as described in 5.2 of Safety Directive No. 4.1 must be utilized. Basic ergonomic issues should be addressed in setting up the cleaning and decontamination stations.
- b) Operators of Forklift Equipment must receive training and be certified to operate the specific equipment. Refer to Safety Directive 4.2 “Fork Trucks”.
- c) Waste Disposal – Utilize proper and timely waste disposal for non-cleanable items from accumulating.

6.11.2 Fire Safety - A warehouse full of items to be cleaned, decontaminated or disposed of requires strict attention to fire protection. Refer to Safety Directive, No. 2.1 “Fire Protection” for detailed safety precautions. In general, the following fire prevention issues must be addressed.

- a) The proper type and number of fire extinguishers must be readily available and inspected monthly. Employees must receive training in the proper use of fire extinguishers.
- b) Flammable and combustible liquids must be segregated immediately upon arrival at the warehouse and stored in fire safety cabinets.
- c) Follow proper set-up and use of supplemental temporary heating devices

6.11.3 Air Monitoring - Area air samples should be collected in the warehouse used for contents cleaning and storage to document air quality and ensure the absence of certain types of mold that produce chemicals that are known to be toxic to humans.

6.11.4 Cleaning/Decontamination Equipment. Electrical safety considerations with the installation of washing machines and ultrasonic equipment must be addressed. Installation of this equipment should include removable filters prior to the wastewater entering the municipal sewer.

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## **7 RECORDKEEPING REQUIREMENTS**

For the protection of the company, it is critical that complete records be prepared and maintained at the home office of all mold abatement operations. The following documents must be completed and forwarded to the Risk Management Department for extended retention as part of the contract file.

- 7.1 All records pertaining to respirator medical examinations and monitoring results shall be maintained by the Risk Management Department - Lancaster for the employee's length of employment plus 30 years.
- 7.2 Any other records which may be relevant to the removal operations, (i.e., state notification, specifications, job logs, diary, etc.) including pictures where necessary to facilitate documentation of the project.

<b>FORMS</b>	<b>ATTACHMENT #</b>
Information To Employee Regarding Mold Abatement	7.1
Site Inspection	7.2
Mold Removal Material Checklist	7.3
Pack-Out Procedures: P-O Scheduling Checklist	7.4A
Inspection Protocol Following Spore Remediation	7.4B
Valuable Disclaimer	7.4C
Release for Pack-By-Owner Items	7.4D
Hard/Soft Contents Inspection Release Sheet	7.4E
Protocol For Warehouse/Cleaning	7.5
Laundry Protocol	7.6

INFORMATION TO EMPLOYEES REGARDING THE REMOVAL OF  
MOLD CONTAMINATED MATERIAL

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

To: \_\_\_\_\_ S.S. # \_\_\_\_\_

BRANCH: \_\_\_\_\_

OCCUPATION OR CRAFT: \_\_\_\_\_

Contact for Respirator Evaluation: \_\_\_\_\_  
Company Rep. Phone #

You are being considered for assignment to work involving the abatement, removal or cleaning of mold contaminated materials. Many types of molds exist. All molds have the potential to cause health effects. Molds can produce allergens that can trigger allergic reactions or even asthma attacks in people allergic to mold. Others are known to produce potent toxins and/or irritants.

PRECAUTIONARY MEASURES: In order to assure maximum health protection of all employees involved, the following specific precautionary measures will be taken through the duration of the work.

1. The employee will be provided with head-to-toe disposable clothing, including hoods, gloves, and shoe covers. This clothing must be worn at all times in the removal area.
2. Each employee must wear a half-face air-purifying (negative pressure) respirator, with HEPA cartridges at all times while in the removal area.
3. Air in the removal area will be periodically monitored for the levels of mold that is airborne. Each employee is required to cooperate in all air monitoring conducted. Test results are available to each employee upon request.
4. We make available to each employee a respirator medical evaluation at our expense. In accordance with OSHA regulations, results are retained for the duration of employment plus 30 years and made available to the employee or the employee's authorized representative upon his or her request.
5. All removal areas are to be barricaded, sealed with polyethylene, and marked with "Caution " signs.
6. Removed material and all disposable clothing, cloths, vacuum debris, polyethylene and other waste will be containerized.
7. No smoking, eating or drinking shall be permitted in removal area.



8. The break and lunch areas will be separate from the work area.

You are required to follow these procedures and the other instructions of your supervisors. You are also required to inform us promptly of any violations of the above precautionary measures or other hazards you may note.

You are free to decline this work without affecting your standing with the company on any other jobs.

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

The employee refused to sign this acknowledgment that he/she received this information.

\_\_\_\_\_  
Date

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

SITE MOLD INSPECTION

DATE OF INSPECTION: \_\_\_\_\_ TIME OF INSPECTION \_\_\_\_\_

INSPECTOR (NAME): \_\_\_\_\_

SIGNATURE: \_\_\_\_\_

WORK LOCATION: \_\_\_\_\_

COMPETENT PERSON: \_\_\_\_\_ FOREMAN: \_\_\_\_\_

SHIFT (START TIME) \_\_\_\_\_ (FINISH TIME) \_\_\_\_\_

DESCRIPTION OF EMPLOYEES ON SITE: (NUMBER & JOB CATEGORY) \_\_\_\_\_

DESCRIPTION OF WORK COMPLETED (OR IN PROGRESS)/COMMENTS \_\_\_\_\_

COMPETENT PERSON REVIEW \_\_\_\_\_

SIGNATURE \_\_\_\_\_

<u>Mechanical Ventilation System</u>	Yes	No	Comments
• Running Continuously	( )	( )	_____
• Adequate duct layout	( )	( )	_____
• Visually clean of settled dust	( )	( )	_____
• Make-up air inlets operational	( )	( )	_____
• Tarps and seals intact	( )	( )	_____
• Weekly inspection performed	( )	( )	_____

<u>Work Area</u>	Yes	No	Comments
• Clearly identified	( )	( )	_____
• Signs posted	( )	( )	_____
• Periodic sampling performed	( )	( )	_____

<u>Respiratory Protection</u>	Yes	No	Comments
• Clearly identified	( )	( )	_____
• Signs posted	( )	( )	_____
• Periodic sampling performed	( )	( )	_____

<u>Personal Protective Equipment</u>	Yes	No	Comments
• Assigned work clothes, overalls worn	( )	( )	_____
• Clothing clean & in good condition	( )	( )	_____

SITE MOLD INSPECTION

(continued)

<u>Hygiene Practices</u>	<b>Yes</b>	<b>No</b>	<u>Comments</u>
• Food, beverages in lunch area only	( )	( )	_____
• All street clothing stored separate	( )	( )	_____
• Gross decon prior to leaving regulated area	( )	( )	_____
• Wash prior to eat, drink or smoke	( )	( )	_____
• Final decon/shower prior to leaving	( )	( )	_____
• Lunch, toilet & decon units clean	( )	( )	_____

<u>Housekeeping Procedures</u>	<b>Yes</b>	<b>No</b>	<u>Comments</u>
• Debris cleaned from containment	( )	( )	_____
• Visible accumulation cleaned from work area	( )	( )	_____
• Vacuum or other non-dust producing methods used	( )	( )	_____
• End of shift cleanup adequate	( )	( )	_____

<u>Air Monitoring Performed</u>	<b>Yes</b>	<b>No</b>	<u>Comments</u>
• Personal and Area – periodic	( )	( )	_____

<u>Visible Emission Noted</u>	<b>Yes</b>	<b>No</b>	<u>Comments</u>
	( )	( )	_____

<u>Waste Management</u>	<b>Yes</b>	<b>No</b>	<u>Comments</u>
• Waste Containerized	( )	( )	_____
• On-site Storage Minimized	( )	( )	_____
• Inspection of Storage Area performed	( )	( )	_____

**MOLD REMOVAL MATERIAL CHECK LIST**

<input type="checkbox"/>	Aegis Micro Shield
<input type="checkbox"/>	Air Hose(s)
<input type="checkbox"/>	Anabec system
<input type="checkbox"/>	Caution Sign(s)
<input type="checkbox"/>	Clean Rags
<input type="checkbox"/>	Clear Poly
<input type="checkbox"/>	Disposable Bags – 6 mil
<input type="checkbox"/>	Double Insulated Reciprocating Saw
<input type="checkbox"/>	Duct Tape
<input type="checkbox"/>	Enclosures - Plywood, 2 x 4s
<input type="checkbox"/>	Extension Cord(s)
<input type="checkbox"/>	Fire Extinguisher(s)
<input type="checkbox"/>	Ground Fault Circuit Interrupter(s)
<input type="checkbox"/>	Hand Tools (nylon brushes, etc.)
<input type="checkbox"/>	HEPA equipped Air Filtration Units (Minimum 1,000 CFM)
<input type="checkbox"/>	HEPA Vacuum cleaner(s)
<input type="checkbox"/>	Hot Work Permit(s)
<input type="checkbox"/>	Industrial dehumidifier (optional)
<input type="checkbox"/>	Ladder(s)
<input type="checkbox"/>	Moisture Meter
<input type="checkbox"/>	Mold Barrier Tape
<input type="checkbox"/>	Needle Gun(s) with vacuum attachments
<input type="checkbox"/>	Other (list)
<input type="checkbox"/>	Other (list)
<input type="checkbox"/>	Other (list)
<input type="checkbox"/>	PPE - Disposable Coveralls with hoods, shoe covers, nitrile gloves, work gloves, safety glasses, half-mask respirator with HEPA cartridge (Minimum)
<input type="checkbox"/>	Tarpaulin(s)
<input type="checkbox"/>	Traffic Cone(s)
<input type="checkbox"/>	Waste Storage Bins – Locked and Covered

**Purchase Order Scheduling Checklist**

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- \_\_\_\_\_ Do we have the tenants permission to enter the premises to start the pack out without the tenant being present.
- \_\_\_\_\_ Make the tenant aware that the items left in the refrigerator at the time of the pack out will be considered disposable.
- \_\_\_\_\_ Make tenant aware that the pack out may take more than one day.
- \_\_\_\_\_ Can tenant be available at the end of the day to sign inventory sheets.
- \_\_\_\_\_ Make tenant aware they need to sign the valuable disclaimer prior to starting the pack out.

Comments:

## **INSPECTION PROTOCOL FOLLOWING FUNGAL SPORE REMEDIATION OF HARD AND SOFT CONTENTS**

Industrial hygienist reviews the Salvageable Inventory List for the contents to be inspected and verifies with the restoration contractor that all contents itemized in the Salvageable Inventory List are in the lot being presented for inspection, and that there are no other contents not on the list. Note that the restoration contractor creates the Salvageable Inventory List from the Pack Out Inventory List by removing all items that contain visible mold growth and/or are otherwise deemed uncleanable from the lot of contents and the Salvageable Inventory List. Once the restoration contractor has verified that the list is accurate, the restoration contractor signs the Hard/Soft Contents Inspection Release Sheet and staples the Salvageable Inventory List to it. The industrial hygienist then initials the lower right hand corner of each page of the Salvageable Inventory Lists and notes the number of pages contained in the list on the Hard/Soft Contents Inspection Release Sheet. The Salvageable Inventory List shall contain the following statement at the bottom of each page “All lined out items have been determined to be either uncleanable or have failed the final inspection for fungal spore remediation and have been removed from the lot of contents being released.”

### Soft Contents Inspection Protocol

1. The industrial hygienist, inspector, fills out the “Hard/Soft Contents Inspection Release Sheet” with information regarding: date, unit #, and resident’s last name.
2. Industrial hygienist to examine a 10% cross section of soft contents for :
  - Uncleanable items (see attached Content Cleaning Guidelines) and
  - Cleanable items with the visible dust and/or mold, perceptible mold odor.
3. Items that are deemed uncleanable or fail the visible dust and/or mold, or perceptible mold odor test shall immediately be sealed in plastic and sequestered for insurance company inspection. All items deemed uncleanable or failing the inspection shall be deleted from the Salvageable Inventory List by drawing a single line through each failed item and putting the initials of the inspector next to each item.
4. Upon completion of the inspection the industrial hygienist signs the Hard/Soft Contents Inspection Release Sheet. The signed original remains with the industrial hygienist, with a copy going to the restoration contractors.

### Hard Contents Inspection Records

1. The industrial hygienist, inspector, fills out the “Hard/Soft Contents Inspection Release Sheet” with information regarding: date, unit #, and resident’s last name.
2. Inspector to examine a 10% cross section of the boxed and unboxed hard contents for:
  - Uncleanable items (see attached Content Cleaning Guidelines) and
  - Cleanable items with visible dust and/or mold, or perceptible mold odor.

**Valuable Disclaimer**

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

Unit # \_\_\_\_\_

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

I state that all jewelry and/or high value items (Ex. Watches, rings, small antiques, coins, firearms, prescription drugs, etc.) have been removed from the premises or immediately brought to the attention of the pack out crew (and listed below) prior to starting the pack out. (If no items disclosed write none below)

\_\_\_\_\_  
Tenants Signature

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

Items brought to the attention of the pack out crew:

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

**Release for Pack-By-Owner Items**

Tenant \_\_\_\_\_

Unit # \_\_\_\_\_

To insure that items are returned in the same condition as they were received, it is the Company's policy to pack the boxes ourselves. In the event that the tenant packs and seals boxes (or things of that nature) The Company will not be held liable for damage that results from poor packaging procedures. This means breakage during loading, transfer to cleaning facility, and unloading.

\_\_\_\_\_  
Tenant

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



**HARD/SOFT CONTENTS INSPECTION  
RELEASE SHEET**

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

Unit #: \_\_\_\_\_

Occupant last name: \_\_\_\_\_

Number of pages in attached Salvageable Inventory List: \_\_\_\_\_

The following is a description of the measures implemented to decontaminate the contents taken from the above unit/occupant at the \_\_\_\_\_ and itemized in the attached Salvageable Inventory List.

The decontamination of contents was coordinated by the Company according to the following mitigation plan:

- Disposal of all contents that are determined not to be cleanable (e.g., contents with visible mold growth or items otherwise determined to not be cleanable)
- Cleaning of all hard and soft content deemed cleanable according to the following mitigation plan:

Hard contents: HEPA vacuum and/or wet wipe to remove all visible dust (e.g. furniture, appliances etc.).

Soft contents: Dry cleaning or laundering by a professional cleaner of all soft surface contents (e.g. clothing, blankets, towels etc.).

---

All of the contents itemized in the attached Salvageable Inventory List have been decontaminated as described above and assembled for inspection.

\_\_\_\_\_  
Company Representative (printed name/signature)

And have passed the final inspection for fungal spore remediation.

\_\_\_\_\_  
Industrial Hygienist (printed name/signature)

**PROTOCOL FOR WAREHOUSE/CLEANING**

Upon arrival to warehouse, all Pack-Out items will be placed in an area determined by the foreman/supervisor.

Mattresses and sofas can be placed in an area for immediate disposal.  
It is the supervisor/foreman's responsibility to determine the condition of all unboxed glass items, proper protection of furniture, and insure that all boxes be sealed and properly identified with the name and unit number.

ALL DISPOSABLE FOOD ITEMS are to go directly into the dumpster.  
ALL DISPOSABLE CLEANING AGENTS and automotive cleaners, oils, etc. will be placed in the appropriate drums.  
The unit will be covered and properly identified with the NAME AND UNIT NUMBER.

CLEANING The following items are considered salvageable(non-porous) :

1. Metal
2. Plastic
3. Glass
4. Leather
5. Vinyl
6. Electrical items
7. Laminated cardboard\*
8. Shoes\*
9. Wicker Furniture\*
10. Microwaves\*
11. Speakers\*
12. Lamp shades\*
13. Vacuum cleaners with a replacement value of over \$150 \*
14. Books

\* These items require special handling and/or procedures

CLEANING The following items are considered non-salvageable (porous):

1. Mattresses
2. Stuffed animals
3. Cloth covered furniture
4. Pillows
5. Brooms
6. Mops
7. Opened cosmetics
8. Plants (live or artificial)
9. Food items in OPEN boxes, jars or containers.

The above list is not all-inclusive, there will always be items in the gray area. If in doubt, check with the supervisor/foreman.

Generally, the only items to be immersed in water are dishes, pots, pans, cups, glasses, silverware, flower pots, etc. These items are usually made of steel, glass, ceramic and plastic.

**ELECTRONICS:** Wipe with a damp cloth. Use Windex instead of water. It is important to make sure the cloth is damp not wet; any seepage into the unit itself will most likely damage the unit. In the case of items with button controls, computer keyboards, remote controls, telephones, etc., a Q-tip, dampened with alcohol is very effective for those tiny spaces between the keys.

**SHOES:** The final disposition of these will be made here at the warehouse. The shoes will be separated and inventoried according to whether they can be cleaned or not. Generally any shoe with a single layer of lining can be HEPA Vacuumed and wet wiped. Those with insulation or padding, canvas shoes with a lining, and cork-soled shoes cannot be effectively cleaned, so therefore are disposable.

**MICROWAVE OVENS:** Determine by the visible condition of the fan. 90% of them can be cleaned.

**WICKER FURNITURE:** These may be disposable if there are places that cannot be effectively cleaned.

**SPEAKERS:** Wipe with a damp cloth and HEPA VAC. If possible to remove the grill, do so before vacuuming. Special care should be exercised in order to prevent damage to the speakers with the HEPA vacuumed.

#### **LAMINATED CARDBOARD and PRESSBOARD FURNITURE**

**WOOD FURNITURE:** Damp wipe and HEPA vacuumed. All furniture with drawers should have the drawers removed for vacuuming. HEPA vacuum the drawers and the inside of the unit itself. The underside of all furniture is to be vacuumed.

**PRESSBOARD FURNITURE:** This type of furniture, because of the material used requires special handling:

1. Damp wipe. Excessive moisture can get under the laminate and ruin the finish.
2. Do not lean furniture over. To vacuum the underside get help. Place the item on its side, on a pad, and then vacuum the underside.
3. Thoroughly check the surface that contacts the floor for mold. Once mold gets into the pressboard, it cannot be effectively removed.

4. Do not drag, tilt, or otherwise handle this type of furniture in any way that may compromise the integrity of the furniture. Remember that pressboard is basically wood chips, glue, staples, and cardboard. It will not withstand mishandling.

**VACUUM CLEANERS:** ALL KIRBY'S RAINBOWS and other specialty vacuums, (some example would be steamer vacs, etc. ) are cleanable. Any vacuum with a replacement value of over \$150 shall be considered cleanable. If in doubt, ask. The cleaning procedure for the above includes wet wiping, HEPA vacuum, and disposal of any filter and/or removable paper bag.

**LAMP SHADES:** HEPA Vacuum

**FRAMED PICTURES AND PAINTINGS:** The frames should be dry brushed and HEPA vacuumed. If it has glass, the glass should be cleaned with a damp (windex) cloth. If there is no glass, wipe with a dry soft cloth. Pastels, etchings, pen and ink's and pencil drawings cannot be safely cleaned. Save these and return to the client after securing the appropriate release.

Surely there will be some items that were not covered above, however the above procedures will cover most situations. Once again, if you have any questions, ask.

**PACKING:** This is an area of major importance! Breakage is costly. All glass, china cups, dishes, vases, etc. must be wrapped in either paper or bubble wrap. Bubble wrap is preferred for the items that do not stack. The bottom of the boxes that are to contain "FRAGILE" items should first be lined with 2 or 3 layers of bubble wrap. The contents of these boxes have to be packed snugly. Label all fragile boxes with Fragile stickers. Electronics, this includes stereos, C.D. players, computers, T.V.s, etc., should also be bubbled wrapped before being boxed up. Fragile stickers go on these boxes as well.

**HARDGOOD/FURNITURE:** Are to be "saran wrapped" after cleaning. Any glass surface should be protected with bubble wrap.

It is our job to return to our client all the items that can be cleaned. Free of mold and visible dust. This also means that all the articles entrusted to us for this task be returned in the same condition as they were in when we picked them up. Scratches, dings, dents and breakage will not be accepted by our clients.

If you have any questions, please feel free to ask your foreman/supervisor. HE/SHE WILL BE GLAD TO HELP!!

If you have any any suggestions and or experience that would improve our methods and results, we definitely want to hear them.

### Content Cleaning Guidelines

<b>Item</b>	<b>Cleaning Guidelines</b>
Shoes	Wet Wipe if non-fabric, HEPA vac if thin fabric; otherwise uncleanable
Clothes	<b>Launder or dry-clean according to approved process</b>
Microwave Ovens	<b>HEPA vac and wet wipe</b>
Mattresses	<b>Uncleanable</b>
Stuffed animals	<b>Uncleanable</b>
Stereo speakers	<b>HEPA vac and wet wipe</b>
Cloth furniture	<b>Uncleanable</b>
Pillows	<b>Uncleanable</b>
Purses	<b>Wet wipe if not cloth, launder if cloth; otherwise uncleanable</b>
Belts	<b>Wet wipe if not cloth, launder if cloth; otherwise uncleanable</b>
Cloth lamp shades	<b>HEPA Vac</b>
Brooms and mops	<b>Uncleanable</b>
Vacuum Cleaners	<b>Remove bag and pre/post filters. HEPA vac interior, wet wipe exterior</b>
Opened cosmetics	<b>Uncleanable</b>
Live plants	<b>Wet wipe</b>
Artificial plants	<b>HEPA vac and wet wipe</b>
Electrical items with fans	<b>HEPA vac and wet wipe</b>
Wicker Furniture	<b>HEPA vac</b>
Opened food items	<b>Wet wipe exterior</b>
Non-opened food items	<b>Wet wipe exterior</b>
Laminated cardboard games, records	<b>HEPA vac and/or wet wipe</b>
Framed Pictures	<b>Wet Wipe</b>
Open OTC meds	<b>Uncleanable</b>
Closed OTC and RX meds	<b>Wet wipe</b>
Open Rx meds	<b>Wet wipe and signature release</b>
Thin covered fabric items	<b>HEPA vac</b>
Books	<b>HEPA vac and/or wet wipe</b>
Area Rugs	<b>Launder or dry clean according to approved process</b>
Sleeping Bags	<b>Launder or dry-clean according to approved process</b>
Curtains	<b>Launder or dry-clean according to approved process</b>
Electronics components	<b>Wet wipe and/or HEPA vac</b>
Hard water Resistant surfaces	<b>Wet wipe</b>

### Laundry Protocol

The following will be the new laundering procedure to start immediately upon approval. The following is the protocol that we plan to follow.

1. The Laundry will be brought into the warehouse from the unit it was packed out from. At this time it will be sorted according to laundering label. All of the items that would normally be “fluff and fold” will be done in house, and the dry cleaning will be done at \_\_\_\_\_ dry cleaning.
2. Prior to start each day the laundering room will be wet wiped down. This includes sweeping carpets, wiping tables, wiping machines, etc. This is to insure that this will remain a low dust area.
3. Laundry will be separated in an area outside the laundering area. This should cut down on contamination of the clean area.
4. Laundry will then be brought into the laundry room and immediately put into the washing machine.
5. The laundry will be done with a mild detergent with a 3% bleach compound. This is also unscented so upon inspection if any mold is present it can be detected through testing. This will insure that all spores are eliminated.
6. The laundry will then immediately go into the dryer to eliminate any moisture or time the laundry has to sit wet.
7. Upon completion of dry time the laundry will then be folded in the same clean room and wrapped in a plastic barrier. The laundry will then be put in clean boxes for return to the customer upon inspection. The use of plastic barrier and clean boxes should eliminate any cross contamination.

If there are any questions or concerns in our protocol, please feel free to contact us at any time.

Thank you,

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## 1 **PURPOSE AND SCOPE**

- 1.1 The purpose of this procedure is to minimize employee exposure to inorganic arsenic. Inorganic arsenic can be found in trace amounts in fly ash and deposits on boiler tubes from coal-fired power generating plants.
- 1.2 It is the plan of the company to maintain employee inorganic exposure below the minimum exposure limit through engineering and work practice controls.
- 1.3 This procedure applies to maintenance and repair tasks where the potential exposure to inorganic arsenic may be present. These tasks, and subsequent potential exposures, typically occur during power generating plant outages (shutdown) and performance of non-routine maintenance activities

## 2 **REFERENCES**

- 2.1 OSHA 29 CFR 1910.1018 Inorganic Arsenic

## 3 **DEFINITIONS**

- 3.1. Action Level - An employee exposure, without regard to the use of respirators to an airborne concentration of inorganic arsenic of 5 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), calculated as an 8-hour time weighted average (TWA).
- 3.2. Authorized Person - Any person specifically authorized by the company whose duties require the person to enter a regulated area. To be authorized, a person must completed annual inorganic arsenic training, be respirator qualified and be assigned that work by company management.
- 3.3. Permissible Exposure Limit (PEL) - An employee exposure, without regard to the use of respirators, to an airborne concentration of inorganic arsenic of  $10\mu\text{g}/\text{m}^3$ , calculated as an 8-hour TWA. This is the maximum 8-hour average concentration of lead that an employee may be exposed to during each work day. For workdays longer than 8 hours in a given day the PEL is reduced using the following formula:  
Permissible Exposure Limit =  $(\text{PEL} \times 8) \div (\text{hours worked in a day})$
- 3.4. Regulated Area - A controlled area, limited to authorized personnel, which is demarcated and segregated from the areas of the plant where exposure levels to inorganic arsenic, without regard to respiratory protection, are in excess of the PEL.

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#### 4 **RESPONSIBILITIES**

##### 4.1 **EMPLOYEE**

- 4.1.1 Know the health hazards associated with exposure to inorganic arsenic and the selection of appropriate PPE.
- 4.1.2 Wear proper protective equipment and follow recommended work practice controls when working in a Regulated Area.
- 4.1.3 Properly wear monitoring equipment for the instructed time when requested.
- 4.1.4 Know how to identify a Regulated Area.

##### 4.2 **SUPERVISORS**

- 4.2.1 Determine prior to the performance of the job in conjunction with the customer representative whether inorganic arsenic is present at levels that require establishing regulated areas.
- 4.2.2 Request air exposure monitoring if an area/job task has the potential or is known to exceed the action level.
- 4.2.3 Ensure the workers have received proper training (See Section 5.5) and participate in the Medical Surveillance Program.
- 4.2.4 Ensure adequacy of any employee monitoring data and exposure assessments.
- 4.2.5 Ensure that all employees wear the required protective work clothing and personal protective equipment (PPE) and are trained in the use and appropriate control methods and work practices.
- 4.2.6 Ensure that proper hygiene facilities are provided and that employees are trained and use those facilities.

##### 4.3 **SAFETY & HEALTH DIRECTOR/MANAGER**

Audit work being conducted to assure exposure monitoring is performed, work procedures and controls are followed, and regulated areas are established as required.

##### 4.4 **CONSTRUCTION MANAGER**

Ensure all records of exposure assessments, medical surveillance, and medical removal are maintained in the Lancaster Office for extended retention: Minimum 30 years.



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NOTE: Medical record retention is part of the company's national contract with Concentra Medical Centers, OH&R and other approved clinics when their clinics provide the medical surveillance.

## 5 **PROCEDURES**

### 5.1 **IDENTIFY HAZARDOUS TASK/LOCATIONS**

- 5.1.1 The primary hazard associated with exposure to trace amounts of inorganic arsenic as a component in fly ash and deposited on the boiler tubes is from inhalation. Skin contact is also a potential health hazard. Engineering controls, work practices, and PPE have been identified to minimize employee exposure to long term, chronic health effects of inorganic arsenic.
- 5.1.2 Specific work tasks and areas of the customer's power plant have been identified where potential exposure to arsenic may exist. See examples of locations/tasks in Attachment 7.1 Before any outage or maintenance activities are planned, this list must be reviewed if work is to be performed in any of those locations or locations/tasks identified by the customer.
- 5.1.3 The Supervisor is to request air exposure monitoring if any tasks or locations are identified on the list in Attachment 7.1
- 5.1.4 The Supervisor is to inform employees of the hazards anytime work is to be performed, e.g. working in the boiler penthouse, precipitators or internal boilers performing fly ash removal or vacuuming or other tasks where exposures may exceed the PEL.

### 5.2 **EXPOSURE MONITORING**

- 5.2.1 Initial air monitoring - The frequency of monitoring required is based on previous monitoring results. Whenever outage or maintenance activities are planned which have the potential for arsenic exposure, or have previously been found to result in exposure in excess of the Action Level, (see locations/tasks listed in Attachment 7.1) monitoring shall be conducted in accordance with the following table:

Exposure Level	Monitoring Requirements
Below 5 $\mu\text{g}/\text{m}^3$	None
Between 5 and 10 $\mu\text{g}/\text{m}^3$	Every 6 months or when unit shuts down
Above 10 $\mu\text{g}/\text{m}^3$	Every 3 months or when unit shuts down

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- 5.2.2. Request for Additional Monitoring is also required whenever there has been a production, process, control maintenance or outage task change which may result in new or additional exposures to inorganic arsenic.
- 5.2.3. Construction Manager shall inform the project supervisor when exposure monitoring is necessary.
- 5.2.4 Monitoring Method - Airborne exposure levels shall be determined from air samples that are representative of each employee's exposure to inorganic arsenic averaged over an 8-hour period
- 5.2.5 Employee Sampling Results Notification - Within five (5) working days after the receipt of the monitoring results, each employee will be notified of the results in writing. Whenever the results indicated that employee exposure **exceeds** the permissible exposure limit, the written notice will also include a description of the corrective action taken to reduce the exposure below the PEL.
- 5.2.6 The customer should have a listing of all areas and job descriptions where past arsenic monitoring has been conducted.

### 5.3 WORK PRACTICES

#### 5.3.1 Employee Training

- 5.3.1.1 All employees who work where airborne arsenic exposures are known to or expected to be at or above the Action Level, or for whom there is the possibility of skin or eye irritation from arsenic, shall be trained in the hazards of arsenic and measures for controlling these hazards and protecting health **before** work begins.
- 5.3.1.2 Employees shall receive initial comprehensive arsenic training, at the time of initial assignment for those subsequently covered by this provision, and shall be repeated at least annually.
- 5.3.1.3 The content of arsenic training shall include:

- A review of the arsenic standard and the information contained in Appendix A of the Arsenic Standard 29 CFR 1910.1018.
- The hazards, location, sources of exposure, and the specific nature of operations which could result in exposure to arsenic as well as any necessary protective steps.
- The purpose, proper use, and limitation of respirators.
- The purpose and a description of the medical surveillance program.
- The engineering controls and work practices associated with the employee's job assignment.

#### 5.3.2 PPE Selection and Use

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5.3.2.1 Protective work clothing, shall be worn by all employees.

5.3.2.2 Protective work clothing and equipment shall include washable or disposable full body coveralls, faceshields or vented goggles, hats, gloves, disposable shoe covers, and hearing protection as appropriate.

5.3.2.3 Disposable protective work clothing shall be placed in labeled/sealed plastic bags and disposed of as arsenic-contaminated waste in the station municipal waste dumpster. **Ask customer.**

5.3.2.4 Reusable coveralls shall be collected at the end of each work day in closed containers. Contaminated clothing shall be cleaned by outside laundries at least weekly according to all applicable federal, state, or local regulations pertaining to arsenic-contaminated laundry and water discharge. All containers of arsenic-contaminated laundry shall be labeled as follows:

CAUTION: CLOTHING CONTAMINATED WITH INORGANIC ARSENIC. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF INORGANIC ARSENIC CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE OR FEDERAL REGULATIONS.

5.3.2.5 Protective clothing and equipment shall be removed in the contaminated section of the work area and shall not be worn into any clean areas not contaminated with arsenic.

5.3.2.6 All persons entering a regulated area shall be provided an air purifying respirator e.g., MSA Comfo II equipped with a high efficiency filter or a supplied air respirator. Ensure all persons are included in the medical surveillance program and have received a respirator fit test.

5.3.3 Engineering Controls such as general area ventilation, local exhaust ventilation, or vacuum-equipped power tools shall be used, as feasible and effective, for maintaining airborne arsenic exposures below the PEL.

5.3.4 Setting-Up Work Area

5.3.4.1 Regulated areas shall be established where worker exposures to inorganic arsenic, without regard to the use of respirators, are in excess of the permissible exposure limit (PEL).

5.3.4.2 Attachment 7.1 lists locations/tasks where exposures may exceed the PEL during outage/non-routine maintenance activities. Whenever work activities are planned which may result in this type of potential exposure,

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a regulated area must be established.

5.3.4.3 Access to regulated areas shall be limited to only authorized personnel who have been properly trained.

5.3.4.4 Regulated areas shall be marked and segregated from the rest of the workplace to minimize the number of persons who could potentially be exposed to inorganic arsenic.

5.3.4.5 Signs for regulated areas shall read:

DANGER  
INORGANIC ARSENIC  
AUTHORIZED PERSONNEL ONLY  
NO SMOKING OR EATING  
RESPIRATOR REQUIRED

5.3.4.6 Signs shall be located and maintained so that they are readily visible.

5.3.4.7 In regulated areas, food or beverages shall not be consumed, smoking products, chewing tobacco and gum shall not be used and cosmetics shall not be applied. Drinking water may be consumed in regulated areas.

### 5.3.5 Housekeeping

5.3.5.1 All surfaces shall be maintained as free as practical of accumulations of fly ash.

5.3.5.2 Floors and other accessible surfaces contaminated with fly ash shall not be cleaned by the use of compressed air.

5.3.5.3 Shoveling and brushing fly ash shall be used only where vacuuming or other relevant methods have been tried and found not to be effective.

5.3.5.4 Where vacuuming methods are selected, HEPA vacuuming shall be used and emptied in a manner to minimize the reentry of inorganic arsenic into the workplace.

5.3.5.5 Work areas must be thoroughly cleaned at the end of each work shift.

5.3.6 Personal Hygiene The following personal hygiene facilities and practices must be used for personnel working in regulated areas:

- Disposable PPE and equipment e.g. coveralls, shoe covers, and respirator cartridges shall be removed in a designated area immediately outside the regulated area.

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- Employees shall shower at the end of the work shift.
- Employees shall wash their hands and face in lavatories prior to eating.

#### 5.4 REGULATORY REQUIREMENTS

5.4.1 OSHA Notification (ONLY As directed by customer) Whenever there has been a *significant change* (e.g. large increase - 2 times) in exposures to inorganic arsenic associated with work involving fly ash and deposits on boiler tubes, a written notification, must be made to the OSHA area office within 60 days to include:

- workplace address
- number of employees working in area
- summary of operations
- actions to reduce exposures

#### 5.4.2. Medical Surveillance

5.4.2.1 The tasks involved where some employee arsenic exposures may exceed  $5\mu\text{g}/\text{m}^3$  are non-routine tasks that are performed primarily during outages. A medical surveillance program is required when an employee is expected to be exposed above the action level greater than 30 days per year. Therefore, medical surveillance will be provided in accordance with the OSHA Inorganic Arsenic Standard 29 CFR 1910.1018 for employees exposed to inorganic arsenic while working at those locations/tasks as identified in Attachment 7.1.

### 6 **RECORDKEEPING**

- 6.1 All records pertaining to training, medical examinations, and exposure monitoring shall be forward to the Lancaster Home Office for long term retention, i.e. 30 plus years.

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## 5 ATTACHMENTS

- 7.1 List of Arsenic Exposures Exceeding Action Level & PEL - Project Specific
- 7.2 List of Engineering Plans/Controls – Project Specific

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**ATTACHMENT 7.1**

**ARSENIC EXPOSURES  
EXCEEDING THE ACTION LEVEL AND PEL**

**Project Name** \_\_\_\_\_ **Job Number** \_\_\_\_\_

1. **EXAMPLES ONLY: Locations/Tasks Where Arsenic Action Level MAY be Exceeded (>AL, <PEL)**

Electrostatic Precipitator (ESP) Penthouse (Vacuuming) ID Inlet Fan (Washing) Inside Flyash Silo, ESP (Washing) ESP Outlet Ducts (Washing/Scraping Walls) Top of ESP Flyash Silo (Cleaning)

List Customer Specific Locations/Tasks

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2. **Locations/Tasks Where Arsenic Permissible Exposure Level MAY be Exceeded ( $\geq$  PEL)**

**EXAMPLES ONLY :** Boiler Economizer Header , Reheat (Inside Boiler, Burning/Welding), Boiler Nose Area (Washing), Radiant Reheat Boiler Tubes (Sandblasting), Flyash Silo ( Changing Bags, Shoveling Ash in Collector), ESP Penthouse (Vacuuming), Top of Flyash Silo (Cleaning), ESP Hoppers (Inspecting and Vacuuming), ESP Outlet Ducts (Cleaning)

List Customer Specific Locations/Tasks

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**ATTACHMENT 7.2**

**ENGINEERING PLANS/CONTROLS**

**Project Name** \_\_\_\_\_

**Job Number** \_\_\_\_\_

List the engineering plans/controls specific to this project that will be utilized to control/reduce employee exposures to inorganic arsenic.

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<b>Hydrogen Sulfide (H<sub>2</sub>S)</b>	Issue: Sept 2006 Revised: 0 Issued By: Safety Dept.
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## 1 **PURPOSE AND SCOPE**

- 1.1 The purpose of this procedure is to identify hazards and precautions for minimizing exposure to airborne hydrogen sulfide. Exposure to hydrogen sulfide may occur in oil refineries from the processing of crude oil.
- 1.2 It is the plan of the company to maintain employee hydrogen sulfide exposure below the occupational exposure limit through engineering and work practice controls.

## 2 **REFERENCES**

- 2.1 MSDS Hydrogen Sulfide March 19, 2003
- 2.2 Canadian Association of Petroleum Producers *Occupational Health and Safety of Hydrogen Sulphide (H<sub>2</sub>S)*(2003)
- 2.3 Alberta Employment and Immigration, *Workplace Health and Safety Bulletin – Hydrogen Sulphide at the Work Site* (2006)

## 3 **DEFINITIONS**

- 3.1. Exposure Limits -  
ACGIH Time -Weighted Average = 10 ppm 8-hr TWA  
ACGIH Short-term Exposure Limit = 15 ppm. Average over 15 minutes  
OSHA Ceiling = 20 ppm. Not to exceed at any one time  
Alberta Occupational Exposure Limits = 10 ppm 8-hr TWA
- 3.2. H<sub>2</sub>S Monitor - A personal monitor that is a warning device. It measures the concentration of H<sub>2</sub>S gas and alarms at 10 ppm. Employees working in areas where there is a known potential for H<sub>2</sub>S (signage posted and area alarms) shall have at least one employee of the group wear the H<sub>2</sub>S monitor.

## 4 **RESPONSIBILITIES**

- 4.1 Employee
  - 4.1.1 Know the health hazards, characteristics, exposure limits, and methods of detecting H<sub>2</sub>S associated with exposure to hydrogen sulfide and the proper selection of appropriate PPE.
  - 4.1.2 Wear proper protective equipment and monitor (if required) and follow recommended work practice controls when working in an area with H<sub>2</sub>S.
  - 4.1.3 Be aware of and follow provisions of the site specific contingency plans.
- 4.2 Supervisors

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- 4.2.1 Determine prior to the performance of the job in conjunction with the customer representative whether H<sub>2</sub>S is present in the work area at levels that require respiratory protection
- 4.2.2 Ensure the workers have received proper training (See Section 5.3).
- 4.2.3 Ensure adequacy of any employee monitoring data and exposure assessments and the maintenance and calibration (if required) of the H<sub>2</sub>S monitors.
- 4.2.4 Ensure that all employees wear the required protective work clothing and personal protective equipment (PPE) and are trained in the use and appropriate control methods and work practices.

## 5 **PROCEDURES**

### 5.1 Identify Hazards, Task/ Locations

5.1.1 The primary hazard associated with exposure to H<sub>2</sub>S is from inhalation. Skin absorption can occur from “liquefied gas.” Engineering controls, work practices, and PPE have been identified to minimize employee exposure.

5.1.2 Health effects include the following:

#### Acute

- Acute or immediate hazard is high because effects are rapid, and unconsciousness can occur before escape from a lethal atmosphere is possible.
- Paralyzes the respiratory system.
- Individual exposed to high concentrations may collapse instantly.
- Permanent brain damage or death may occur in approximately 4 minutes.
- Irritating effects are most pronounced on the eyes, nose, and throat.
- Pain, sensitivity to light and other visual difficulties may accompany severe conjunctivitis or inflammation of the eye.
- May be irritating to the skin; prolonged exposure may cause dermatitis.

NOTE: *Liquefied gas is extremely cold. Contact may cause frostbite.*

Chronic – H<sub>2</sub>S does not accumulate in the body, so generally, long-term systemic poisoning is not a problem.

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ppm in Air	Harmful Effects
10 or Less	No know short term effect from 8 hour exposures
20-50	Eye, nose, throat and lung irritation
50 – 100	Marked eye, nose, throat and lung irritation
100-150	Severe eye, nose, throat and lung irritation. Loss of smell. Exposures of 8 hours or more may be fatal.
200 – 300	Headaches, drowsiness. Prolonged exposures of several hours may cause the lungs to fill with fluids (pulmonary edema)
300 – 500	May cause unconsciousness and death in 1 to 4 hours
500 – 700	Dizziness, headache, nausea, etc., within 15 minutes; loss of consciousness; may be fatal with 1 hour exposure
700 – 900	Rapid unconsciousness; death occurs minutes later
1,000 – 2,000	Instantaneous collapse and cessation of breathing

- 5.1.3 Specific work tasks and areas of the customer's refineries have been identified where potential exposure to H<sub>2</sub>S may exist.

Sour Water Pumps	Sulfur Tanks
Amine Units	Sour Water Strippers
SRU	Strippers
In water drained from accumulators	Crude Storage Tanks

Before any tasks are planned, this list must be reviewed if work is to be performed in any of those locations or other locations/tasks identified by the customer.

- 5.1.4 The properties and characteristics of H<sub>2</sub>S are as follows:

Appearance: None  
Odor: Rotten eggs  
Odor threshold: 0.02 ppm  
Solubility: Soluble in water, alcohol and carbon disulfide

Odor is not a reliable means of detection because H<sub>2</sub>S rapidly deadens the sense of smell, so dangerous concentrations often cannot be detected by odor. H<sub>2</sub>S is highly flammable and heavier than air. H<sub>2</sub>S migrates to the vapor state if possible.

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## 5.2 Exposure Monitoring

- 5.2.1 Personal H<sub>2</sub>S Monitors - A number of personal H<sub>2</sub>S monitors must be readily available and have a **current** calibration for each monitor and for all projects in refineries and other customer facilities where the task(s) performed may subject our employees to H<sub>2</sub>S exposure. The number of monitors available will be determined jointly at the discretion of the customer and our supervisor. The supervisor shall determine whether each person or group of persons shall wear a personal H<sub>2</sub>S monitor based on the proximity of the work.
- 5.2.2 Personal H<sub>2</sub>S monitors shall be calibrated in accordance with the manufacturer's instructions. It may be preferable to use "disposable" personal H<sub>2</sub>S monitors that may be disposed at the end of their useful life e.g. 3 months. Monitors shall not be used until they are calibrated. Refer to the *HSE Management System Manual*, Section "Calibration" to ensure the accuracy, proper use, and control of measuring/testing equipment and tools.
- 5.2.3 Employees may be required to wear an H<sub>2</sub>S monitor while performing work in certain designated areas or tasks.
- CAUTION– The personal H<sub>2</sub>S monitors may become damaged/unreliable in areas of high concentrations of H<sub>2</sub>S
  - CONTROL – To maintain reliability, do not use personal H<sub>2</sub>S monitors in high concentrations when respiratory protection is required.
- 5.2.4 Personal H<sub>2</sub>S monitors do not replace the need for valid permits and proper PPE based on the result of the work or entry permit.
- 5.2.5 Personal H<sub>2</sub>S are a warning device. Should an alarm activate (denoting concentrations greater than 10 ppm whether personal monitor or area monitor), personnel must leave the area immediately and reenter only with SCBA or supplied air respirator until the source of the H<sub>2</sub>S is identified and the area is cleared.

## 5.3 Work Practices

### 5.3.1 Employee Training

- 5.3.1.1 All employees who work where H<sub>2</sub>S exposures are known to or expected to be at or above the exposure limit shall be trained in the hazards of H<sub>2</sub>S and measures for controlling these hazards and protecting health **before** work begins.
- 5.3.1.2 Employees shall receive initial training, at the time of initial assignment for those subsequently covered by this provision and shall be repeated at least annually.
- 5.3.1.3 The content of H<sub>2</sub>S training shall include:

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- The hazards, location, sources of exposure, and the specific nature of operations which could result in exposure to H<sub>2</sub>S as well as any necessary protective steps.
- The purpose, type of respirators used, proper use, and limitation of respirators.
- The characteristics, health effects, detection of, personal and area alarms of H<sub>2</sub>S
- The engineering controls and work practices associated with the employee's job assignment.

### 5.3.2 Respiratory Protection

5.3.2.1 The type of respirator selected for H<sub>2</sub>S exposure is shown in the table below. Refer to the Respirator Protection Safety Directive 3.3.

Exposure Level	Respirator Type
Below 10 ppm	Face-sealing half mask with H <sub>2</sub> S cartridge
Above 10 ppm	Full face positive pressure supplied air breathing apparatus (SABA) equipped with a 5 minute escape bottle or full face supplied air self contained breathing apparatus (SCBA) in unknown concentrations

5.3.2.2 Barricade and rope off the area when respiratory protection is required to prevent unwanted access. The barricade and/or roped off area perimeters will be determined based on air monitoring results.

5.3.2.3 Company personnel must receive additional training to use a specific SCBA respirator for protection from high or unknown concentrations of H<sub>2</sub>S since the use of SCBAs are not normally included in company respirator training.

### 5.4 Medical

5.4.1 For skin and eye exposure, immediately flush with plenty of water. Wash clothing separately before reuse. In case of cold burns (frostbit) caused by rapidly expanding or vaporizing liquids, get medical attention promptly.

5.4.2 For inhalation, remove the person to fresh air.  
**CAUTION**– If an individual is suspected of being overcome due to H<sub>2</sub>S inhalation, H<sub>2</sub>S vapors may still be present. Individuals attempting rescue have the potential of being overcome by H<sub>2</sub>S vapors.  
**CONTROL** – Contact the Facility so that a proper rescue attempt using trained rescue squad can don fresh air respirators prior to attempting rescue.

### 5.5 Emergency Response

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5.5.1 Pre-Job Planning – Before starting a job, or when new employees are introduced into the worksite, the following items shall be reviewed with personnel:

- H<sub>2</sub>S hazards and the areas of the facility where the hazards are located
- Backup personnel requirements
- Safety watch requirements
- Muster point location(s) and routes of emergency egress
- Respirator locations and procedures, including emergency escape respirators
- Emergency alarm procedures
- Communication procedures

5.5.2 First Aid – Identification of all authorized and trained first aid and CPR providers and providing locations shall be communicated prior to work on the site. All personnel shall be reminded that H<sub>2</sub>S can present an exposure situation that is immediately dangerous to life and health (IDLH) and that emergency rescue operations shall only be undertaken by the properly trained, equipped and authorized personnel.

5.5.3 Rescue – Train all personnel in the seven proper steps to be taken in the event of an H<sub>2</sub>S emergency:

- Immediate evacuation
- Sound the alarm
- Assess the situation
- Protect rescue personnel
- For authorized personnel only, rescue the victim
- For authorized personnel only, revive the victim
- Obtain medical aid – All H<sub>2</sub>S victims require medical attention by a physician.

## **6 RECORDKEEPING**

6.1 Employee training records shall be kept for three (3) years. H<sub>2</sub>S personal monitor calibration records must be kept for 1 year.

## **7. ATTACHMENTS**

None

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## 1 PURPOSE AND SCOPE

- 1.1 The purpose of this procedure is to identify hazards and precautions for minimizing exposure to benzene. Exposure to benzene may occur in the processing and refining of hydrocarbons (liquid and gaseous) and in a variety of manufacturing and industrial processes.
- 1.2 It is the policy of the company that occupational benzene exposures will be maintained to the extent feasible below occupational exposure limits through engineering and work practice controls. Personal protective equipment, including respiratory protection, will be used to reduce exposures below regulatory limits when engineering and work practice controls cannot maintain exposures below occupational limits.

## 2 REFERENCES

- 2.1 OSHA 29 CFR 1910.1028 and Appendices
- 2.2 MSDS Benzene

## 3 DEFINITIONS

### 3.1. OSHA Exposure Limits -

Permissible Exposure Limit (PEL)	1 ppm as an 8-hr Time -Weighted Average (TWA)
Action Level	0.5 ppm as an 8-hr TWA
Short-Term Exposure Limit (STEL)	Maximum is 5 ppm over any 15- minute period.

NOTE: There are higher OSHA exposure limits for industries not regulated by the benzene standard by rule. Both ACGIH and NIOSH have recommended lower exposure limits.

### 3.2. Benzene Properties –

Description: OSHA Class 1B flammable liquid that is classified as a human carcinogen. It is produced by catalytic reforming of petroleum and occurs naturally in crude oil. Benzene is toxic, colorless, has an aromatic odor and is flammable with a flash point of 12 degrees Fahrenheit.

#### Physical and Chemical Properties

Appearance:	Colorless liquid
Odor:	Pleasant, sweet odor; aromatic odor
Odor threshold:	1.5 - 5 ppm
Vapor density:	2.7 (Air =1)
Flash point:	12 °F (Closed Cup)
Vapor Pressure:	75 mm Hg @ 20° Celsius

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The odor of benzene does not provide adequate warning of its hazard.

#### 4 **RESPONSIBILITIES**

##### 4.1 Employee

- 4.1.1 Know the health hazards, characteristics, exposure limits, and methods of detecting benzene associated with exposure to benzene and the proper selection of appropriate PPE.
- 4.1.2 Wear proper protective equipment and monitor (if required) and follow recommended work practice controls when working in an area with benzene.
- 4.1.3 Be aware of and follow provisions of the site specific contingency plans.

##### 4.2 Supervisors

- 4.2.1 Determine prior to the performance of the job in conjunction with the customer representative whether benzene is present in the work area at levels that require respiratory protection.
- 4.2.2 Ensure the workers have received proper training (See Section 5.3).
- 4.2.3 Ensure adequacy of any employee monitoring data and exposure assessments and notify all represented employees of any monitoring results within 15 days of receipt, either individually or by posting.
- 4.2.4 Ensure that all employees wear the required protective work clothing and personal protective equipment (PPE) and are trained in the use and appropriate control methods and work practices.

#### 5 **PROCEDURES**

##### 5.1 Hazard Identification and Mitigation

- 5.1.1 The primary hazard associated with exposure to benzene is from inhalation, although benzene is readily absorbed through the skin. Thirty to sixty percent of inhaled benzene enters the circulatory system. Engineering controls, work practices, and PPE have been identified to minimize employee exposure (see 5.5.2 below).



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- 5.1.2 Liquid benzene is highly flammable and vapors may form explosive mixtures in air. Fire extinguishers are to be staged in all work areas unless fire suppression systems are in place. Smoking is strictly prohibited in all areas where benzene is stored or used. All spark producing work practices are prohibited.
- 5.1.3 Determinations of employee exposure shall be made from breathing zone air samples that are representative of each employee's average exposure to airborne benzene. Representative 8-hour TWA employee exposures shall be determined on the basis of samples representing the full shift exposure for each job classification in each work area.
- 5.1.4 Determinations of compliance with the STEL shall be made from 15 minute employee breathing zone samples measured at operations where there is reason to believe exposures are high, such as where tanks are opened, filled, unloaded or gauged; where containers or process equipment are opened and where benzene is used for cleaning or as a solvent in an uncontrolled situation.
- 5.1.5 The potential health effects associated with benzene exposure include the following:

Acute

- Corneal injury to the eyes
- Central nervous system depression resulting in potential death due to respiratory failure.
- Dizziness, confusion and hysteria.
- Advanced states of acute poisoning, "Benzene jag," hysterical , boisterous and obstinate or combative behavior can ensue.

Chronic –

- Primarily affects the blood forming organs which can cause Aplastic Anemia, Leukemia or other blood related disease.
- Benzene is widely recognized as a known human carcinogen (cancer causing agent).
- Systemic poisoning can occur from prolonged skin contact with liquid benzene and can also cause drying and scaling of the skin (dermatitis).
- Chronic exposure to benzene may cause adverse birth and reproductive effects.

**Caution:** Detection of benzene odor indicates exposure greater than 1 ppm (above the PEL).

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OSHA requires that a regulated area be established whenever the airborne concentration of benzene exceeds or can reasonably be expected to exceed the PEL (TWA) or STEL. Access to regulated areas is limited to authorized personnel.

5.1.6 First aid procedures for contact exposures include:

Eyes – Flush with water for at least 15 minutes and seek medical attention.

Skin – Remove contaminated clothing. Flush skin with plenty of water. Wash skin area thoroughly with soap and water. If symptoms develop, seek medical attention.

Inhalation – Remove to fresh air. If breathing is difficult seek immediate medical attention.

Read the Material Data Safety Sheet and comply with all procedures.

5.1.7 Specific work tasks and areas of the customer’s refineries have been identified where potential exposure to benzene may exist.

Railcar Unloading - Vapor recovery systems reduce exposure below 1 ppm	Storage Tank Areas
Other specific plant areas (list)	Open Process Piping Connections

Before any tasks are planned, this list must be reviewed if work is to be performed in any of the listed locations or other locations/tasks identified by the customer or in the supervisor’s review of the work and work area(s).

Note: Most refineries do NOT have permanent regulated areas. Exposure monitoring shall be conducted as necessary to determine exposures and establish the proper level of personal protective equipment and respiratory protection.

5.3 Work Practices

5.3.1 Employee Training

5.3.1.1 All employees will be provided with information and training at the time of their initial assignment to a work area where benzene is present. If exposures are above the action level ( $\geq 0.5$  ppm), employees shall be provided with information and training at least annually thereafter.

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5.3.1.2 This training shall be in accordance with the requirements of 29 CFR 1910.1200(h)(1) and (2) and shall include specific information on benzene for each category of information included in that section. The training shall also provide employees with an explanation of the contents of the benzene standard (29 CFR 1910.1038), including Appendices A and B, and make a copy of the standard available. The training will specifically describe the benzene standard medical surveillance program and explain the information contained in Appendix C to the standard.

5.3.1.3 All employees who work where benzene exposures are known to or expected to be at or above the exposure limit shall be trained in the hazards of benzene and measures for controlling these hazards and protecting health **before** work begins.

5.3.1.2 In addition to the training described above, benzene training for work in areas where exposure limits do or may exceed the standard shall include:

- The hazards, location, sources of exposure, and the specific nature of operations which could result in exposure to benzene as well as any necessary protective measures or work practices to be used in and adjacent to the regulated area.
- The purpose, type of respirators used, proper use, and limitation of respirators.
- The characteristics, health effects, and measurement / detection of benzene.
- The engineering controls and work practices associated with the employee's job assignment.

5.3.2 Respiratory Protection and other PPE

5.3.2.1 The type of respirator authorized to protect employees from benzene exposure is shown in the table below. Refer to and fully comply with the Respiratory Protection Safety Directive 3.3.

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Exposure Level	Respirator Type
1-10 ppm	Face-sealing half mask with organic vapor cartridges <sup>1</sup>
up to 50 ppm	Full –face respirator with organic vapor cartridges <sup>1</sup>
> 50 ppm – 500 ppm	Full face PAPR with organic vapor cartridges <sup>1</sup>
500 – 1,000 ppm	Full facepiece supplied-air operated in pressure demand or other positive pressure mode <u>and</u> a NIOSH-Certified auxiliary self-contained escape air supply; SCBAs operated in pressure demand or other positive pressure mode that is certified by NIOSH for a minimum service life of thirty minutes <sup>2</sup>
Unknown Concentration	Entry is <b>prohibited</b> by company policy

<sup>1</sup> A respirator cartridge change-out schedule must be developed and adhered to.

<sup>2</sup> Rescue / retrieval capabilities and additional items must be put in place for entry into any Regulated Area with airborne benzene concentrations of 500 ppm or greater since this is the designated concentration determined to be Immediately Dangerous to Life and Health (IDLH). Refer to 29 CFR 1910.134(g)(3) in its entirety.

- 5.3.2.2 Chemical goggles and chemical gloves (“polyvinyl alcohol supported - PVA” or laminate film gloves rated for benzene) are required when doing maintenance work on benzene equipment. Chemical protective body coverings (PVA or laminate rated for benzene), goggles, a face shield, and chemical protective boots are required where the potential for liquid splashing exists.
- 5.3.2.3 Barricade and/or demarcate the Regulated Area when respiratory protection is required to prevent access by unauthorized persons. The boundaries of the Regulated Area will be determined based on air monitoring results, work activities and customer requirements.
- 5.3.2.4 Company personnel must receive additional training to use SCBA respiratory protection, where authorized, since the use of SCBAs is not normally included in the company’s respiratory protection training program.
- 5.3.2.5 All personnel shall be trained in the owners emergency action and contingency plans as well as Process Safety Management procedures, where applicable.

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#### 5.4 Medical Surveillance

5.4.1 A medical surveillance program performed by or under the supervision of a licensed physician shall be implemented prior to initial assignment to a benzene work under the following conditions:

- Where employees are or may be exposed at  $\geq 0.5$  ppm (action level) for 30 days or more per year, or
- Where employees are or may be exposed at  $\geq 1.0$  ppm (permissible exposure level) for 10 or more days per year.

### 6 **RECORDKEEPING**

- 6.1 Employee training records shall be kept for three (3) years.
- 6.2 All exposure data shall be retained for 30 years in accordance with 29 CFR 1910.1020.
- 6.3 All required medical surveillance data shall be retained for 30 years in accordance with 29 CFR 1910.1020.

### 7. **ATTACHMENTS**

None

<b>Gas Hazards – General Requirements</b>	Issue Date: July 2010 Revised: N/A Issued By: Safety Dept._poh
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## 1 **PURPOSE AND SCOPE**

This Safety Directive establishes the minimum safe work practices and protective equipment requirements for working in areas with, or the potential to form or release, hazardous gases. Hazardous gases include all gases that have recognizable hazards for flammability, toxicity, oxygen displacement, or any other recognizable hazard.

## 2 **REFERENCES**

- 2.1 OSHA 29 CFR 1910. 252 - Welding, Cutting, and Brazing, General Requirements
- 2.2 OSHA 29 CFR 1926.350 - .354 - Welding and Cutting
- 2.3 American Welding Society-Safety in Welding and Cutting ANSI Z49.1
- 2.4 OSHA 29 CFR 1910 and 1926 – Occupational Exposure to Hexavalent Chromium, Final Rule, Federal Register, February 28, 2006 and all amendments.
- 2.5 OSHA 29 CFR 1926.55 – Gases, Vapors, Fumes, Dusts, and Mists
- 2.6 OSHA 29 CFR 1926 Subpart F – Fire Protection and Prevention
- 2.7 Safety Directive 2.1 – Fire Protection and Emergency Response Procedures
- 2.8 Safety Directive 3.3 – Respiratory Protection
- 2.9 Safety Directive 9.2 – Confined Space Entry
- 2.10 Safety Directive 9.3 – Process Safety Management
- 2.11 Safety Directive 9.4 – Welding, Cutting, Burning and Grinding

## 3 **DEFINITIONS**

- 3.1 Approved - Listed or approved by a nationally recognized testing laboratory such as Underwriters Laboratory, Inc. or Factory Mutual Insurance, etc.
- 3.2 Hot Work - Any operation where heat, spark, fire or molten metal could be produced, such as welding, burning or cutting using the oxy-acetylene or electric arc process or heavy, (extensive) grinding and also includes the use of any tools that are not intrinsically safe inside a Class I Division I area.
- 3.3 Fire Watch - An individual assigned to monitor hot work activities both during and at least 30 minutes after their completion, for detection of possible fires. Fire watch personnel shall be properly trained and knowledgeable in the use of available fire extinguishers and fire extinguishers shall be available within 20 feet.

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3.4 Gas Monitoring/Detection Equipment – Although these terms are generally used interchangeably, monitoring equipment is intended to infer ongoing or long term monitoring whereas detection equipment may be one time or short term use (e.g. Draeger tubes). Gas monitoring equipment can use single or multiple sensors, photo-ionization, flame-ionization, etc. to detect single and multiple gases present in the working atmosphere. Each type of equipment has unique operational requirements, limitations and calibration needs that must be understood and adhered to by the user. Gas monitors typically include digital readouts (most commonly in parts per million), audible alarms, and the ability to set low-level and high-level alarm concentrations for single or multiple gases. Gas monitors are available for a broad range of toxic, flammable and air quality gases.

#### 4 **RESPONSIBILITIES**

4.1 Supervisors shall ensure that all activities in areas with the potential to release or form hazardous gases are evaluated as part of the job or task hazard analysis for the work and identified in the Project Safety Plan. Part of this evaluation shall include identifying areas that are “high gas hazard” areas or operations.

4.2 Employees are responsible to read, understand and abide by the Project Safety Plan and Task Safety Analysis for all work in areas with the potential to have gas hazards.

4.3 The Construction Manager is responsible to participate in the development of the Project Safety Plan and Task Safety Analysis for all gas hazard areas or operations, to review the final documents, and to ensure that all employees on the site are trained in and understand these documents. The Construction Manager is also responsible for ensuring that all work performed in gas hazard areas or operations is done in compliance with the Project Safety Plan and Task Hazard Analysis and that all tools, equipment, and personal protective items needed to conduct the work safely are present and being used on the job in their intended manor.

#### 5 **PROCEDURE**

##### 5.1 Gas Monitoring

5.1.1 Gas monitoring shall be conducted, either through the use of individual gas detectors or multiple gas monitors in all high gas hazard areas and/or operations.

5.1.2 All gas monitors shall be calibrated in accordance with the manufacturer’s recommendations and shall have a current calibration sticker on the monitor.

5.1.3 Daily bump testing shall be performed on each monitor to ensure the monitor is working properly and that all alarms are functional.

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## 5.2 Contingency/Emergency Plan

5.2.1 All employees working in facilities or operations with identified gas hazards shall be trained in and knowledgeable of the contingency and emergency plans of the site and shall participate in emergency drills. If the site is subject to the OSHA Process Safety Management (PSM) standard, then all employees shall comply with Safety Directive 9.3, Process Safety Management, and the subcontractor requirements of the PSM standard.

## 5.3 Respiratory Protection

5.3.1 When gas hazards are identified, they are to be controlled with engineering controls or administratively controlled when feasible.

5.3.2 When gas hazards cannot be controlled by engineering or administrative controls, employee exposures shall be controlled by the use of respiratory protection.

5.3.3 All personnel using respiratory protection shall be medically monitored, trained in, and adhere to the applicable requirements stipulated in Safety Directive 3.3, Respiratory Protection, of this manual.

# 6 TRAINING

## 6.1 Employee Training

6.1.1 All workers working at sites with identified gas hazards shall receive Gas Hazard Awareness training specific to the site before initial assignment and annually thereafter.

6.1.2 The Gas Hazard Awareness training course shall include:

- a) The location of any gas alarm stations, alarm sounds and their meaning, and the actions to take in the event of an alarm;
- b) The use, care and limitations of fixed and portable gas monitoring equipment in use or to be used at the site or as part of a gas hazard operation;
- c) The characteristics of gas hazards including, but not limited to:
  - Oxygen deficient atmospheres
  - Oxygen and nitrogen enriched atmospheres
  - Carbon monoxide
  - Hydrogen sulfide
  - All specific gas hazards identified in the plant area or operation where the workers will be working
  - The signs and symptoms of overexposure to all of the above gas hazards



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- d) Personnel rescue procedures, including ensuring thorough knowledge of the communication system and all equipment to be used in the event a rescue becomes necessary.
- e) The use and care of Self-Contained Breathing Apparatus (SCBA) including donning (putting on) and emergency procedures where applicable.
- f) Evacuation procedures specific to the facility and the specific work area. The training shall include identification of the Primary and Secondary Assembly areas where personnel are to evacuate to in the event of an emergency.

6.1.3 All Gas Hazard Awareness training shall be documented to include the date, content, attendees (printed name and signature), and identification of the individual providing the training.

## 7 **RECORDKEEPING**

Employee records must be kept for three (3) years except that exposure and medical monitoring records shall be retained for 30 years past the last day of employment.

## 8 **ATTACHMENTS**

None

# Signs, Signals & Barricades

Issue Date: January 2001  
Revised: December 2006  
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Safety Directive No. 9.1

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## 1 **PURPOSE AND SCOPE**

The Company will provide all accident prevention signs and tags, and any barricades necessary for identifying potential hazards. Identification signs and/or barricades must remain in place and visible during the entire operation as necessary for employee protection.

## 2 **REFERENCES**

2.1 OSHA 1926.200, Subpart G - Signs, Signals and Barricades

## 3 **DEFINITIONS**

3.1 Barricades - an obstruction to deter the passage of persons or vehicles

## 4 **RESPONSIBILITIES**

4.1 Supervisors shall assure that all affected employees are trained in this procedure and identification signs are communicated in the appropriate language, e.g. Spanish,

## 5 **PROCEDURE**

### 5.1 Accident Prevention Signs and Tags

5.1.1 Danger Signs must be used only when an immediate hazard exists. Signs must be designed as outlined in OSHA 1926.200(b) 2. Unauthorized personnel shall not enter a designated danger area.

5.1.2 Caution Signs must be used only to warn against potential hazards or unsafe procedures. Signs must be designed as outlined in OSHA 1926.200(c) 2.

5.1.3 Exit Signs must be posted whenever necessary to provide visible indication of exit routes from the work area. Signs must meet sign requirements of OSHA 1926.200 (d) 1.

5.1.4 Safety Instruction Sign must be used for indicating personal protective equipment requirements, locations of emergency equipment and any other employee guidelines.

### 5.2 Accident Prevention Tags

5.2.1 Accident prevention tags must be used as a temporary means of warning employees of an existing hazard such as defective tools and equipment. Tags should remain attached to equipment until repaired or replaced.

5.2.2 Tags must be of the specified type in OSHA 1926.200, Table G.1.

# **Signs, Signals & Barricades**

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## 5.3 Barricades

Must be used whenever necessary to prevent vehicles or persons from passing through the work area. Barricades may consist of barrier tape, horse, or any combination of similar materials which will isolate the work area.

## 6 **RECORDKEEPING**

Employee training records must be kept for three (3) years.

## 7 **ATTACHMENTS**

None

<b>Confined Space Entry</b>	Issue Date: January 2001
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## 1. **PURPOSE AND SCOPE**

The company will take all the necessary measures for establishing safe practices for entering and/or working in confined spaces, which may be hazardous to employees. This procedure applies to all qualified personnel who enter a confined space (regardless of the location of such space) for any reason. Subcontractors (performing services directly for the company) and other personnel who enter a confined space to perform inspections, testing, etc., must also meet all applicable OSHA requirements for Confined Space Entry (1910.146).

It is the policy of the company that no person is permitted to enter a confined space without approval by their Supervisor AND completion of a Confined Space Entry Permit.

## 2. **REFERENCES**

2.1 OSHA 29 CFR 1910.146 - Permit-Required Confined Spaces

## 3. **DEFINITIONS**

- 3.1 Attendant - A qualified individual that is stationed outside one or more confined spaces who monitors the authorized entrants and who performs all attendant's duties assigned in the confined space permit program.
- 3.2 Authorized Entrant - A trained person who is authorized to enter a confined space.
- 3.3 Confined Space - A confined area surrounded by confining surfaces so as to permit either the accumulation of hazardous gases, mist, fumes, vapors or dust, or the possibility of an oxygen deficiency.
- A. Is not designed for continuous employee occupancy.
  - B. Is large enough and so configured that an employee can bodily enter and perform assigned work.
  - C. Has limited or restricted means for entry or exit (i.e. tanks, vessels and silos).
  - D. Confined spaces include, but are not limited to, cupolas, storage tanks, bins, boilers, ventilation or exhaust ducts, sewers, ovens, furnaces, plenums, underground utility vaults, tunnels, pipelines, and open top spaces more than four feet in depth, such as chimneys, pits, tubs, vaults and vessels.
- 3.4 Emergency - Any occurrence (including any failure of hazard control or monitoring equipment) or an event either internal or external to the confined space that could endanger entrants.
- 3.5 Entry - The action by which a person passes through an opening into a confined space. Entry includes ensuing work activities in that space and is considered to have

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occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

- 3.6 Entry Permit - the written or printed document that is provided by the Company to allow and control entry into a confined space.
- 3.7 Entry Supervisor - The person (such as the Construction Superintendent, Supervisor, etc.) responsible for determining if acceptable entry conditions are present at a confined space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section. The person will be responsible for developing, implementing and coordinating entry operations with the customer and other multi employer's so that the employees of one employer do not endanger the employees of any other employer.

NOTE: An Entry Supervisor also may serve as an attendant or as an Authorized Entrant, as long as that person is trained and equipped as required by this section for each role that he or she fills. Also, the duties of the Entry Supervisor may be passed from one individual to another during the course of an entry operation.

- 3.8 Hazardous Atmosphere - An atmosphere that may expose employees to the risk of death, incapacitation, impairment of ability to self rescue (that is, escape unaided from an confined work space), injury or acute illness from one or more of the following causes:
- A. Flammable gas, vapor, or mist in excess of 10% of its lower explosive limit (LEL).
  - B. Airborne combustible dust at concentration that meets or exceeds its LEL;

NOTE: This concentration may be approximated as a condition in which the dust obscures vision at a distance of five (5) feet or less.

- C. Atmospheric oxygen concentration below 19.5% or above 23.5%.
  - D. Atmospheric concentration of any substance which could result in employee exposure in excess of its permissible exposure limit as defined by OSHA Regulation Guides.
  - E. Any other atmospheric condition that is immediately dangerous to life or health.
- 3.9 Oxygen Deficient Atmosphere - An oxygen deficient atmosphere has less than 19.5% available oxygen. Any atmosphere with less than 19.5 oxygen should not be entered without self-contained breathing apparatus or other supplied atmosphere system.

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The chart below indicates the effects of decreasing levels of oxygen.

23.5%.....	Oxygen Enriched
21%.....	Normal Level
19.5%.....	Minimum for Safe Entry
16%.....	Impaired Judgment & Breathing
14%.....	Faulty Judgment - Rapid Fatigue
6%.....	Difficult Breathing - Death in minutes

Oxygen Scale

- A. The oxygen level in a confined space can decrease because of work being done, such as welding or cutting. Oxygen levels can be reduced by certain chemical (rusting) or through bacterial action (fermentation).
  - B. The oxygen level is also decreased if oxygen is displaced by another gas, such as carbon dioxide or nitrogen.
  - C. Total displacement of oxygen by another gas will result in unconsciousness, followed by death.
  - D. In small enclosed spaces, the personnel in the space will "use up" the oxygen and create an oxygen deficient atmosphere.
- 3.10 Oxygen Enriched Atmosphere - An atmosphere containing more than 23.5 percent oxygen by volume.
- 3.11 Prohibited Condition - Any condition in a confined space that is not allowed by the permit during period when entry is authorized.
- 3.12 Rescue Service - The personnel designated to rescue employees from confined spaces.
- 3.13 Retrieval System - The equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non entry rescue of persons from permit spaces.
- 3.14 Testing - The process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

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NOTE: Testing enables employers both to devise and implement adequate control measures for the protection of Authorized Entrants and to determine if acceptable entry conditions are present immediately if acceptable entry conditions are present immediately prior to, and during entry.

3.15 Ventilation - Ventilation by blower or fan may be necessary to remove harmful gases and vapors from confined spaces. When using a ventilator, keep the number of bends in the ventilator duct to a minimum.

- A. There are several methods for ventilating a confined space. The method and equipment chosen are dependent upon the size of the confined space opening, the gases to be exhausted (e.g. are they flammable?) and the source of makeup air.
- B. If inert gases (e.g. carbon dioxide, nitrogen, argon) are used in the confined space the space should be well ventilated and re-tested before personnel may enter.
- C. A common method of ventilation requires a large hose, one end attached to a fan and the other lowered into an access. For example a manhole would have the ventilating hose run to the bottom to blow out harmful gases and vapors.
- D. The air intake should be placed in an area that will draw in fresh air only.
- E. Ventilation will be continuous, because in some confined spaces the hazardous atmosphere will form again when the flow of air is stopped.

#### 4. RESPONSIBILITIES

- 4.1 All employees involved in an operation requiring entry into confined spaces are responsible to see that this program is followed.
- 4.2 Supervisors will instruct all affected employees in the nature of the hazards involved, the necessary precautions to be taken, and the use of protective and emergency equipment.
- 4.3 The Company shall maintain the atmospheric monitoring equipment, entry and retrieval devices, and provide the training required for entering confined spaces. In addition, personnel selected will be certified and qualified in all of the requirements necessary to act as an Attendant, Entry Supervisor and Entrant.

#### 5. PROCEDURES

##### 5.1 PREPARATION OF CONFINED SPACES

The entry Supervisor shall check that the following steps have been taken to prepare the space before anyone enters.

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- 5.1.1 Notify all affected departments of service interruption.
- 5.1.2 All confined space work areas must be isolated by posting danger sign or other equally effective means. The space shall be purged, flushed or ventilated as necessary to eliminate or control atmospheric hazards. Utilize barriers or other means to protect entrance to unauthorized personnel and ensure that a safe means of entrance and egress is available to all entrants, attendants and rescue personnel.
- 5.1.3 Coordinate entry operations with the host employer and other contractors, when both host employer and other contractor personnel will be working in or near confined space and inform the host employer of any hazards confronted or created.
- 5.1.4 Complete the lock-out/tag-out procedures. See Lock-out/Tag-out procedure.
- 5.1.5 Before entering a confined space, the content must be drained and clean -out doors opened where provided. Further all lines/ pipes supplying the confined space must be isolated inoperable which may include, but is not limited to, blanking or securing valves in a closed position.
- 5.1.6 Prior to issuing the CONFINED SPACE ENTRY PERMIT, the owner or user of the confined space must furnish either a letter certifying that the confined space has been thoroughly cleaned and ventilated, or must furnish a Material Safety Data Sheet (MSDS) for each of the chemicals which were recently used in the confined space.
- 5.1.7 Prior to issuance of the permit, appropriate tests of the atmosphere must be made by authorized supervisory personnel from outside of the confined space to determine if:
  - a) Oxygen concentration must be within 19.5 - 23.5 percent by volume.
  - b) Flammable gases and vapors concentrations, which must be less than 10 percent of the lower flammable limit (LFL).
  - c) Potential toxic air contaminants cannot meet or exceed its PEL.

These tests for the above conditions must be done in the order given. Tests must be made with appropriate monitoring equipment. The authorized supervisory personnel required to monitor the atmosphere must be trained in proper use, calibration, and care of monitoring instruments and must remain at the site until all monitoring is completed.

- 5.1.8 If tests indicate the atmosphere is initially safe, but the work may produce a hazardous atmosphere from such processes as cutting, welding or use of cleaners and solvents, entry without appropriate respiratory protection will only be permitted subject to additional atmosphere testing and monitoring by authorized supervisory personnel.



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- 5.1.9 Additional testing will also be conducted if conditions within the space are subject to potential changes from external conditions and if employees or their authorized representatives request additional monitoring.
- 5.1.10 If tests indicate that the atmosphere is unsafe, the confined space must be ventilated until the hazardous atmosphere is removed, prior to employee entry, or the space must be initially and continually inerted throughout the entry procedure.
- 5.1.11 If, after ventilating the space, tests indicate a non-respirable atmosphere (less than 19.5 percent or above 23.5 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 has been properly trained in the use of that equipment.
- 5.1.12 Verify that the training of entry Supervisor, attendant and entrant(s) is documented and current and all Confined Space team members have participated in and reviewed the calibration and monitoring data..
- 5.1.13 The Confined Space Entry Permit will not be issued unless the following provisions have been met:
- a) Constant communication with entry team and provide at least one attendant outside the space into which entry is authorized for the duration of the entry operation.
  - b) An adequate rescue plan is in place.
  - c) An employee is on site who is trained in first-aid and CPR.

## 5.2. ENTRY REQUIREMENTS

- 5.2.1 A properly completed Confined Space Entry Permit must be posted at the entrance to the space BEFORE any one is allowed to enter.
- 5.2.2 Atmospheric Testing - Test the air in all elevations before entry as defined in the Section 5.1.7 to 5.1.10 above.
- 5.2.3 Personal protective equipment, such as coveralls, impervious gloves, boots, face and eye protection, must be worn as required by the nature of the operation to be performed. Specific protective clothing may be required if the contaminant can cause dermatitis, chemical burns, or can be absorbed through the skin.
- 5.2.4 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.
- 5.2.5 A list of suggested equipment for use with this program is as follows:

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- a) A combination combustible gas/oxygen meter which samples for combustible vapors and oxygen deficiency simultaneously, is recommended. However, individual meters to sample for combustible atmosphere and oxygen deficiency may also be used.
- b) Supplied-air breathing apparatus, such as a self-contained respirator with full facepiece operating in pressure demand mode (SCBA), or TYPE-C supplied-air respirator with full - facepiece operating in pressure demand mode with an emergency backup SCBA or escape bottle operating in pressure demand mode must be used in atmospheres immediately dangerous to life.
- c) A supplied-air TYPE-C respirator, in either continuous flow or pressure demand mode, may be used in areas which are not immediately hazardous to life and from which the wearer can readily escape.
- d) **Harness and Lifelines:** Harness should be capable of retrieving an inert body in an upright position. A parachute-type harness with a single lifting ring attached in 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 may be required instead of a body harness. Sufficient lifelines of at least on-half inch manila must be provided to ensure constant connection between the worker in the confined space and the attendant outside.
- e) When using airline supplied-air units, breathing air must be delivered through a filter panel.
- f) **Ventilation:** A portable blower with a minimum of 600 CFM at 1.5 inches of static pressure should be used to supply air and ventilate the confined space prior to and during occupancy.

### 5.3. EMERGENCY AND RESCUE PROCEDURES

5.3.1 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 program, and in the absence of time to complete testing and ventilating procedures, the atmosphere will be considered as unsafe to enter without the use of an approved air-supplied breathing device.

5.3.2 The safest way of leaving a space when conditions deteriorate are:

- Self-rescue, when entrants evacuate the space with no assistance at the first sign of trouble.
- Non-entry rescue.

Notify the rescue service prior to entry, to ensure that they are available for an emergency. List the name and phone number of the rescue service for the attendant. See Section 5.4.4 for additional requirements for rescue personnel.

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- 5.3.3 Only workers trained in rescue can enter the space for the purpose of rescue.  
NOTE: Contact the local EMS (Fire Dept) prior to project start-up.

#### 5.4 DUTIES OF CONFINE SPACE ENTRY TEAM.

- 5.4.1 Entry Supervisor - makes sure conditions are safe. Before entry, the supervisor verifies that the permit is filled out completely and all steps listed on it are taken, then signs the form.

During entry, the entry supervisor checks the conditions to make sure they stay safe throughout the work. If conditions become unsafe, the permit is canceled and everyone is ordered out of the space. The entry supervisor sees that any unauthorized people are removed. When work is completed, the entry supervisor cancels the permit and concludes the operation.

The supervisor must address the procedures for reviewing the entry operations that may not provide enough protection for employees and for revising the program prior to subsequent entries are authorized.

NOTE: Examples of circumstances requiring the review of the permit space program are: 1) any unauthorized entry of a permit space, 2) the detection of a permit space hazard not covered by the permit, 3) the detection of a condition prohibited by the permit, 4) the occurrence of an injury or near-miss during an entry, 5) a change in the use or configuration of a permit space and 6) employee complaints about the effectiveness of the program.

- 5.4.2 Attendant - stays at his post to observe conditions and support the entrant. As an attendant, you must know the hazards that of the space and signs of exposure. Keep a current count and be able to identify all entrants. Stay in continuous contact with the entrants. Be sure only authorized personnel enter the space or the area surrounding the space. Order all workers out of the space in any of these situations:

- You see a condition not allowed by the entry permit.
- You notice signs of exposure in any entrant.
- You see something outside the permit space that could cause danger inside.
- You must focus your attention on the rescue of entrants from another permit space.

An attendant must never leave the observation post for any reason. If entrants need to escape, call the rescue team at once. In case of emergency, do not enter the permit space unless you are trained in confined space rescue, have proper emergency equipment and another attendant is there to replace you.

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5.4.3 Entrant - must do his part to control the hazard of confined space entry. As an entrant, be sure you know the hazards of the space and signs of exposure. For example, lack of oxygen can cause:

- \* Loss of muscle control
- \* Mental confusion
- \* Breathing difficulty
- \* Misguided feeling of well-being
- \* Ringing in the ears
- \* Death

Follow your personal protective equipment training carefully. Keep in contact with the attendant, and leave the space at once if you are ordered to evacuate. Always be ready to evacuate quickly and, if possible, without help. If you see that you are in danger, leave the space and tell the attendant.

5.4.4 Rescue and Emergency Service Personnel – Company personnel will **NOT** perform rescue and emergency services but will meet with the prospective rescue service, be it the client Host rescue services or an off-site rescue service, to plan and coordinate the evaluations required by the OSHA Standard. Selection of a rescue service shall be based on the evaluation of response time, (e.g. if IDLH atmosphere if involved, services must be available at the site), vertical space entry, equipment necessary, training in SCBA and first aid and CPR.

Outside services must be given an opportunity to examine the entry site, practice rescue, and decline as appropriate. If there is reliance on the client Host rescue services for use, this **MUST** be stated and agreed to in the contract language. Rescue service employees must have PPE at no cost, training and practice rescues at least every 12 months.

## 5.5 TRAINING

5.5.1 All employees and supervisors involved in confined space entry shall be trained in all aspects of the purpose and use of the Confined Space Entry procedures. Each affected employee must be trained prior to initial assignment, prior to a change in assigned duties, if a new hazard has been created or special deviations have occurred. The employees must be trained in the following:

- a) use of all personal protective equipment including respirators.  
**Note:** Medical approval is required to wear a respirator. Refer to the Respirator Program in this safety manual.
- b) simulated emergencies during which respirators (SCBA) will be donned and rescue procedures practiced.
- c) use of testing equipment include calibration and limitations of the equipment.
- d) First Aid and CPR for the Attendant at a minimum.

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5.5.2 Prior to entering the confined space all entry team employees will be trained in the physical and atmospheric hazards and symptoms of exposure for all potential contaminants.

5.5.3 Training must be documented with the employee's name, trainer signature/initials and date of training.

## 6. **RECORDKEEPING**

6.1 All permits will be maintained for a minimum of 1 year.

6.2 Review the permit required confined space program, using the canceled permits retained within 1 year after each entry and revise the program as necessary.

6.3 Employee training records shall be kept for three (3) years.

## 7. **ATTACHMENTS**

7.1 Confined Space Entry Permit

Permit No: \_\_\_\_\_

**CONFINED SPACE ENTRY PERMIT**

**GENERAL INFORMATION**

Space to be Entered: \_\_\_\_\_

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

Location/Building: \_\_\_\_\_

Authorized Duration of Permit: Date: \_\_\_\_ \_\_\_\_ \_\_\_\_ to \_\_\_\_ \_\_\_\_ \_\_\_\_

Time: \_\_\_\_\_ to \_\_\_\_\_

**PERMIT SPACE HAZARD (Indicate specific hazard with initials.)**

- \_\_\_\_\_ Oxygen deficiency (less than 19.5%)
- \_\_\_\_\_ Oxygen enrichment (greater than 23.5%)
- \_\_\_\_\_ Flammable gases or vapors (greater than 10% of LEL)
- \_\_\_\_\_ Airborne combustible dust (meets or exceeds LFL)
- \_\_\_\_\_ Toxic Gases or vapors (greater than PEL)
- \_\_\_\_\_ Mechanical Hazard
- \_\_\_\_\_ Electrical shock
- \_\_\_\_\_ Materials harmful to skin
- \_\_\_\_\_ Engulfment
- \_\_\_\_\_ Other \_\_\_\_\_

**PREPARATION FOR ENTRY (Check after steps have been taken.)**

- \_\_\_ Notification of affected departments of service interruption.
- \_\_\_ Isolation Methods:
  - \_\_\_ Purge/ Clean
  - \_\_\_ Atmospheric test
  - \_\_\_ Lockout/tagout
  - \_\_\_ Inert
  - \_\_\_ Barriers
  - \_\_\_ Blank/blind
  - \_\_\_ Ventilate
  - \_\_\_ Other \_\_\_\_\_
- \_\_\_ Personnel Awareness:
  - \_\_\_ Pre-entry briefing on specific hazard and control method.
  - \_\_\_ Notify contractors of permit and hazard conditions.
  - \_\_\_ Other: \_\_\_\_\_
- \_\_\_ Additional permits required and/or attached:
  - \_\_\_ Hotwork
  - \_\_\_ Line Breaking
  - \_\_\_ Other \_\_\_\_\_

**EMERGENCY SERVICE**

Name of Service	Phone Number	Method of Contact
_____	_____	_____
_____	_____	_____
_____	_____	_____

**EQUIPMENT REQUIRED FOR ENTRY AND WORK - Specify as required:**

Personal Protective Equipment: \_\_\_\_\_

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

Atmospheric Testing/Monitoring: \_\_\_\_\_

Communication: \_\_\_\_\_

Rescue Equipment: \_\_\_\_\_

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

COMMUNICATION PROCEDURES - To be used by attendants and entrants:

\_\_\_\_\_

AUTHORIZED ENTRANTS - List by name or attach roster:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

AUTHORIZED ATTENDANTS - List by name:

_____	_____
_____	_____

TESTING RECORD

Time	Acceptable Condition	Result _____ :AM/PM	Result _____ :AM/PM	Result _____ :AM/PM	Result _____ :AM/P
Oxygen - min.	<19.5%	_____	_____	_____	_____
Oxygen - max.	<23.5%	_____	_____	_____	_____
Flammability	<10% LEL	_____	_____	_____	_____
H <sub>2</sub> S	<10 ppm	_____	_____	_____	_____
Toxic (specific)	_____	_____	_____	_____	_____
Cl <sub>2</sub>	<0.5 ppm	_____	_____	_____	_____
CO	<35 ppm	_____	_____	_____	_____
SO <sub>2</sub>	<2 ppm	_____	_____	_____	_____
Heat	°f / °C	_____	_____	_____	_____
Other	_____	_____	_____	_____	_____
Tester Initials	_____	_____	_____	_____	_____

AUTHORIZATION BY ENTRY SUPERVISORS

I certify that all required precautions have been taken and necessary equipment is provided for safe entry and work in this confined space.

Printed Name	Signature	Date	Time
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

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## 1 **PURPOSE AND SCOPE**

The OSHA Process Safety Management (PSM) standard (29 CFR 1910.119) contains requirements for the management of highly hazardous chemicals to help ensure safe and healthful workplaces. Specifically to prevent or minimize the consequences of catastrophic releases of toxic, reactive, flammable or explosive chemicals in various industries including refineries. The standard applies to companies that deal with any of more than 130 specific toxic and reactive liquids in listed quantities. It also includes processors of flammable liquids and gases in quantities of 10,000 pounds or more and polytechnics and explosives manufacturers. It applies to refineries, most chemical plants, and many other manufacturers, wholesalers, and water treatment facilities.

The PSM standard addresses contractor's issues in 1910.119(h). It focuses on a number of technical, procedural, and managerial issues, including the selection, qualifications, and responsibilities of contractors. This section applies to contractors performing maintenance or repair, turnaround or major renovation, or specialty work on or adjacent to a process covered by 1910.119. It does not apply to contractors providing incidental services that do not influence process safety.

## 2 **REFERENCES**

2.1 OSHA 29 CFR 1910.119 Process Safety Management

## 3 **DEFINITIONS**

None

## 4 **RESPONSIBILITIES**

4.1 As defined in the procedure Section 5.1 and 5.4

## 5 **PROCEDURE**

### 5.1 **Owners Responsibilities:**

The following information must be obtained from the owner prior to starting work on the Project. This information is critical to our site specific training that must occur before any work is started.

- a) Provide HAZCOM data (fire, explosion, toxic, etc.).
- b) Establish safe work procedures.
- c) Develop emergency response plans.
- d) Audit contractors compliance.
- e) Audit owner compliance (self audit).
- f) Contractor selection/screening.
- g) Owner - contractor communication.



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## 5.2 Informing the Contractor

The following information must be obtained from the owner prior to starting work on the project. This information is critical to our site specific training that must occur before any work is started.

- a) Hazard analysis.
- b) Hazard communication.
- c) Emergency plans/procedures.
- d) Safe work procedures.
- e) Site specific rules and regulations.
- f) Detailed safety requirements in bid documents.

NOTE: All contract employers must respect the confidentiality of trade secret information when the process safety information is released to them.

As a contractor, our employees shall abide by the customer's safety work practices during operations such as lockout/tagout, confined space entry, opening process equipment or piping and controls over entrance to facility.

## 5.3 Contractors Performance Evaluation

The following information must be supplied to the owner prior to the commencement of work. This information is generally required at bid time. This information can be obtained from the Home Office.

- a) OSHA 300 Injury/Illness summary.
- b) Worker's Compensation loss run.
- c) OSHA citation history - refinery/process work.
- d) Safety performance statistics - refinery/process work.
- e) Written Process Safety Management action plan.
- f) History of refinery / process related work

## 5.4 Contractor Responsibilities

The following information is to be obtained for review by the owner. This information is a critical part of the PSM program and should be maintained at the branch office on each employee hired.

### 5.4.1 Employee Selection

Each employee selected for work on a PSM project must be capable of completing the task required to complete the type of work outline in the scope of work by the owner or contract documents. This includes, but is not limited to, Employee Skills Verification, Trade Union Verification, Work History Summary, Certification/License Verification, and/or Drug and Alcohol Testing.

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#### 5.4.2 Employee Skill Verification

Each employee will be interviewed prior to starting work on a PSM project. The employee will be asked a specific number of questions to verify the skill level of each employee. This includes, but is not limited to, Trade Union/Apprenticeship Verification, Work History Summary, and/or Certification/License Verification. In some instances, employee may be required to demonstrate specific tasks that might be required on the PSM project before this employee is allowed to work on site. If required, a site specific craft skill verification test will be written with a minimum passing score required.

#### 5.4.3 Safe Work Practice Compliance

The owner is required to submit to the contractor all required site safety regulations. This information will be used in the site specific employee orientation program either provided by the owner or the Company. This program will include all safety regulations required by both the owner and the Company. The Company's disciplinary policy will also be reviewed.

#### 5.4.4 Employee Orientation Training

All employees will be trained in safety procedures prior to working on a PSM project. This training shall assure that each worker is instructed in the known potential fire, explosion, or toxic release hazards related to his/her job and process and the applicable provisions of the emergency action plan. This will be accomplished by checking the employees' work history. This will identify all the previous safety training that has been completed by the employee. This information will be reviewed by the branch prior to assigning this individual to work on a PSM project. If it is identified that the employee does not have the required safety training for this PSM project, the employee will either be trained immediately or will not be assigned to this PSM project. Other safety training documentation may be submitted by the employee from a previous employer or completed course. This documentation must meet or exceed the requirements of the Company.

#### 5.4.5 Advise Owner Of Work Generated Hazards

The Company will submit to the owner or general contractor a site specific action plan outlining the various hazardous activities that the Company will be accomplishing on this PSM project. This includes but is not limited to Site Action Plan and Hazard Communication Program. The HazCom Program will identify all the products the Company will bring on site and the appropriate MSDS will be available for review.

#### 5.4.6 Advise Owner Of Hazards Encountered

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The Company will submit to the owner any hazards that are encountered during the daily job site inspections. The Company will assign a safety committee to conduct daily job site inspections. The results of these inspections will be reviewed at the daily "tool-box" safety meeting, with a copy being sent to the owner

5.4.7 Advise Owner of Incidents

Employees must immediately report all accidents, injuries and near misses. An incident investigation must be initiated within 48 hours. Resolutions and corrective actions must be documented and maintained 5 years. See Safety Directive 1.9.

5.5 Contractor Process Safety Management Program Elements

The following elements will be part of the Company's PSM program.

5.5.1 Project Specific Action Plan

The Company will write a specific PSM action plan for each individual project. This plan will cover all of the required elements of PSM. The Company must obtain all the owner required information before this program can be written.

This plan should include, but is not limited to, PSM Overview, Safety Rules, Accident Investigation, Emergency Evacuation Plan, Emergency Response, Personal Protective Equipment, Fall Protection, Fire Extinguisher Use, Hazard Communication, Hearing Conservation, Hot Work Permit, Lock-Out Tag-Out, and/or Confined Space.

Employees must immediately report all accidents, injuries and near misses. An incident investigation must be initiated within 48 hours. Resolutions and corrective actions must be documented and maintained 5 years.

5.5.2 Job Skill Development/Verification

The Company will verify that the employees have the proper skills to accomplish the required work. This will be accomplished by asked a specific number of questions to verify the skill level of each employee. This includes, but is not limited to, Trade Union/Apprenticeship Verification, Work History Summary, and/or Certification/License Verification. In some instances, employee may be required to demonstrate specific tasks that might be required on the PSM project before this employee is allowed to work on site. If required, a site specific craft skill verification test will be written with a minimum passing score required. If this skill level is not adequate the Company shall develop a program to develop or enhance this employee skill level before assigning this employee to a PSM project.

### 5.5.3 Employee Orientation/Training

The Company will ensure that each employee has attended a site specific PSM employee orientation program either provided by the owner or the Company. This program will include all safety regulations required by both the owner and the Company. An overview of the project specific action plan including the Company's disciplinary policy will also be reviewed. Additional safety training will be required by the project specific action plan. The individual records of each employee will be reviewed prior to assigning this individual to work on a PSM project. If it is identified that the employee does not have the required safety training for this PSM project, the employee will either be trained immediately or will not be assigned to this PSM project.

### 5.5.4 Safe Work Procedures/Permits

The Company will require that all work is done in compliance with the safe work procedures required by both the owner and the Company. This will be accomplished by the review of procedures at daily "tool-box" safety meetings. A specific agenda will be followed on a daily basis this will include, but is not limited to, safety subject of the day, review of any accidents or near misses, the review of any permits that are required such as hot work/lock-out tag-out or confined space, and any owner known or site specific hazard.

### 5.5.5 Safety Task Assignments

The Company will assign a safety committee to review all safety conditions that are required on a PSM project. This will include, but is not limited to, daily safety inspection, accident and near miss investigation, participation in the daily "tool-box" safety meeting and assisting in site safety training. The Company will select different employees throughout the duration of the PSM project to participate on the Safety Committee.

### 5.5.6 Auditing

The Company will institute a daily safety inspection by both the safety committee and Company supervision. This will be accomplished by individual site "walk arounds". At various times of the day, the inspectors will be walking around the site observing the work in progress. All infractions will be documented and each individual will be informed by Company supervision of these infractions. The Company's disciplinary policy will be enforced.

## 5.6 CONTRACTOR TRAINING EVALUATION

### 5.6.1 Written Training Plans

The Company has written training programs in the Company safety manual. These training programs will be used as the text for the various training requirements in PSM. Videos will also be used to enhance the written program.

#### 5.6.2 Employee Training/Verification Methods

If required, the Company will write a site specific safety training and skill verification test with a minimum passing score required.

#### 5.6.3 Safety Task Assignments Program

Each employee may be asked to participate as a member of the Safety Committee. This will include, but is not limited to, daily safety inspection, accident and near miss investigation, participation in the daily "tool-box" safety meeting and assisting in site safety training.

#### 5.6.4 Employee Skill Verification

Each employee will be interviewed prior to starting work on a PSM project. The employee will be asked a specific number of questions to verify the skill level of each employee. This includes, but is not limited to, Trade Union/ Apprenticeship Verification, Work History Summary, and/or Certification/License Verification. In some instances, employee may be required to demonstrate specific tasks that might be required on the PSM project before this employee is allowed to work on site. If required, a site specific craft skill verification test will be written with a minimum passing score required.

#### 5.6.5 Trainer/Instructor Qualifications

Each supervisor that will be assigned the requirement of Trainer/Instructor will be required to meet the requirements of OSHA's competent person in each PSM subject. This can be accomplished by attending an OSHA approved class or meeting the requirements with existing experience and knowledge in each PSM subject.

### 5.7 DOCUMENTATION OF TRAINING:

#### 5.7.1 Employee Acknowledgment.

Each employee will be required to sign an Employee Acknowledgment Record that states that this employee has received training on the various program elements of PSM.

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## 5.7.2 Written Tests

The Company, if required, may use written test to verify that an employee has received adequate training in the elements of PSM.

## 5.7.3 Daily Safety Meeting Attendance Rosters

Employees will be required to sign all daily safety meeting attendance rosters. This will verify that all employees are meeting the continuing educational training requirements of PSM.

## 5.7.4 Safety Task Assignment Documentation

All documentation that is created under PSM will be available for review by the owner at any time. This documentation will be kept on file in the site trailer. If the need arises to verify any documentation, see one of the supervisors for assistance.

## 6 RECORDKEEPING

Employee training records for PSM will be kept for three (3) years.

## 7 ATTACHMENTS

None

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## 1 **PURPOSE AND SCOPE**

To establish safe work practice and protective equipment requirements for welding, burning, cutting, and grinding.

## 2 **REFERENCES**

- 2.1 OSHA 29 CFR 1910. 252 - Welding, Cutting, and Brazing, General Requirements
- 2.2 OSHA 29 CFR 1926.350 - .354 - Welding and Cutting
- 2.3 American Welding Society-Safety in Welding and Cutting ANSI Z49.1
- 2.4 OSHA 29 CFR 1910 and 1926 – Occupational Exposure to Hexavalent Chromium, Final Rule, Federal Register, February 28, 2006

## 3 **DEFINITIONS**

- 3.1 Approved - Listed or approved by a nationally recognized testing laboratory such as Underwriters Laboratory, Inc. or Factory Mutual Insurance, etc.
- 3.2 Hot Work - Any operation where heat, spark, fire or molten metal could be produced, such as welding, burning or cutting using the oxy-acetylene or electric arc process or heavy, (extensive) grinding and also includes the use of any tools that are not intrinsically safe inside a Class I Division I area.
- 3.3 Fire Watch - An individual assigned to monitor hot work activities both during and at least 30 minutes after their completion, for detection of possible fires. Fire watch personnel shall be properly trained and knowledgeable in the use of available fire extinguishers and fire extinguishers shall be available within 20 feet.

## 4 **RESPONSIBILITIES**

- 4.1 Supervisors shall ensure hot work activities are performed in a safe manner with fire potentials controlled, as specified herein.
- 4.2 Employees are responsible for the proper use of welding, burning, cutting and grinding equipment for its safe use
- 4.3 The Construction Manager shall ensure that cutters, welders and their supervisors are trained in the safe operation of their equipment and the safe use of the process.

## 5 **PROCEDURE**

- 5.1 Welding, Cutting, Burning and Grinding Hazards

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There are a number of hazards associated with welding, burning, cutting and grinding. By following the guidelines outlined in this directive the hazards listed below which can cause injuries can be eliminated and/or minimized.

- 5.1.1 Flash Burns - The most common injuries from welding are flash burns, caused by the ultraviolet light produced by the arc. A flash burn is like a sunburn of the outer surface of the eye resulting in a gritty feeling in the eye. The effect is delayed.
  - 5.1.2 Radiation Burns - Unfiltered ultraviolet light from cutting or welding can cause severe short-term burn and poses the same long term skin cancer risks as sunburn.
  - 5.1.3 Heat, Sparks, Open Flames, Metal Spatter - Can cause burns to the welder as well as bystanders and cause a fire by not covering or removing flammable materials or substances.
  - 5.1.4 Electric Shock - Can be caused by electric welders from welding on steel or other conductive materials or the welding area is wet or damp when not properly grounded.
  - 5.1.5 Fume Poisoning - From such metals as lead, zinc, and cadmium, can enter the nose and mouth through smoking or eating with contaminated hands. Continuous exposure may lead to long term blood disorders, nerve damage and kidney disease.
  - 5.1.6 Ozone - A highly toxic gas produced from any arc-type welding can cause respiratory problems. Ozone has a characteristic irritating pungent odor and can cause short term aches and nausea.
  - 5.1.7 Heated Coatings and Paints - Can release toxic substances such as cyanide, formaldehyde, isocyanates and lead.
  - 5.1.8 Improper Handling of Gas Cylinders
    - Acetylene cylinders must be stored upright.
    - The use of oil, grease or similar substances on torches or regulators in the presence of oxygen, may burn, or if ignited, explode.
- 5.2 Pre-Job Planning/Project Safety Plan
- Before commencement of each job determined to have potential airborne exposure (e.g. lead, zinc, etc.) at or above the PEL a Task Safety Analysis (TSA) must be performed outlining equipment and material requirements, and required controls and



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operating procedures. Guidelines for conducting a job briefing can be found in the Safety Manual, Section 1.2, Job Briefing/ Project Safety Plan/Task Safety Analysis.

### 5.3 General Requirements

- 5.3.1 Only equipment specially designed for welding, burning, cutting, and grinding operations shall be used and maintained. Operators of equipment shall report any equipment defect or safety hazards and discontinue use of the equipment until its safety has been assured. Repairs shall be made only by qualified personnel.
- 5.3.2 Equipment used in welding, burning, cutting, and grinding activities shall not be altered, abused or made unsafe for any reason.
- 5.3.3 No employee shall enter a confined space to perform welding, burning, cutting, or grinding without following the requirements specified in the Confined Space Safety Directive No. 9.2.
- 5.3.4 Where coverings are used to contain hot work debris at the floor, wall and other openings, material of sufficient strength shall be used. This material shall not create a fall hazard for personnel. Such covering shall extend completely over the opening and shall be secured in a manner which prevents material from passing under it. This includes the covering of grated floors.
- 5.3.5 Cords and hoses shall not create a tripping hazard for personnel.
- 5.3.6 If the presence of metal protective coatings exists, they shall be properly removed to prevent potential exposure to harmful fumes (e.g., lead-based paint).
- 5.3.7 Before cutting or welding is permitted, the area shall be inspected by position responsible for inspection and granting authorized welding and cutting operations. A WRITTEN Hot work permit shall be obtained as required.
- 5.3.8 Suitable protection shall be installed on scaffolds (between handrail and toe board) to contain hot work activities, as well as offer suitable flash protection.
- 5.3.9 A first aid kit shall be readily available at all times.

### 5.4 Protective Clothing

- 5.4.1 Protective clothing, worn during hot work activities, shall be of fire resistance properties. Highly combustible material such as nylon, polyester, etc., shall not be worn while performing, or in close proximity to, hot work activities.

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- 5.4.2 Trousers and shirt sleeves should be free of cuffs, so as not to trap hot material (welding slag, sparks, etc.). Long sleeve shirts are to be worn.
- 5.4.3 Suitable protective clothing, affording sufficient fire resistance properties, shall be worn while performing overhead hot-work activities.
- 5.4.4 Suitable hand protection shall be worn as determined by the nature of the welding, burning, cutting, or grinding operation.

#### 5.5 Eye, Face and Ear Protection

- 5.5.1 Only approved eye, face and ear protection shall be worn while performing, or in close proximity to, hot work activities.
- 5.5.2 Approved welding helmets (ANSI Protective Headwear for Industrial Workers, Z89.1-1986) equipped with the proper filter lens, shall be worn. The welding helmet and lens shall be free of defects, excess splatter and cracks. Welding helmets should be properly adjusted, permitting them to drop into position easily.
- 5.5.3 Safety glasses or goggles shall be worn under welding helmet, protecting the welder from flying metallic particles, sparks, flames and debris.
- 5.5.4 Other nearby personnel shall wear approved flash glasses and/or safety glasses while exposed to hazards produced by welding activities.
- 5.5.5 Only approved eye protection shall be worn. Refer to the OSHA Standard 29 CFR 1926.102 (b) Table E-2 *Filter Lens Shade Numbers For Protection Against Radiant Energy*. Table E-2 should be used as a guide for the selection of the proper shade numbers of filter lenses or plates used in welding.

#### 5.6 Ventilation

- 5.6.1 Adequate ventilation shall be used during welding activities, which is sufficient to remove welding fumes, and allow sufficient air changes. Consideration shall be given to the following when choosing the type (s) of ventilation:
  - a. Size of work area - height of ceiling
  - b. Location of activity, i.e., outdoors, indoors (in open area) or within a confined/enclosed space.
  - c. Amount of natural draft (air movement)
  - d. Type of hot work being performed
  - e. Review of Material Safety Data Sheets for welding material
  - f. Potential for emissions of harmful vapors, gases or other contaminants

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- 5.6.2 When necessary for indoors or confined/enclosed space work, local exhaust or general ventilating systems shall be provided to keep the amount of toxic fumes, gases or dusts below the Permissible Exposure Limit (PEL) set forth in 29 CFR 1910.1000, or specific chemical standards.
- 5.6.3 Should ventilation be insufficient in removing fumes, vapors or smoke, employees shall be provided with appropriate respiratory equipment.
- 5.6.4 Where exhaust hoods are used, they shall move freely and shall be positioned as close to the welding activity as possible without interfering with the welder's visibility or otherwise obstruct the activity.
- 5.6.5 Local exhaust hoods/booths shall maintain an air-flow away from the welder.
- 5.6.6 Ventilation in confined spaces shall be provided in such a manner so as to prevent the accumulation of toxic materials, as well as to prevent the creating of an oxygen deficient atmosphere.
- 5.6.7 Compressed or otherwise pure oxygen shall not be used for ventilation.

#### 5.7 Exposure Monitoring

Adequate monitoring shall be performed to ensure exposure to airborne contaminants produced through hot work activities, are kept below the Permissible Exposure Limit(s) (PEL) set forth by the Material Safety Data Sheet for the welding material and other metallic substances, as well as that specified in 29 CFR 1910.1000.

#### 5.8 Respiratory Protection

- 5.8.1 Adequate means of reducing an employee's exposure to airborne contaminants, produced through welding activities shall be controlled through the use of Engineering Controls. Should Engineering Controls be inadequate, or infeasible during placement of such controls, approved respiratory protection shall be used.
- 5.8.2 Applicable Material Safety Data Sheets (MSDS) shall be reviewed to determine both the need and type of respiratory protection required.
- 5.8.3 Where required, proper respiratory equipment shall be obtained and used in accordance with the Respiratory Protection Safety Directive No.3.3.

#### 5.9 Shielding, Barriers and Warnings

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- 5.9.1 Suitable shielding shall be installed at welding, burning, and cutting operations to protect other persons working in the area or passersby from exposure to hazards produced by the operation.
- 5.9.2 Where shielding is not feasible, due to the location of the welding operation, suitable barriers shall be installed to prevent personnel from entering the area.
- 5.9.3 Welding or cutting shall not be performed when the work area can not be made safe.
- 5.9.4 Adequate warnings shall be posted to alert personnel to the operation for which suitable shielding can not be installed. This warning shall identify the hazard, as well as specify the type(s) of protective equipment required.

5.10 Precautionary Labels/Toxic Materials

- 5.10.1 All materials used in welding, burning, cutting, and grinding activities shall be properly labeled and shall have a MSDS available for review.
- 5.10.2 Welding or cutting stainless steel or metals coated with chromium may generate fume containing hexavalent chromium which causes an increase risk of lung cancer in humans. Refer to Attachment 7.1- *Hexavalent Chromium Awareness*.
- 5.10.3 Precautionary labels shall be provided on all boxes, bags or other containers, identifying any health hazard associated with the material.
- 5.10.4 All personnel working with, or near toxic, flammable or otherwise hazardous material shall be properly informed of hazards associated with the material. MSDS should be available for any associated materials.
- 5.10.5 All hot work involving toxic metals shall be performed using approved ventilation/respiratory protection equipment, as required by the MSDS's.

5.11 Welding and Cutting (oxy-acetylene)

- 5.11.1 Only approved equipment (i.e., torches, hoses, fittings and regulators) shall be used during oxy-acetylene welding/cutting operations. A competent person will oversee all hot work activities. All personnel in charge (i.e. overseeing or supervising) oxygen or fuel-gas supply equipment (including distribution piping systems and generators) must be instructed in and designated as competent. 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.

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- 5.11.2 Fuel gas/oxygen shall not be used without reducing its pressure through a regulator.
- 5.11.3 Gauges shall function properly and shall have their protective covers and hardware in place.
- 5.11.4 All regulators and gauges shall be approved for the gas being used.
- 5.11.5 Acetylene shall not be used at a gauge pressure (delivery side) exceeding 15 psi.
- 5.11.6 No cylinder, valve, torch, hose, regulator, gauge or fitting shall be permitted to come in contact with oil or grease. This includes the storage of the same.
- 5.11.7 Valves on acetylene cylinders shall be opened no more than 1.5 turns.
- 5.11.8 Hoses and torches used within a confined/enclosed space shall be removed as soon as the work is completed, at breaks, at lunch and at the end of each shift. Compressed gas cylinders shall not be permitted in confined spaces.
- 5.11.9 All cylinders shall be broken down and capped when their use is complete or at the end of each shift or whichever is first.
- 5.11.10 Hoses shall not create a tripping hazard, nor shall they be permitted to come in contact with any sharp or hot surface.
- 5.11.11 Adequate ventilation shall exist during any welding/cutting operation.
- 5.11.12 No stem shall be completely removed from a diaphragm on a regulator.
- 5.11.13 All leaks in hoses, fittings, etc., shall be repaired immediately. Taping of a leak is not acceptable.
- 5.11.14 Prior to removing a regulator, the cylinder valve shall be closed and the line(s) cleared.
- 5.11.15 Where parallel lengths of oxygen and acetylene hose are taped together to prevent tangling, no more than 4 inches out of 12 inches shall be covered.
- 5.11.16 All hose connections shall be securely fastened in a manner that will prevent leaking and shall be capable of withstanding twice the pressure for which they are used, but not more than 300 psi.
- 5.11.17 Any hose, regulator, gauge, fitting, etc., found to be damaged shall be repaired or replaced by a competent person.

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5.11.18 All oxygen and acetylene hoses shall be equipped with a backflow prevention device.

5.11.19 All hoses, regulators and torches shall be properly stored in a ventilated container which is free of oil or grease.

5.12 Compressed Gas Cylinders (Welding and Cutting)

5.12.1 Cylinders shall not be positioned in proximity to electrical equipment as to become part of an electric circuit.

5.12.2 Cylinders shall not be secured to a metal fabricating table, piping, structures, etc., which are being welded upon using the electric arc process, unless suitable insulation is installed.

5.12.3 Electrodes shall not be permitted to come in contact with a cylinder.

5.12.4 All cylinders shall be secured in a vertical position at all times.

5.12.5 Oxygen cylinders shall be stored in an upright secured position 20 feet from any flammable gases or petroleum products.

5.12.6 Cylinders shall not be permitted to strike each other violently.

5.12.7 Cylinders shall be hoisted only while using an approved cart.

5.12.8 Cylinders shall not be placed where they may be exposed to welding debris such as sparks, fire, molten metal or other falling debris.

5.12.9 No cylinder shall be permitted within a confined/enclosed space.

5.12.10 When not in use, or at the completion of the activity or shift, which ever is sooner, all cylinders shall be broken down and capped, unless otherwise permitted.

5.12.11 Cylinders designed to utilize special keys or wrenches to open/close valves, shall have the proper key/wrench in place at all times while in use.

5.12.12 All valves, regulators and gauges shall be exposed to view at all times. Items shall not be permitted to cover or conceal them.

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### 5.13 Cable, Grounding, and Electrode Holders

- 5.13.1 All cables shall be capable of handling the current produced through the welding activity.
- 5.13.2 Cables should be uncoiled, while in use, to prevent overheating.
- 5.13.3 All lead cables shall be properly installed.
- 5.13.4 All cables shall be routed overhead at a height of 7 feet and properly secured using non-conductive materials. Where this is not possible, adequate means shall be instituted to route all cables away from the path of travel so as to not create a tripping hazard, nor expose the cable(s) to potential damage.
- 5.13.5 Where cables are exposed to either foot traffic or vehicular traffic, all cables shall be adequately protected from damage by covering them with suitable material which is adequately secured against displacement.
- 5.13.6 Cable leads, electrode holders, and power supplies shall not be laid in water.
- 5.13.7 All welding machines shall be properly grounded.
- 5.13.8 All grounds shall be properly secured against displacement, as well as the creating of sparks, caused through a loose connection. Grounds shall not be attached to pipelines containing flammable gas/liquids or electrical conduits.
- 5.13.9 Grounding cables should be of the same type of conducting wire used for the welding lead.
- 5.13.10 There shall be at least 10 feet of cable between the electrode holder and the spliced end of the cable.
- 5.13.11 Electrode holders shall be free from loose or broken parts.
- 5.13.12 All splice connection shall be free from exposed metal parts and shall fit tightly together without separating while in use.
- 5.13.13 Any cable splice or electrode holder found to be damaged or defective shall be removed from service and repaired or replaced. Repairs shall be made by qualified persons.

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5.13.14 Electrode holders which become hot during use shall be allowed to air cool; dipping of electrode holders in water or other cooling agents shall be prohibited.

5.14 Welding Machines (Arc-welding)

5.14.1 All defective or otherwise deficient welding machines, including their power source, shall be repaired by qualified personnel.

5.14.2 All personnel operating arc welding or cutting equipment shall receive training and be qualified to operate the equipment. If gas-shielded welding is performed the qualified operator shall be familiar with American Welding Society Std. A6-1-2000. Such training shall include operations and maintenance procedures on proper hookup, grounding, leak detection, switching, electrode holder use and placement, electrical shock protection and manufacturer instructions. All personnel assigned to operate or maintain arc welding or cutting equipment shall be trained in and familiar with the information contained in paragraphs (a), (b) and (c) of 29 CFR 1910.252 and 29 CFR 1910.254.

5.14.3 Welding machines shall be properly enclosed, thereby providing sufficient protection against accidental contact to current carrying parts by personnel, equipment, or material.

5.14.4 All welding machines shall be capable of operating at normal environmental temperatures without overheating.

5.14.5 Welding machines shall be specifically designed for unusual conditions such as listed below:

- a. Corrosive fumes
- b. Steam or excessive humidity
- c. Excessive oil vapor
- d. Exposure to flammable gases
- e. Abnormal vibration/shock
- f. Excessive dust

5.15 Fire Prevention/Protection

5.15.1 All areas in which welding activities are to be performed shall be made safe from fire or explosion.

5.15.2 Where possible, objects to be welded, cut, heated, or otherwise altered through hot work, shall be moved to a safe location, or suitable precautions shall be instituted to sufficiently contain the hot work.



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- 5.15.3 Adequate coverings shall be installed over grating, cracks, and small floor openings to contain hot welding debris. Floor openings shall be sufficiently protected against the passing of hot work debris. All coverings/protection shall be anchored so as to prevent hot debris beneath them.
- 5.15.4 Combustible flooring shall be adequately protected against fire by using damp sand, wetted canvas tarps, keeping the surface wet, or by using materials which provide sufficient fire resistant ratings.
- 5.15.5 Where possible, combustibles shall be located approximately 35 feet from hot work activities or otherwise protected.
- 5.15.6 All ducts, conveyors, shafts and other openings shall be adequately covered so as to prevent the passing of hot work debris.
- 5.15.7 All flammable liquids shall be stored in approved safety cans and kept at a safe distance (50 feet) from hot work activities. Spillage shall be properly cleaned and discarded in approved containers.
- 5.15.8 Adequate precautions shall be implemented where welding is performed on or near combustible walls, ceilings, or floors.
- 5.15.9 An inspection of the area above the ceiling, below the floor, or behind the wall shall be performed to ensure that no combustible/flammable materials are present which may be ignited during the hot work activity.
- 5.15.10 Welding shall not be performed on drums, cans, vessels, pipes, or other containers which contain or have contained flammable/combustible materials, unless the materials have been removed and the container properly cleaned.
- 5.15.11 Prior to commencing welding activities, all drums and other containers shall be properly vented. Purging with inert gas is recommended.
- 5.15.12 Where inert gas is used as a purging gas, or during the shielded arc process, appropriate measures shall be instituted so as to not to create an oxygen deficient atmosphere within the area, or low areas. Where possible, and/or necessary, local exhaust ventilation shall be used.
- 5.15.13 Electric-arc welding activities, which are suspended for a substantial period such as breaks, lunch or at shift completion, shall have all electrodes removed from the holder. Welding machines shall be de-energized.

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5.15.14 A fire watch shall be initiated during welding activities. A fire watch is required: 1) at all locations where other than a minor fire might develop; 2) when combustible materials are stored closer than 35 feet (10.7 meters) to the point of operation; 3) where combustibles stored greater than 35 feet may be easily ignited; 4) where there are wall or floor openings within a 35 foot (10.7 meter) radius that expose combustible materials on the opposite side of the opening; and 5) where combustible materials are located adjacent to the opposite side of metal partitions, ceilings or roofs.

5.15.15 Adequate and operable (current inspection) fire extinguishing equipment shall be readily available within 20 feet during all hot work activities. Permanent plant equipment shall not be used for fire watch protection.

## 6 **RECORDKEEPING**

Employee records must be kept for three (3) years.

## 7 **ATTACHMENTS**

7.1 Hexavalent (Cr6) Chromium Awareness

### **Hexavalent Chromium (Cr VI) Awareness**

**Purpose:** Identify potential health hazards of hexavalent chromium associated with welding and cutting on stainless steel, other metals containing hexavalent chromium or surfaces coated with hexavalent chromium paint that may emit fumes containing hexavalent chromium which causes an increase risk of lung cancer. By increasing the awareness to employees performing welding, potential exposure to hexavalent chromium as well as other toxic metal fumes can be minimized. Hexavalent Chromium Awareness covers the health effect of hexchrome, the newly reduced exposure levels, engineering controls and medical surveillance.

**Background:** OSHA amended the standard 29 CFR 19126.1126 on February 28, 2006 which limits occupational exposure to hexavalent chromium (Cr(VI)). OSHA has determined based upon the best evidence currently available that at the current permissible exposure limit (PEL) for Cr(VI), workers face a significant risk to material impairment of their health. Workers exposed to Cr(VI) are at an increased risk of developing lung cancer.

**Description:** Hexavalent chromium is a toxic form of the element chromium that is widely used in many industries but primarily found in the fumes from welding operations involving stainless steel. A review of the company operations indicates that the only potential exposure to hexavalent chromium is from the installation of insulation pins onto stainless steel surfaces using a pin gun. (tack welding). Galvanized metal, not stainless, is the most common surface for pin welding.

#### **Health Effects:**

Workplace exposure to hexavalent chromium may cause lung cancer; nose, throat and lung irritation; eye damage and skin irritation. Some persons may develop a sensitivity to chromium which can result in dermatitis or skin rash. Exposure occurs via airborne hexchrome fumes generated from welding on stainless steel. The overwhelming vast majority of pin welding tasks or other welding tasks performed within the company involve welding metal other than stainless steel.

#### **Exposure Limits:**

OSHA: 8-hour time-weighted average (TWA) exposure limit of 5 micrograms of Cr(VI) per cubic meter of air (5 ug/m<sup>3</sup>).

OSHA Action Level: means a concentration of airborne chromium (VI) of 2.5 micrograms per cubic meter of air (2.5 µg/m<sup>3</sup>) calculated as an 8-hour TWA.

**Engineering Controls:** If changes in the welding process are not possible to reduce the amount of fumes emitted, local exhaust ventilation as close to the welding task is recommended.

**Personal Protective Equipment (PPE):** Standard PPE for welding include a helmet, appropriate safety glasses or goggles with appropriate lens shading. Consult with the company safety manager for tasks involving welding/cutting stainless steel on the need for additional PPE such as protective clothing and respiratory protection and the use of local exhaust ventilation.

**Medical Surveillance:** No company employee is expected to exceed the OSHA PEL for any welding/cutting tasks where exposure is greater than 30 days per year to welding fumes containing hexchrome. Medical surveillance is not required.

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## 1 **PURPOSE AND SCOPE**

To provide means of ensuring personnel safety during excavation/trenching activities. To provide specific requirements for the installation of proper cave-in protection in the form of shoring.

## 2 **REFERENCES**

- 2.1 *Department of Labor 29 CFR 1926.650 - Scope, Application, and Definitions*
- 2.2 *Department of Labor 29 CFR 1926.651 - General Requirements*
- 2.3 *Department of Labor 29 CFR 1926.652 - Requirements For Protective Systems.*

## 3 **DEFINITIONS**

- 3.1 Angle of Repose - The greatest angle at which material will lie without sliding (above horizon).
- 3.2 Bank - Soil rising above the digging level.
- 3.3 Competent Person - An individual who is capable of identifying unsafe conditions relating to excavations, trenches and shoring, and is capable of installing approved shoring.
- 3.4 Excavation - A man-made cavity/depression formed by the removal of soil and producing unsupported walls, sides and faces.

Note: If installed forms or similar structures reduce the depth to width relationship, and excavation may become a trench.

- 3.5 Stringers (wales) - Horizontal members of a shoring system whose sides bear against the uprights.
- 3.6 Trench - A narrow excavation having a depth greater than the width, but not greater than 15 feet.
- 3.7 Uprights - The vertical members of a shoring system.

## 4 **RESPONSIBILITIES**

- 4.1 Supervisors shall maintain the safety and integrity of all trenches and/or excavations within their work area.

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## 5 **PROCEDURE**

### 5.1 General

- 5.1.1 All trenching and excavation work performed at customer facilities shall be controlled by the Customer Facility Manager and the company's Construction Manager in accordance with this procedure.
- 5.1.2 A 'Competent Person' shall perform daily inspections of all trenches and excavations to determine if they are safe. Where evidence of hazards exist, work shall cease until proper corrective action(s) has been completed.
- 5.1.3 Personnel shall utilize proper safety equipment, as required by Section 3 of this manual.
- 5.1.4 Prior to commencing activities, the presence of underground utilities shall be determined.
  - a) The owner of the utilities shall be contacted.
  - b) Appropriate means of identifying utilities shall be instituted.
  - c) Adequate measures shall be instituted to support or otherwise protect utilities from damage.
  - d) A permit is required. Check with local regulatory agencies.
- 5.1.5 Trees, boulders, and surface encumbrances shall be removed should their presence become a potential hazard to personnel.
- 5.1.6 Personnel shall not be permitted near loads handled by power equipment.
- 5.1.7 Personnel shall not be permitted to stand with close proximity to equipment being loaded.
- 5.1.8 Where personnel are exposed to hazards created by vehicular traffic, approved reflective safety vests meeting D.O.T. requirements shall be worn. Other protective attire shall be worn, as required by surrounding conditions.
- 5.1.9 Where potential hazards are suspected through oxygen deficiency or gaseous conditions, all criteria relating to confined/enclosed space safety measures shall be implemented.

## **Excavation, Trenching and Shoring**

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5.1.10 Excavations and trenches shall be adequately protected against unauthorized and/or accidental entry by personnel. Excavations/trenches left open during evening hours shall be adequately illuminated.

5.1.11 Dust conditions shall be adequately controlled.

5.1.12 Spoilage, rocks and other debris shall not be permitted to accumulate on walkways or highways. This includes operations involving the loading and transporting of materials.

5.1.13 Where possible, dikes or diversion ditches shall be installed to prevent water from entering the excavation/trench.

5.1.14 Adequate barriers shall be installed whenever vehicular traffic is permitted near an excavation/trench.

5.1.15 Safe means of access/egress shall be provided to all excavations and trenches.

### 5.2 Walkways

5.2.1 Walkways shall be kept clear of obstructions and debris.

5.2.2 Where the use of existing walkways is not permitted, they shall be properly barricaded and posted. An alternative safe means of access shall be provided, where practical.

5.2.3 Where planking is used to construct walkways, ramps, crossovers, etc., it shall be laid parallel to the length of the walkway and shall be uniform in thickness.

5.2.4 Planking used in walkways, ramps, crossovers, etc., shall be adequately braced to prevent deflection and/or displacement. All edges shall be beveled or adequately protected to prevent a tripping hazard.

5.2.5 Where sloping of walkways and ramps present a slipping hazard, adequate protection, such as cleats or anti-slip tape, shall be installed.

5.2.6 Appropriate action(s) shall be instituted to remove slipping hazards caused by snow, ice and/or adverse weather.

5.2.7 Where sidewalks are undermined, proper shoring shall be installed to adequately support the intended load (minimum live load of 125 lbs./sq. ft.).

## **Excavation, Trenching and Shoring**

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5.2.8 Elevated walkways/crossovers shall be installed using sufficient stringers. Suitable steps and a standard guard rail, mid rail and toe boards if required, shall be installed to provide safe access/egress.

### 5.3 Spoilage

5.3.1 Excavated material shall be kept a minimum of two feet from the edge of the excavation/trench.

5.3.2 Spoilage shall be piled at a safe height. Large clumps of soil, rock etc., shall not be permitted to slide into an excavation/trench.

5.3.3 Where possible, spoilage should be piled on the vehicular traffic side of the excavation, providing additional barricade protection.

### 5.4 Excavations

5.4.1 Where employees are exposed to danger from moving ground, all walls and faces of an excavation shall be properly sloped or guarded by a shoring system.

5.4.2 Heavy machinery or materials shall not be placed near the edge of excavations as it may cause a cave-in.

5.4.3 The angle of repose and/or design of all shoring systems shall be determined by a competent person, utilizing the following factors:

- a. Depth of cut
- b. Variations of water content
- c. Type of soil
- d. Exposure to air, sun, water, freezing
- e. Vibrations
- f. Imposed loads caused by spoilage, equipment, etc.

5.4.4 Shoring systems, cribbing, piling, etc., shall be designed by a qualified engineer/competent person.

5.4.5 Slopes shall be excavated to the proper angle of repose. Areas where water conditions, loose boulders, silky materials, erosion, deep frost lines or slide planes appear, shall be excavated flat.

5.4.6 Materials used for sheeting, cribbing and/or shoring shall be in good condition. Timbers shall be sound and free from large or loose knots.

5.4.7 Tie-rods shall be securely anchored well beyond the angle of repose.

### 5.5 Trenches

## Excavation, Trenching and Shoring

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5.5.1 Banks exceeding 5 feet in height shall be adequately protected against cave-in by one or a combination of the following:

- a) Trenches shall be sloped, in accordance with OSHA 29 CFR 1926.652, Appendix B to Subpart P - Sloping and Benching.
- b) Trenches shall be shored using materials, as specified in OSHA 29 CFR 1926.652, Appendix C and D to Subpart P - Shoring For Trenches.
- c) Portable trench boxes or sliding trench shields shall be used.

5.5.2 When trenches are shored, or while using trench boxes, personnel shall remain within the confines of such protection. Access/egress shall be within the confines of such protection.

5.5.3 Pipe exceeding 6 feet in diameter shall have a minimum of 4 foot bench at the toe of the sloped trench wall.

5.5.4 Trench boxes/sliding trench shields shall be designed by a competent engineer, and shall be capable of withstanding anticipated forces should a cave-in occur. Trench boxes/shields and shoring shall extend above the trench side walls.

5.5.5 Additional precautions shall be instituted where the trenches are adjacent to backfilled excavations, or are subjected to vibrations from equipment, machinery, railroad traffic, etc.

5.5.6 Trenches shall be back filled as soon as practical, preferably as the job progresses. Jacks and/or shoring shall be removed with caution. In unstable soil, their removal shall be accomplished by using ropes.

Note: Personnel shall stand clear of the edge of a trench while shoring is removed. Personnel removing the shoring shall wear a full body safety harness and tie off properly.

5.5.7 Personnel shall not be permitted in a trench while shoring is being removed.

5.5.8 Access ladders must comply with the requirements in Section 5.1, "Ladders", in the manual.

### 5.6 Access

5.6.1 Safe access shall be provided in all trenches and excavations.

5.6.2 Ladders shall be located within 25 feet of the work activity in both directions of lateral travel.



# **Excavation, Trenching and Shoring**

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## 5.7 Hazardous Atmospheres

Where oxygen hazardous atmospheres containing less than 19.5 percent or greater than 23 percent oxygen, exists or could reasonably be expected to exist, such as in excavations where hazardous substances are stored nearby, the excavation shall be tested in accordance with the Confined Space Entry Procedure, Section 9.2, before employees enter excavations greater than 4 feet (1.22 meters) in depth.

## 6 RECORDKEEPING

Permits must be kept for 1 year. Training records shall be kept for three (3) years.

## 7 ATTACHMENTS

None

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## 1 **PURPOSE AND SCOPE**

This Safety Directive establishes the minimum safe work practices and protective equipment requirements for working in plants or other locations with active railroad track(s).

## 2 **REFERENCES**

- 2.1 Department of Transportation – 49 CFR Part 214 – Railroad Workplace Safety
- 2.2 Safety Directive 3.1 – Personal Protective Equipment

## 3 **DEFINITIONS - None**

## 4 **RESPONSIBILITIES**

- 4.1 Supervisors shall ensure that all workers understand and adhere to the requirements of this directive with respect to the use of personal protective equipment and working on or around railroad track. Supervisors are also responsible to ensure that the required permits or other permission is obtained for all work conducted within 6 feet of any active railroad track. This requirement specifically includes the use of any booming equipment that can enter into any space within 6' horizontally or vertically from the track.
- 4.2 Employees are responsible to read, understand and abide by the Project Safety Plan, Task Safety Analyses, and all plant or owner rules for working within 6 feet of any railroad track. Employees are also responsible for successfully participating in and completing all training required for the work to be done within 6 feet of active railroad track.
- 4.3 The Construction Manager is responsible to ensure that all workers complete any required training related to work within 6 feet of active railroad track. The Construction Manager is also responsible for ensuring that the Project Safety Plan is prepared for his/her approval and communicated to the work force and that all required personal protective equipment is provided and used.

## 5 **PROCEDURE**

### 5.1 **Crossing Rail Tracks and Work Within 6 Feet of Active Railroad Track**

- 5.1.1 Whenever feasible, employees shall cross railroad track only at designated rail crossings. Vehicle crossing are not pedestrian crossings unless so designated.

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- 5.1.2 If designated pedestrian crossings are not present or cannot be used, the following precautions shall be taken when crossing any track:
- Never cross in front of moving equipment, regardless of its speed;
  - Do not cross within 10 feet of the end of a standing rail car;
  - Do not cross between uncoupled rail cars;
  - Stop, look (both directions) and listen before proceeding across any railroad track;
  - If you do not have a clear line of site in both directions for at least 100 feet, do not proceed across tracks that have an additional set of tracks beyond them without stopping in between to ensure there is no traffic moving on the far rail; and
  - Do not step on rail since it is slippery, especially when wet.

5.1.3 Crawling beneath stationary rail equipment, climbing over stationary rail equipment and crossing in front of moving equipment are strictly prohibited.

5.1.4 Never place any part of your body between potential pinch points. Rail equipment can move in either direction at any time without any visible or audible warning.

5.1.5 All work within 6 feet of any active rail requires a permit or other type of permission system to be established prior to the start of work. Never work within 6 feet of any active rail without the proper permit or permission being obtained from the railroad Supervisor or other designated facility representative. Work within 6 feet of the rail requires the track to be taken out of service (use). This requirement includes all equipment.

5.1.6 The use of any booming equipment that can extend to within 6 feet of the rail also requires a permit regardless of its actual physical location in relation to the track.

## 5.2 Personal Protective Equipment

5.2.1 Owner-approved hard hats, metatarsal boots and safety glasses with permanently attached side shields may be required in designated areas and shall be used whenever so required.

5.2.2 Full compliance with Safety Directive 3.1, Personal Protective Equipment, is required for all work unless superseded by a more restrictive owner requirement.

## 6 TRAINING

### 6.1 Employee Training

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- 6.1.1 All workers who will work within 6 feet of any active railroad track shall receive appropriate training based on the complexity of the work and potential hazards related to in-plant rail safety.
- 6.1.2 All training shall be evidenced as to each worker's understanding by a documented assessment process.
- 6.1.3 Retraining and testing (assessments) are required for unsatisfactory or unsafe performance when working within 6 feet of active rail.

7 **RECORDKEEPING**

Employee records must be kept for three (3) years.

8 **ATTACHMENTS**

None

**ARGUS CONTRACTING LP  
SUMMIT CONTRACTING LP**

**Injury and Illness  
Prevention Program**

*Revision 10: June 15, 2009*

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## **Argus Contracting Company Safety Policy**

The most important asset to our company is our people. We will maintain a Health and Safety program that conforms to the best practices of the construction industry. Our program embodies all levels of employment and anticipates proper attitude toward injury and illness prevention. It requires cooperation between our employees and the foremen that supervise them and coworker accountability.

All levels of management are held accountable for the safety and well being of the employees within their organization. However, everyone must conform to industry best practices and incorporate safe work procedures within our day-to-day activities.

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Dennis Gray  
Western Group President

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Mark Fischer  
Western Regional Manager Safety  
Health & Environmental Affairs

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Craig Skeie, President  
Argus Contracting LP

# ARGUS CONTRACTING'S INJURY AND ILLNESS PREVENTION PROGRAM

This completed program indicates that it is the policy of Argus Contracting to fully comply with Labor Code 6401.7 (SB 198), the Construction Safety Orders Section 1509 and General Industry Safety Orders Section 3203, Injury and Illness Prevention Program.

## I. EMPLOYER INFORMATION:

Organization/Entity: Argus Contracting LP.  
Telephone Number: L.A. Office: 1-800-788-7807 (562) 422-7370  
Main Activities: Specialty Contractor

## II. PERSONS WITH AUTHORITY AND RESPONSIBILITY FOR IMPLEMENTING ARGUS CONTRACTING'S INJURY AND ILLNESS PROGRAM:

**Name/Title:** Dennis Gray, Western Group President

**Responsibility:** Overall responsible for the implementation and maintenance of an effective program. Essential responsibility is to actively participate in the implementation and maintenance of an effective program within the California Division.

**Name/Title:** Craig Skeie, President

**Responsibility:** Implement and maintain an effective safety program within the California Branch.

**Name/Title:** Mark Fischer, Western Regional Manager Safety, Health and Environmental (**Health and Safety Administrator**).

**Responsibility:** Responsible for the effective implementation and administration of the California Operations Safety Program.



## Section II

### RESPONSIBILITIES

#### **PRESIDENT, ARGUS CONTRACTING LP AND SUMMIT CONTRACTING LLC.**

1. Actively participate in the investigation of all serious injuries, initiating corrective action whenever necessary for avoiding similar recurrences.
2. Provide resources to maintain and enhance our Company's Safety and Health Program.
3. Promote positive attitudes for Health and Safety by taking a leadership role in the loss prevention activities within the district/division.
4. Keep abreast of loss experience within the district/division obtaining assistance from the Health and Safety Administrator whenever necessary.

#### **BRANCH MANAGER**

1. Provide leadership through active participation in branch loss prevention activities.
2. Delegate to the Construction Superintendent or Project Manager the loss prevention responsibilities related to hourly construction employees as outlined in this manual.
3. Communicate loss prevention policies and procedures to the Construction Superintendent or Project Manager.
4. Keep abreast of loss prevention experience within the branch. Personally investigate each serious accident and initiate any corrective action that may be necessary.
5. Provide the Construction Superintendent or Project Manager with the tools and management support necessary for accomplishing loss prevention functions.
6. During job site surveys, become aware of potential risks and initiate any control measures to eliminate unsafe conditions or unsafe acts.
7. Review the loss prevention files to assure they are current and complete.
8. Monitor injury reporting procedures to assure that Workers' Compensation, Insurer, and Regulatory Agency requirements are satisfied.
9. Obtain assistance from the Area Manager and the Health and Safety Administrator whenever necessary to achieve loss prevention objectives.
10. Recognize hazards; assess the effects on employees (assess risk); initiate process for controlling exposures, and implement methods for evaluating the effectiveness of hazard control measures,
11. Setting good examples and providing instructions to ensure that employees understand and follow safe practices and procedures.
12. The Branch Manager will be trained in 10-Hour OSHA Supervisor Training for the Construction Industry and hold current certification in CPR/ First Aid (American Heart Association) .

# RESPONSIBILITIES

## PROJECT MANAGER

1. Become completely familiar with the safety policies and procedures and primary responsibilities within the program. Enforce all safety Regulations, Rules, and Codes of Safe Work Practices.
2. Ensure that safety has been built into each operation to protect our personnel and any others who may be exposed or affected.
3. Delegate loss prevention responsibilities to his foreman as outlined in this manual.
4. In cooperation with his foreman, instruct each employee in the hazards of the job and how to avoid injury.
5. Report all injuries as required to assure that the Workers' Compensation Insurer and Regulatory Agency requirements are satisfied. Correct or initiate corrective actions for any unsafe conditions or behaviors in a timely manner.
6. Stop work where a high risk safety hazard exists until the hazard can be abated.
7. Provide each foreman with a Foreman's Injury Kit and instruct him in the proper use for reporting injuries.
8. See that approved personal protective equipment and safety devices are provided as necessary. Provide training in the correct use for such equipment.
9. Conduct scheduled as well as unscheduled safety inspections as outlined in this manual and make hazard identification part of the daily concern. Take prompt corrective action when unsafe acts or conditions are observed.
10. Investigate each accident according to procedures in this manual. Find the cause of all accidents, and submit reports as required.
11. Become familiar with first aid procedures and see that all injuries are treated immediately.
12. Promote safety awareness with foreman and employees by personal example, personal contact and weekly group "Tool Box" meetings with employees. Set the tone for safety by personal example through demonstrating your commitment to performing duties in the safest way ( e.g. Wearing all required PPE such as hard hats, safety glasses, and gloves).
13. Be sure that all new and existing equipment meets OSHA and equivalent regulatory standards.
14. Maintain fire protection integrity within warehouses, and offices and on job sites.
15. If requested to do so, participate in a Safety and Health Committee meetings when requested to do so and provide suggestions and feedback to the Safety and Health Committee.
16. Recognize employees who are safety conscious and provide employee recognition for positive contributions.
17. Solicit employee suggestions for improving work place safety.

## **RESPONSIBILITIES**

### **PROJECT MANAGER Con't.**

18. With assistance of the Branch Manager, maintain documentation of loss prevention reports and activities as outlined in this manual. Branch loss prevention files will include the following:

- Safety Inspection Reports
- Accident Investigation Reports
- OSHA Inspection/Citations
- Fire Protection Reports
- Electrical Equipment Inspection Reports
- Driver Qualification and Accident Reports
- Job Site Safety Meeting Reports
- Hazard Correction Forms
- Task Safety Analysis Forms
- Other Documented Equipment Inspections

19. Seek assistance from Branch Manager and the Health and Safety Administrator whenever necessary to achieve loss prevention objectives.

20. The Project Manager will be trained in 10-Hour OSHA Supervisor Training for the Construction Industry and hold current certification in CPR/First Aid (American Heart Association).

### **HEALTH AND SAFETY ADMINISTRATOR**

1. Maintain a loss prevention file to include reports of injury, accident investigation, job site inspections, OSHA contacts, and similar documents as reported within the district/division.
2. Monitor branch injury reporting procedures as required by the State of California, OSHA and similar regulatory agencies.
3. Advise management on matters of loss prevention to include accident prevention, industrial hygiene, and fire protection.
4. Provide technical assistance to management for compliance with OSHA and similar regulatory Health and Safety standards.
5. Update and maintain Safety Program as necessary to keep the program and manual current to our needs.
6. Investigate all serious injuries and review all accident reports and subsequent investigations instituting corrective measures when necessary to prevent reoccurrence.
7. Maintain liaison with occupational health, safety and environmental regulatory agencies.
8. Initiate specialized training programs as needed according to our loss experience.
9. Keep management informed on Safety Program effectiveness.
10. Maintain a reference library suitable to the needs of our operation.
11. Review personal protective equipment needs.
12. Promote and maintain loss prevention activities through effective communication.

## **EMPLOYEE RESPONSIBILITY**

The following are a minimum of safety responsibilities for all employees. Each employee is expected to:

1. Comply with the companies Code of Safe work practices
2. Identify and notify supervisors of any hazards on the jobsite
3. Assist fellow employees to prevent accidents
4. Attend all scheduled safety training session and Tail Gate meeting
5. Know all site-specific emergency procedures

## **SAFETY CONFORMANCE**

**It is the policy of Argus Contracting and Summit Contracting LLC to ensure conformance with safety requirements through a progressive employee discipline program. The program pertains to those employees who may engage in an unsafe act, including both the employee and the management representative who may have knowledge of or be responsible for such actions. The program encourages positive counseling, coaching and training for non-serious incidents.**

For **Non-Serious** incidents in which an Argus Contracting employee or Summit Contracting employee is involved will typically include the following corrective steps:

1. First Occurrence - Oral or written reprimand.
2. Second Occurrence - Written reprimand with re-training. Time off without pay may be assessed, if appropriate.
3. Third Occurrence - Formal disciplining action in the form of suspension and possible termination of employment. The length of time will depend upon the severity of the situation and the nature of severity of the previous reprimands.

The safety conformance program also requires formal disciplinary action for serious incidents. **Serious** incidents in which an employee is involved will include the following corrective steps: (Very serious incidents may result in immediate termination.)

1. First Occurrence - Written reprimand and time off without pay (the length of time depending on the severity of the situation). Termination may be initiated, as appropriate, for incidents that jeopardize the health or safety of employees.
2. Second Occurrence - Termination of employment. Suspension instead of termination may be recommended only with the concurrence of the Branch Manager.

### Definitions

The difference between **Non-Serious** and **Serious** incidents depends on the possible consequences that could take place if the incident were to occur. If the consequences of the incident could result in a serious injury or death (to either the employee or CO-workers), or is an obvious violation of a health or safety code or regulation, the incident would be characterized as "**Serious**" in nature. If more than one employee is involved in an unsafe act, each employee is subject to discipline, the degree of which depends upon the circumstances. Job site Foreman who fail to initiate discipline upon subordinates are also subject to disciplinary actions under this policy.

### MOTIVATION AND INCENTIVES

Argus Contracting and Summit Contracting maintain a safety incentive program to reinforce positive work behavior and reward achievement. The Branch Manager determines the level of program and frequency of reward at the start of each project. Rewards are given for positive performance, length of service, safety achievement, safety suggestions, etc.

## **Section III**

### **SAFETY COMMUNICATIONS**

Safety communications provide employees with critical instructional updates about the Argus Contracting and Summit Contracting safety program. These communications also establish an avenue by which employees can provide feedback that assists in the development of new safety programs.

Argus Contracting and Summit Contracting system for communicating with employees on Occupational Health and Safety matters include, but not limited to:

- **Periodical Correspondence** to employees from the Health and Safety Administrator, Consultants, Job Site Foreman and the Argus Contracting and Summit Contracting Management Team.
- **Safety Suggestion Box**, which allows employees to offer anonymous comments and suggestions related to health or safety matters without the fear of reprisal. Safety Suggestion boxes are located at job sites of large projects and in the Branch offices.
- **Safety Posters** and similar materials placed on bulletin boards.
- **Tool Box Meetings** conducted by job site foreman, project managers, Branch Managers and the Health and Safety Administrators.
- **Monthly and Quarterly Management Meetings** to review safety and health program activities on a regular basis.
- **Code of Safe Work Practices** Argus Contracting and Summit Contracting “**Code of Safe Work Practices**” shall be located in the job trailer, or in the foreman’s plan book at every job site.

#### **SAFETY SUGGESTION BOXES**

Safety suggestion boxes and safety suggestion forms are located at job site trailers of large projects, and in each of the Branch offices.

- Employees may fill out the “**Employee Safety Information Form**” and place it in the safety suggestion box or give it to anyone on the Argus Contracting or Summit Contracting Management Team.
- Project Managers check the safety suggestion boxes at the end of each work shift.
- Approved safety suggestions are discussed with employees at each of the Tool Box Meetings.
- The safety suggestion box is not used to report imminent hazards. Hazards that are immediately threatening to employee life, health or the environment are to be reported immediately to one of the job site management team.

# **SAFETY COMMUNICATIONS**

## **TOOL BOX MEETINGS**

### **General**

In order to communicate and promote safe working procedures, the company will conduct Tool Box safety meetings a minimum of every five working days. Tool Box Talks will:

- Re-emphasize our concern for employee safety.
- Provide two-way communication to establish safe working procedures.
- Review of accidents or serious near misses to communicate necessary precautions.
- Insure compliance with health and safety regulatory agencies.

## **PROCEDURES**

### **Personnel**

The Branch Manager, Project Manager, or the Health and Safety Administrator will conduct or have the foreman conduct "Tool Box Talks".

All employees must attend Tool Box Talks. In the event of an absence the Project Manager must discuss or provide written information to the employee upon his/her return.

### **Frequency**

- **"Tool Box Talks"** (tailgate meetings) will be conducted weekly for each project.
- **Additional Meetings** - will be conducted whenever a serious accident, specific hazard, or similar circumstance occurs. Additional "Tool Box Talks" will be made at the discretion of the Branch Manager, Project Manager, or the Health and Safety Administrator.

### **Method of Training**

The Branch Manager and the Health & Safety Administrator will provide training material. The most effective discussions, however, are those that relate directly to the specific operation. Group discussion will be encouraged to promote active participation in the safety effort.

## **MONTHLY MANAGEMENT AND FOREMAN MEETINGS**

Argus Contracting and Summit Contracting managers/foreman meet as often as monthly (This may be done with Project Managers/Foreman on an individual or collective basis, as determined by the Branch Manager and/or Health and Safety Administrator).

During these meetings the Branch Manager and/or the Health and Safety Administrator is provided time to review the following topics:

- **Recognize significant accomplishments**
- **Discuss the previous month's accidents**
- **Address new procedures, regulations and job safety requirements**
- **Discuss recent safety evaluations**

## Section IV

### JOB HAZARD ASSESSMENT & INSPECTIONS

**Hazard Identification procedures are excellent management tools for keeping employees and management informed of overall work conditions. We will implement one or more evaluation methods during initial orientation, when employees receive a change in job task or new responsibilities requiring new orientation, when employees are exposed to new substances, processes, procedures or equipment and whenever Argus Contracting or Summit Contracting receives notification of a previously unrecognized hazard. Our system for identifying and evaluating work place hazards include:**

- Self-Inspections of job sites, warehouses, offices, facilities and equipment conducted on a regular basis by Argus Contracting and Summit Contracting management. Standard checklists are used to facilitate these inspections.
- Imminent Hazards are reported directly to Job Site Management and the process is immediately stopped and corrected.
- Employee Reports of hazards that are responded to immediately for serious conditions; or addressed by management personnel in a prudent fashion when they do not represent a serious hazard.
- Job Site Foreman Accident Reports shall be completed within 24 hours following an accident. This report pinpoints accident related factors and corrective activities related to system improvements, hazard identification and remedial training.
- Suggestion Box posted which are to be used by employees to bring hazardous conditions to the attention of Person's Name. The Project Manager and/or Health and Safety Administrator review these suggestions daily.
- Task Safety Analysis it is the policy of our company to conduct self-audit and inspections to identify and correct unsafe condition of practices which may result in injuries or property loss.  
In order to accomplish this, Argus Contracting and Summit Contracting need to identify the scope of work being performed. Prior to the start of work a Task Safety Analysis (TSA) form will be completed. Upon completion of the TSA from the Supervisor and the employees will review the job tasks, the risks and control measures at each jobsite (Appendix A4).



# JOB HAZARD ASSESSMENT & INSPECTIONS

## IMMINENT HAZARDS

Any hazard that can cause serious injury and/or death is to be reported to the Job Site Foreman, Project Manager or the Health and Safety Administrator immediately.

- All Argus Contracting and Summit Contracting employees have the Authority to stop jobs that they perceive promote a serious hazard to life, property and/or the environment without fear of reappraisal.
- Upon identification of an imminent hazard the job and/or task will be immediately stopped. Proper controls will be implemented prior to re-starting the job and/or task. All employees will be notified by the start of the following workday and properly trained as needed.

## SAFETY INSPECTIONS

### **Job Site Safety Inspections (D-108)**

The Project Manager will coordinate Job site inspections and/or the Health and Safety Administrator according to the procedures outlined below:

Conducting and documenting job site safety inspections serves the following purposes:

- **Compliance with OSHA regulations**
- **Recognition and control of hazards**
- **Employee participation and motivation**

### **Personnel**

The Branch Manager, Project Manager, or the Health and Safety Administrator will conduct the inspection.

### **Frequency**

- Contracts that employ 10 or more employees will be inspected weekly.
- Contracts that employ less than 10 employees will be inspected when work is begun and each month until the job is completed. Additional inspections will be conducted at the discretion of the Construction Superintendent/Project Manager for those operations in which significant hazards are presented

### **Method of Inspection (D-108)**

Using the “Job Site Safety Inspection Report” (**Section D-108**). Each item will be evaluated, noting any item, which is not in compliance with recognized Health and Safety standards. Any identified hazards will be corrected as soon as possible. If corrective actions cannot be taken during the inspection, a date should be selected for expected compliance.

### **Distribution of Report**

Copies of the completed “Job Site Safety Inspection Report” will be placed in the job file and in the branch loss prevention file. The H&S Administrator will review reports periodically.

## **WAREHOUSE AND OFFICE INSPECTIONS**

The Procurement/Warehouse Manager will inspect the warehouse and the offices on a monthly basis. Emphasis will be made to maintain the following:

- **General Housekeeping**
- **Material storage and handling**
- **Material handling equipment**
- **Portable fire extinguisher**
- **Ventilation**
- **Powered industrial trucks**
- **Machine guarding**
- **Flammable and combustible liquids**
- **Exits**
- **Aisles**
- **Electrical systems**
- **Personal Protective Equipment (PPE)**

Any unsafe conditions or acts identified should be noted with immediate steps taken for corrective action. Maintain documentation of each inspection necessary for effective performance.

## Section V HEALTH AND SAFETY TRAINING

### EMPLOYEE SAFETY TRAINING POLICY

**It is the policy of Argus Contracting and Summit Contracting to ensure that adequate employee training is provided to enhance employee safety and meet regulatory training requirements. Employee Safety Training is required during initial orientation, when employees receive a change in job task or new responsibilities requiring new orientation, when employees are exposed to new substances, processes, procedures or equipment and whenever Argus Contracting or Summit Contracting receive a notification of a previously unrecognized hazard.**

Safety training benefits Argus Contracting and Summit Contracting employees because it brings new ideas into the work place and helps to re-establish desired methods for achieving safer work environments. It also allows management to review the other elements of our safety program with employees and ensure that safe work practices are part of our day-to-day activities.

### **KEY ELEMENTS of the Argus Contracting and Summit Contracting Safety Training program include:**

- New Employee Orientation introducing the safety policies, reporting procedures and programs.
- Safety Rules and Code of Safe Work Practices reviewed during new employee orientation (See Section VI).
- Quarterly Management and Foreman Safety Training provided by the Health and Safety Administrator, outside consultants, and Argus Contracting and Summit Contracting Management.
- Safety Education and Training documentation as part of the employee training program.
- Disciplinary Procedures documenting coaching, counseling and retraining efforts aimed at ensuring employee conformance to safety rules and regulations.
- Safety Meetings and Tool Box Safety Talks documented by Project Managers, the Health and Safety Administrator or Job Site Foreman to introduce new safety practices or to reinforce existing safety requirements.
- Remedial Re-Training related to post accident reviews coordinated by the Health and Safety Administrator.
- Supervisors/Foremen will be trained in 10-Hour OSHA Supervisor for the Construction Industry and hold a valid CPR/First Aid certificate (American Heart Association).

# HEALTH AND SAFETY TRAINING

## NEW EMPLOYEE ORIENTATION TRAINING

### **General Orientation Training**

Each employee will be indoctrinated into his responsibilities for accident prevention for the maximum protection of himself and fellow workers. By making each employee aware of the specific hazards of each job and ways to avoid injury, we will promote individual participation in the Safety Program.

## PROCEDURES

New hire and orientation training will be conducted prior to job start-up and each time any additional employee is added to the work force.

### **Method of Orientation Training**

- The Health and Safety Administrator will insure each employee is provided with an Employee Safety Responsibilities (“**Employee Training Checklist**” pg. 33) before work is begun.
- The Health and Safety Administrator will insure each employee will be provided safety training that relates to the specific job to be performed.
- The Job Site Foreman is expected to train all new hire employees on the specific safety hazards and proper controls associated with the work that they are to perform.
- Each Job Site Foreman that their employees understand the Argus Contracting and Summit Contracting Injury and Illness Prevention Program.
- Job Site Foremen are to take the time to go over the written safety rules and Code of Safe Work Practices with every new employee.

# **HEALTH AND SAFETY TRAINING**

## **QUARTERLY MANAGEMENT AND FOREMAN SAFETY TRAINING**

### **General**

In order to communicate and promote safe working procedures, the company will conduct quarterly Foreman Health and Safety Training meetings. These meetings will assist us in accomplishing the following:

- a) **Re-emphasize our concern for employee safety.**
- b) **Provide two-way communication to establish safe working procedures.**
- c) **Review of accidents or near misses to communicate necessary precautions.**
- d) **Insure compliance with OSHA and similar regulatory agencies for employee training**

### **PROCEDURES**

#### **Personnel**

The Branch Manager and/or the Health and Safety Administrator will conduct the meeting. Attendance is mandatory.

#### **Method of Training**

Training material will be provided by the Construction Superintendent/Project Manager and the Health & Safety Administrator

#### **Documentation and Recordkeeping**

All safety training will be recorded documented using our **(D-103 7.1, pg. 32)** will be completed.

## **Section VI**

### **CODE OF SAFE WORK PRACTICES**

1. All persons shall follow the Code of Safe Work Practices and render every possible aid to safe work operations, including the reporting of unsafe conditions and/or practices.
2. Foreman will enforce safe work practices within their job sites and address unsafe work conditions in a timely fashion.
3. All employees shall be given accident prevention instructions in the language that they are fluent. Instructions will be provided in the form of Tool Box Meetings on a weekly basis.
4. The use of drugs, intoxicating substances, and/or alcohol is prohibited prior to and during work hours, including lunch and/or breaks. Persons under the influence of drugs, intoxicating substances and/or alcohol during work hours will be subject to serious disciplinary action up to and including termination.
5. Horseplay and other acts that may adversely influence safety on the job site is strictly prohibited.
6. Work will be planned and supervised to prevent accidents, injuries and illnesses.
7. Employees will not be permitted to perform duties that they are not qualified to perform or while they are fatigued or in a condition that creates a hazard.
8. Employees will not enter confined spaces unless they have been properly trained and the space has been determined to be safe to enter by qualified management personnel. The Argus Contracting and Summit Contracting Confined Space Program will be strictly followed.
9. Employees will only operate equipment that they are trained in and that is properly guarded. Damaged equipment will be taken out of service immediately and identified as inoperable.
10. All injuries will be reported to the job site Foreman in a prompt manner. All accidents will be investigated as soon as possible after the report. Training and instruction will follow as needed.
11. Proper personal protective equipment will be worn at all times and is provided at no cost to our employees.
12. Learn the hazards of the job by discussing them in detail with your supervisor.
13. Bring any new hazards you observed to the attention of your supervisor.
14. Develop a daily routine of checking your job area, equipment and machinery for any potential hazards or deficiencies.
15. Maintain a clean and orderly workplace.
16. Inspect equipment daily and report all defective tools and equipment, machinery and or dangerous work conditions to your supervisor. Never use equipment or machinery that is defective or does not operate properly.
17. Become familiar with the performance limitation of your tools and/or machines.

**CODE OF SAFE WORK PRACTICES, continued**

18. Provide suggestions concerning your safety and health to your supervisor.
19. Keep all emergency equipment such as fire extinguisher and exit doors free of obstacles.
20. Learn the location of first aid kits and fire extinguisher equipment in your work area.
21. Each employee is expected to be responsible of her/his own safety and at the same time exercise care to avoid injury to his fellow workers and others.
22. Always perform your job task in a safe manner.
23. Drive slowly when driving on company property and walk do not run in all work area.
24. Lift correctly and safely with your legs not your back. Ask for help whenever in doubt. No more than 50lbs will be lifted by anyone person.
25. Observe all warning, caution and danger signs as well as safety and health notices.
26. All employees will wear fall arrest equipment when applicable and follow the written fall prevention program.
27. All employees will use scaffold ladders to ascend or descend from platforms.
28. No employee will enter a trench or excavation without a competent person supervising.
29. No employee will enter a trench that is greater than four foot without shoring or sloping (type C soil).
30. No employee will enter a greater than five foot trench without:
  - o shoring,
  - o slopping ,
  - o benchingOr
  - o similar protection device installed
  - o ingress and egress from a trench will be made by a ladder
31. An OSHA permit will be required for any trench greater than 5 foot deep
32. Folding ladders will be fully opened when using and not propped against the wall
33. Employee will not stand at or above the top rung of the ladder
34. Maximum weight capacity of the ladder will not be exceeded
35. No employee will be carry anything up or down the ladder
36. Only fiberglass ladders will be used at the jobsite

**CODE OF SAFE WORK PRACTICES, continued**

37. Extension ladders will be tight-off at all times
38. Extension ladders will be position at the 4:1 ratio rule
39. No employee will use an industrial truck (forklift, aerial work platforms, scissor-lift, boom lift, etc.) without receiving
  - a. initial classroom training
  - b. recertification every three years
40. No employee will use an industrial truck without performing an inspection prior to the beginning of each shift.
41. Failure to comply with the Code of Safe Work Practices or any other safety precaution may result in disciplinary action leading up to and including termination.
42. All principals stated in the IIPP program and Safety and Health program manual must be complied with at all times.

Argus Contracting and Summit Contracting is committed to the safety of its people, customers, surrounding communities. Through continuous safety improvements, we maintain the highest standards of safety and health excellence.



## **Section VII**

# **ACCIDENT INVESTIGATION**

### **GENERAL**

One of the most important functions of the Safety Program is the performance of effective accident investigation. Each accident must be evaluated to determine the primary and secondary causes in order to establish the controls needed to minimize the possibility of reoccurrence or more serious injury.

Nearly every accident provides the background for preventing another accident sometime in the future. Examine each accident, find the cause, and take all practical steps to correct the situation as soon as possible.

### **PROCEDURES**

- I. Formal accident investigations should be conducted for each occupational injury or illness which results in one of the following:
  - **Serious Near Miss Incident**
  - **First Aid**
  - **Requires Medical Treatment (other than first aid)**
  - **Results in Days Lost, Limited or Restrictive duties**
  - **Property and/or Environmental Damage**
  
- II. Investigations should be conducted as soon as possible following an accident while the facts are still clear. If the injured employee is unable to return to work, a preliminary investigation should be conducted, reviewing the information with the injured employee as soon as possible.
  
- III. The responsible Branch Manager and/or the Health and Safety Administrator should conduct accident investigation.
  
- IV. Personal that may be involved in the investigation should include the following:
  - **Injured Employee(s)**
  - **Project Manager**
  - **Foreman**
  - **Branch Manager**
  - **Health and Safety Administrator**
  
- V. Results of the investigation should be recorded on the “**Accident Investigation Report**” (**Section D-109 - 7.4**). This report should be attached to the copy of the Workers’ Compensation “Report of Injury” form and submitted to the Home Office.

### **NOTES:**

- a) All personnel involved in the investigation must understand that the concern is Fact Finding and not Fault Finding.
- b) While the primary cause of any accident may be obvious, secondary causes or additional conditions, which preceded the accident, may be more difficult to determine. It is important to examine all of the unsafe conditions or acts leading up to the accident in order to determine the necessary corrective action.
- c) Any problems concerning accident investigation procedures or necessary corrective actions should be directed to the Health and Safety Administrator.

## Section VIII

# RECORD KEEPING AND DOCUMENTATION

### General Practices

- It is the policy of Argus Contracting and Summit Contracting to maintain current records at each job site for a minimum period of one year. All Cal/OSHA related documents will be retained for 3 years. All health related information will be retained for a period of 30 years following termination of the employee. Health related records are also protected under the Health Insurance Portability and Accountability Act (HIPA). Once the project is completed all records are forwarded to the Project's Branch office. Minimum health and safety records maintained include:
- Periodic Safety Inspections documentation includes date, identification of unsafe condition and/or work practices, person (s) conducting the inspection and action required to correct the hazards.
- Employee Warning of an Unsafe Act maintained in the employee file and includes the unsafe act, date, action to be taken and employee remarks. Copies are distributed to the personnel department.
- Employee Report of an Unsafe Condition and/or Practice this is subject to anonymous reporting. Documentation includes the hazards identified, suggestions for improvement and date.
- Employee Health and Safety Training documentation includes the employee name, trainer, type of training provided and training date. Training documentation is maintained for a minimum of one year.
- Accident Investigation Reports these reports list the causes of accident, employee name, any witnesses, and date of the accident, supervisor name, accident investigator and actions required for improvement.

## **APPENDICES**

### **FORMS FOR ACTIVITIES**

<b>TOPICS</b>	<b>APPENDIX</b>
Employee Warning Record Attachment D111 7.1 (pg. 24)	A-1
Employee Safety Information Form Attachment (pg. 25)	A-2
Job Site Inspection Report Attachment (pg. 26-27) Attachment (pg. 28-29)	A-3
Job Hazard Assessment Attachment TSA (pg.30)	A-4
Safety Training Record Form Attachment D103 7.1 (pg. 31)	A-5
Employee Training Check List Form Attachment D (pg. 32)	A-6
New Employee Training Proficiency Test Attachment D103 7.2 (pg. 33)	A-7
Project Safety Plan Attachment D102 7.1 (pg. 34-35)	A-8
Supervisor Incident/Investigation Report Attachment D109 7.4 (pg. 36-37)	A-9
Employee Incident Report Attachment D109 7.5 (pg. 38)	A-10

# D-111 Attach 7.1 Safety Infraction Warning Notice

Form 9913 6/98

## SAFETY INFRACTION WARNING NOTICE

To: \_\_\_\_\_  
(Employee Name)

Upon your employment, you were informed as to our policy regarding Safety Rules and Regulations.

The violation you are being cited for is as follows:

On \_\_\_\_\_ you were cited for a safety violation, (Job# \_\_\_\_\_)  
Date

This shall serve as your written warning for a \_\_\_\_\_

\_\_\_\_\_ offense. A third violation at any job location may result in termination of employment with our company. Any offense that is an Imminent Danger Violation, could result in immediate termination.

Reminder: 1st violation was on \_\_\_\_\_ at \_\_\_\_\_  
(Date) (Job Location)

If you have any questions regarding this communication, contact the writer or Supervisor at once.

VIOLATION: 1<sup>st</sup> 2<sup>nd</sup> 3<sup>rd</sup> (please circle one)

IMMINENT DANGER:

(Cited By)

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

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

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

**EMPLOYEE SAFETY INFORMATION FORM**

This form is to be used **at any time** by employees who wish to provide a safety suggestion or report an unsafe work place condition or practice. This form is also located in the facility.

Description of Unsafe Condition or Practice \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Causes or Other Contributing Factors \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Other \_\_\_\_\_

Has This Matter Been Reported to Your Job Site Foreman/Captain?

YES  NO

Employee Name (Optional) \_\_\_\_\_

Location Number (Mandatory) \_\_\_\_\_ Date \_\_\_\_\_

Department \_\_\_\_\_

**Please place this in the Suggestion Box; provide it to the Health and Safety Administrator, Project Manager or Branch Manager.**

**Employees are advised that use of this form or other reports of unsafe conditions or practices are protected by law. It would be illegal for Argus Contracting and Summit Contracting to take any action against the employee in reprisal for exercising rights to participate in communications involving safety.**

**Argus Contracting and Summit Contracting will investigate any report or questions as required by the *Injury and Illness Prevention Program* Standard (8CCR Section 3203) and advise the employee who provided the information or the workers in the area of the employer's response.**

\_\_\_\_\_

# Section D-108 – Job Site Safety Inspection Revised 12/18/2006

## JOB SITE SAFETY INSPECTION

**PROJECT:** \_\_\_\_\_ **LOCATION** \_\_\_\_\_

**DATE OF AUDIT:** \_\_\_\_\_ **AUDITED BY:** \_\_\_\_\_

To be completed by Project Foreman Daily

<b>1. OFFICE TRAILER OR BUILDING</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>COMMENTS</b>
a. Posting OSHA & other req. safety signs.	( )	( )	( )	_____
b. Occupational Clinic and first aid kit available.	( )	( )	( )	_____
c. Emergency telephone number posted at site	( )	( )	( )	_____
d. Fire hazards checked and extinguisher available	( )	( )	( )	_____
e. Proper storage of material	( )	( )	( )	_____
f. Fire Extinguishers Inspected & Charged	( )	( )	( )	_____

<b>2. FLOORS, STAIRS AND PLATFORMS</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>COMMENTS</b>
a. Openings - Permanent and temporary - Guarded.	( )	( )	( )	_____
b. Tread - Non slip surface	( )	( )	( )	_____
c. Adequate Lighting	( )	( )	( )	_____
d. Handrails and Toe boards	( )	( )	( )	_____
e. Adequate platforms.	( )	( )	( )	_____
f. Exits properly marked and unobstructed.	( )	( )	( )	_____

<b>3. LADDERS</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>COMMENTS</b>
a. OSHA approved, construction and design.	( )	( )	( )	_____
b. Properly secured with safety shoes	( )	( )	( )	_____
c. Fiberglass - Type 1A or better	( )	( )	( )	_____
d. Proper extension & pitch.	( )	( )	( )	_____
e. Inspected and maintained.	( )	( )	( )	_____
f. Ladder In Use Tied Off	( )	( )	( )	_____

<b>4. SCAFFOLDING</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>COMMENTS</b>
a. Tags signed by Competent Person	( )	( )	( )	_____
b. Base - level	( )	( )	( )	_____
c. Tied and secured to structure.	( )	( )	( )	_____
d. All connections secured.	( )	( )	( )	_____
e. Planks OSHA approved	( )	( )	( )	_____
f. Guardrails, midrails and toe boards.	( )	( )	( )	_____
g. Overhead protection.	( )	( )	( )	_____
h. Fall Protection above 6 feet	( )	( )	( )	_____

<b>5. PERSONAL PROTECTION</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>COMMENTS</b>
a. Safety glasses with side shields	( )	( )	( )	_____
b. Hard hats worn	( )	( )	( )	_____
c. Safety footwear	( )	( )	( )	_____
d. Gloves	( )	( )	( )	_____
e. Respirators/dust mask	( )	( )	( )	_____
f. Ear Protection	( )	( )	( )	_____
g. Face shield	( )	( )	( )	_____
h. Fall Protection above 6ft	( )	( )	( )	_____

<b>6. TOOLS AND EQUIPMENT</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>COMMENTS</b>
a. Proper tool for job	( )	( )	( )	_____
b. Inspection & maintenance	( )	( )	( )	_____
c. Mechanical safeguards in use	( )	( )	( )	_____
d. Insulated and grounded	( )	( )	( )	_____
e. Ground fault protection GFCI	( )	( )	( )	_____
f. Permanent & temporary cord inspection	( )	( )	( )	_____

<b>7. BASIC SAFETY ACTIVITIES</b>	<b>YES</b>	<b>NO</b>	<b>N/A</b>	<b>COMMENTS</b>
a. Task Safety Analysis (daily-ea. Task)	( )	( )	( )	_____
b. Project Safety Plan in Place	( )	( )	( )	_____
c. Verify preshift and end of shift safety huddle	( )	( )	( )	_____
d. All employees completed Safety orientation	( )	( )	( )	_____
e. Qualified Operators - Boom lift, scissor, etc.	( )	( )	( )	_____

Special Safety Problem: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Recommendations: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

General Comments: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# D-108 Site Specific Safety Inspection 12/18/2006

PROJECT: \_\_\_\_\_ LOCATION/CONTRACT NO: \_\_\_\_\_  
 INSPECTOR: \_\_\_\_\_ DATE OF INSPECTION: \_\_\_\_\_

		Score	Points Awarded	Comments
<b>Site and Emergency Information</b>				
1.1	Posting of OSHA & other req'd safety signs?	2	___	_____
1.2	Occupational Clinic established & First Aid Kit available/full?	5	___	_____
1.3	Emergency numbers posted (Police, Fire, Ambulance)?	1	___	_____
1.4	Emergency eyewash bottle available?	1	___	_____
1.5	Personnel signing time sheets – i.e. No injuries for the shift?	2	___	_____
1.6	Project Safety Plan completed?	2	___	_____
1.7	Task Safety Analysis completed?	2	___	_____
1.8	Fire hazards checked and extinguisher available?	1	___	_____
1.9	New personnel on site receive: Site Orientation ___?	5	___	_____
1.10	Company Safety Orientation ___ Safety Handbook ___ Acknowledgement ___?	5	___	_____
1.11	Weekly Safety Meetings ___ Documented ___?	3	___	_____
1.12	Are MSDSs available for each chemical and current inventory?	1	___	_____
1.13	Have all Supv/Foremen complete Supv. 10-hr OSHA training?	3	___	_____
1.14	Safety Manual on project site?	1	___	_____
	Subtotal	34		
<b>Personal Protective Equipment (PPE)</b>				
2.1	Are personnel wearing approved HH, safety glasses, boots, gloves?	4	___	_____
2.2	Other PPE as needed? Face shield/goggles, hearing prot., Tyvek?	1	___	_____
2.3	Are required respirators used? Asb. RCF, Lead, Mold?	1	___	_____
2.3.1	Medical clearance and fit tests performed? ___ Documented? ___	3	___	_____
2.3.2	Documented training?	1	___	_____
	Subtotal	10		
<b>Housekeeping</b>				
3.1	Project work areas are clean and free of excess trash, debris?	2	___	_____
3.2	Walkways and passageways clear?	1	___	_____
3.3	Material or equipment properly stored/stacked?	1	___	_____
3.4	Are electrical cords, hoses, etc. elevated to prevent trip hazards?	1	___	_____
3.5	Trash receptacles are provided for work areas and water kegs?	1	___	_____
3.5	Scrap metal free of protruding nails or other puncture hazards?	1	___	_____
	Subtotal	7		
<b>Fall Protection</b>				
4.1	Body harnesses required and worn in proper manner?	3	___	_____
4.2	Lanyards are adequately secured to suitable anchorage-5000 lbs?	2	___	_____
4.3	Fall Protection Plan completed – as needed?	1	___	_____
4.4	Fall Protection maintained and has current inspection?	1	___	_____
4.5	Openings covered/guarded?	2	___	_____
4.6	Stairways free of tripping hazards?	1	___	_____
	Subtotal	10		
<b>Scaffolds and Ladders</b>				
5.1	Scaffold tagged and signed by competent person?	2	___	_____
5.2	Built per specification – level, plumb, secured to structure, Other?	3	___	_____
5.3	Guardrails, midrails, toe boards?	1	___	_____
5.4	Proper ladder for job performed/properly secured?	2	___	_____
5.5	Ladder proper angle and exceed the landing by min. 3 ft.?	1	___	_____
5.6	Ladder inspected prior to use – Fiberglass or wood?	2	___	_____
	Subtotal	11		



# D-108 Site Specific Safety Inspection 12/18/2006, con't.

## Site Specific Safety Inspection

		Score	Points Awarded	Comments
<b>Vehicles/Mobile Equipment</b>				
6.1	Scissor/Broom lift operators qualified through on-site training	4	___	_____
6.2	Licenses or certifications as required, e.g. forklifts>	1	___	_____
6.3	Operator tied off as required or fork truck seatbelt worn?	2	___	_____
6.4	Equipment inspected (daily/monthly) and properly maintained – Doc?	<u>2</u>	___	_____
	Subtotal	9		
<b>Tools and Equipment</b>				
7.1	Electrical cords – condition and current inspection?	1	___	_____
7.2	GFCI used on all cord sets/electrical equipment?	3	___	_____
7.3	Tools inspected and maintained in a safe condition	1	___	_____
7.4	Pneumatic/hydraulic hose connections properly secured?	1	___	_____
7.5	Proper tools used for the job performed?	<u>1</u>	___	_____
	Subtotal	7		
<b>Fire Protection</b>				
8.1	Flammables stored properly?	1	___	_____
8.2	Fire extinguishers properly located, tagged and inspected monthly?	2	___	_____
8.3	Metal flammable safety can with flame arrestors?	<u>1</u>	___	_____
	Subtotal	4		
<b>Permits/Safety Task Permits</b>				
9.1	Applicable permits posted?	1	___	_____
9.2	Safety Directives followed, i.e. Asbestos, Lead, Mold, RCF, Conf Space	<u>4</u>	___	_____
	Subtotal	5		
<b>Miscellaneous</b>				
10.1	Other Issues? – List below	<u>3</u>	___	_____
	Total Score Possible / Total Points Awarded	100		

### Adjusted Score Percent

### Summary/Recommendation(s)/Action Items

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# Task Safety Analysis Form

## Tasks / Potential Hazards

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

## Control Measures

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_

## REVIEWED CHECKLIST WITH EMPLOYEES (initial only) YES or NO

- General Safety**
- First Aid
  - Evacuation
  - Haz Com / MSDS
  - Harness Eye wash / Shower
  - Access / Egress
  - Material Storage
  - Equipment Inspection
  - Signs, Barriers
  - Weather
  - Nearest Fire Exit

- Welding - Burning**
- Systems Drained
  - Water Hose
  - Flash Back Arrestor
  - Fire Watch
  - Welding Screens
  - Welding Leads Good

- Ladder - Scaffold**
- Correct Ladder and Inspected
  - Proper Footing
  - Tie Off Rope - 4:1 Rule Extension
  - Hoist Rope
  - Handrails
  - Midrail
  - Toeboards
  - Scaffold Tags
  - Scaffold Inspector - Daily

- Permits**
- Ready to Work

## Crew Signatures

- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

## PPE

- Hard Hat
- Safety Glasses with Side Shields
- Gloves
- Slurry Work Boots - If Steel Toe Required
- Safety Harness/Lanyard
- Hearing Protection
- Flame Resistant Coveralls
- Knit Gloves - If Kevlar Sleeves
- Spin Guards/Cloths
- Toe Guards
- Face Shield - If Goggles
- Eye/Coveralls
- Chemical Suits - Chemical Gloves
- Rain Suits
- Full Face Respirator - If Mask Respirator
- Proper Confined
- Airline Respirator
- Other list: \_\_\_\_\_

- Hot Work / Flame
- Confined Space

- Safe Work
- Excavation
- Vehicle Entry
- Bus Entry
- Pressurized Work
- Hot Tap
- Energized Work

- Excavation**
- Competent Person
  - Daily Inspection
  - Entry Permit
  - Shoring / Shoring
  - Access / Egress

- Man Lifts**
- Inspection
  - Training
  - Footing
  - Fall Protection
  - Overhead Hazards
  - Permits
  - Weather Conditions

- Electrical**
- Daily Inspection
  - Lockout / Tagout
  - GFCI Required and Tested
  - Color Coding
  - Try Start / Stop Switch
  - Proper Grounding

- Material Handling**
- Proper Body Position
  - Proper Lifting Method
  - Lifting Devices



## T. S. A Task Safety Analysis

- Project Name/No. \_\_\_\_\_
- Foreman \_\_\_\_\_
- Date \_\_\_\_\_
- Task Description \_\_\_\_\_

- Surrounding Conditions**
- Weather \_\_\_\_\_

- Area Conditions**
- \_\_\_\_\_

- Other Crafts in Area** (if necessary)
- Electricians
  - Architectural Masons
  - Startups
  - Carpenters
  - Mechanics
  - Ironworkers

- Training Required for Task** (if necessary)
- Lifting
  - Rigging
  - Demolition
  - Equipment
  - Fire Watch
  - Confined Space
  - Trench Inspection

- Tools and Equipment Required**
- Hand Tools
  - Power Tools
  - Other \_\_\_\_\_

- Accurate Personnel**

- Forklift
- Cherry Picker
- Load Chart
- Position
- Angle
- Crane
- Shantell
- Proper Rigging
- Condition of Equipment

- Tools**
- Proper Tool Being Used
  - Tool in Good Condition

- Fire Protection**
- Combustibles Removed
  - Spark Continer
  - Fire Extinguisher
  - Trained Fire Watch
  - Fire Blanket

- Hazards Identified**
- Chemical / Thermal Burns
  - Radiation Sources
  - Insects / Animals
  - Parasites in Eye
  - Heat Stress
  - Cold Temperatures
  - Heated Work
  - Slip / Trip / Falls
  - Overhead Work
  - Inhalation Hazards / Aspiration
  - Substances / Chemicals
  - Noise
  - Lighting
  - Electrocutation

# D-103 – 7.1 Training – Safety and Health

## SAFETY TRAINING RECORD

Course: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Presenter: \_\_\_\_\_

### Topics Covered

#### New Employee Safety Orientation

- Specific Safety Directives Reviewed
- Site Specific Procedures Reviewed
- Asbestos Awareness
- Lead Based Paint Awareness
- Refractory Ceramic Fiber (RCF) Awareness
- PPE
- Respirators
- Scaffolds
- Fall Protection
- Ladders & Stairways (slip, trips, falls)
- Task Safety Analysis (TSAs)

#### Site Specific Work Rules/General Safety

- Incident Reporting Reviewed
- First Aid/Bloodborne Pathogens
- Lock Out/Tag Out
- Confined Space Entry
- Material Storage & Handling
- Electrical Safety
- Hazard Communication
- Fire Prevention/Protection
- Safety Handbook - Reviewed/Signed
- OSHA Supv \_\_\_\_\_
- Other: \_\_\_\_\_

	Name - PRINT	S.S Last 4#	Signature
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			

## **D- 109 7.5 - EMPLOYEE TRAINING CHECK LIST**

**This report must be completed for every new employee during EVERY orientation and a copy kept on file at the branch office.**

Name of Employee (Please Print) \_\_\_\_\_

Social Security Number \_\_\_\_\_ Date Employed \_\_\_\_\_

Type of Work \_\_\_\_\_ Past Work Experience \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Name of Trainer \_\_\_\_\_

Training Materials Used \_\_\_\_\_

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

- The potential occupational hazards, in general, in the work area and associated with my job assignments.
- The Codes of Safe Practices, which indicate the safe work conditions, safe work practices and personal protective equipment, required for my work.
- The hazards of any chemicals to which I may be exposed and my right to information contained on material safety data sheets for those chemicals and how to understand this information.
- My right to ask any questions or provide any information to my supervisor or other designee on safety either directly or anonymously without any fear of reprisal.
- Disciplinary procedures the employer will use to enforce compliance with Codes of Safe Practices.

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

Employee Signature \_\_\_\_\_ Date \_\_\_\_\_

Trainer's Signature \_\_\_\_\_ Date \_\_\_\_\_

# NEW EMPLOYEE SAFETY TRAINING - PROFICIENCY TEST

<b>Employee Name:</b>	<b>Date:</b>	<b>Time:</b>
<b>Company:</b>	<b>Employee #:</b>	
<b>Office:</b>	<b>Office Phone Number:</b>	
<b>Results: Pass <input type="checkbox"/> Fail <input type="checkbox"/> 70% for Passing</b>	<b>Supervisor Notified of Results: Yes <input type="checkbox"/> No <input type="checkbox"/></b>	

TEST QUESTIONS		TRUE	FALSE
1	All injuries must be reported to your supervisor immediately, no exceptions.	<input type="checkbox"/>	<input type="checkbox"/>
2	Completion of the Incident Investigation Report is required within 24 hours of any accident.	<input type="checkbox"/>	<input type="checkbox"/>
3	Falls are the second leading cause of fatalities in the Construction Industry.	<input type="checkbox"/>	<input type="checkbox"/>
4	Hand injuries are our number 1 injury in the company.	<input type="checkbox"/>	<input type="checkbox"/>
5	Personal Protective Equipment (P.P.E.) is the last control method in the prevention of hazards/injuries.	<input type="checkbox"/>	<input type="checkbox"/>
6	Fall protection is needed any time you are working above five feet.	<input type="checkbox"/>	<input type="checkbox"/>
7	Most ladder accidents are caused by improper use or choice of ladders.	<input type="checkbox"/>	<input type="checkbox"/>
8	When working with power tools Ground Fault Circuit Interrupter (G.F.C.I.) is not needed if it is not raining at the jobsite.	<input type="checkbox"/>	<input type="checkbox"/>
9	It is acceptable to store materials in front of exit aisle ways and electrical circuit panels when there are no other areas for storage left at the jobsite.	<input type="checkbox"/>	<input type="checkbox"/>
10	Falls account for 20% of all disabling work related injuries in the construction industry.	<input type="checkbox"/>	<input type="checkbox"/>
11	Safety is the responsibility of the employer and supervisor only.	<input type="checkbox"/>	<input type="checkbox"/>
12	A scaffold must be inspected, tagged and signed by a competent person each shift before you use it.	<input type="checkbox"/>	<input type="checkbox"/>
13	You must complete company training before operating an aerial lift.	<input type="checkbox"/>	<input type="checkbox"/>
14	100,000 injuries occur due to unsafe lifting procedures and deficient employee training.	<input type="checkbox"/>	<input type="checkbox"/>
15	Employee training is not required if you have prior work experience with using material handling equipment.	<input type="checkbox"/>	<input type="checkbox"/>
16	Hazard warning labels are not required for secondary use containers.	<input type="checkbox"/>	<input type="checkbox"/>
17	Material Safety Data Sheets (M.S.D.S.) are not required on a jobsite if you already have a written hazard communication program.	<input type="checkbox"/>	<input type="checkbox"/>
18	A lockout/tagout program is needed when de-energizing and/or restoring equipment at the worksite.	<input type="checkbox"/>	<input type="checkbox"/>
19	Employee training is not required for permit required confined space entry.	<input type="checkbox"/>	<input type="checkbox"/>
20	Horseplay is acceptable at the jobsite if nobody gets injured.	<input type="checkbox"/>	<input type="checkbox"/>
21	Current CPR/First Aid training is required for at least one supervisor at each jobsite.	<input type="checkbox"/>	<input type="checkbox"/>
22	Zero tolerance is required for a Drug Free Workplace.	<input type="checkbox"/>	<input type="checkbox"/>
23	A Task Safety Analysis is required to be completed on all worksites for each new job task.	<input type="checkbox"/>	<input type="checkbox"/>
24	Respiratory Protection employee training is not required when working with lead or asbestos.	<input type="checkbox"/>	<input type="checkbox"/>
25	Zero Accidents is our company goal for all worksites.	<input type="checkbox"/>	<input type="checkbox"/>

# D-102, Attachment 7.1. Project Safety Plan

**Instructions:** This project safety plan must be completed by the project manager/supervisor prior to the beginning of all projects. Please answer all questions. Review the project safety plan with all workers prior to beginning work. A copy of the safety plan must be available at the job site and filed with other paperwork at the end of the project.

Prepared by Company Foreman/Supervisor: \_\_\_\_\_ Date: \_\_\_\_\_

Project Name \_\_\_\_\_ Contract No. \_\_\_\_\_

Location \_\_\_\_\_

Description \_\_\_\_\_

Start Date \_\_\_\_\_ Estimated Completion Date \_\_\_\_\_

### Emergency Procedures

Fire: Telephone # \_\_\_\_\_

Injury/Illness: Location of Medical Facility \_\_\_\_\_

Telephone # \_\_\_\_\_

Customer Contact: Name \_\_\_\_\_ Telephone # \_\_\_\_\_

Regional Safety Manager: Telephone # \_\_\_\_\_ Pager # \_\_\_\_\_

Worker's Comp. Administrator: Telephone # 1-800-696-8547 or 717-399-5253

Corporate Safety and Health: 717-399-5217

1A. Where are the MSDS's located? \_\_\_\_\_

1B. Have you reviewed the MSDS's with the employees? \_\_\_\_\_ Yes \_\_\_\_\_ No

2. Where are you posting applicable safety regulatory compliance posters: i.e., OSHA  
Federal/State: Trailer \_\_\_\_\_ Gang Box \_\_\_\_\_ Other \_\_\_\_\_

3. Is a First Aid Kit with an eyewash readily available? \_\_\_\_\_ Yes \_\_\_\_\_ No

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

4A. Identify PPE Requirements

\_\_\_\_ Respirators \_\_\_\_\_ Goggles \_\_\_\_\_ Hearing Protection

\_\_\_\_ Gloves \_\_\_\_\_ Tyvek \_\_\_\_\_ Other \_\_\_\_\_

\_\_\_\_ Std. PPE (hard hats, safety glasses, gloves and work boots)

4B. Are there customer specific safety requirements for the project? \_\_\_\_\_ Yes \_\_\_\_\_ No

4C. If yes, have they been reviewed with all project personnel? \_\_\_\_\_ Yes \_\_\_\_\_ No

5A. Will scaffolding be used for the project? \_\_\_\_\_ Yes \_\_\_\_\_ No

- 5B. If yes, has a Competent Person been identified for project?  Yes  No  
 Name of Competent Person \_\_\_\_\_
- 5C. Have all employees received scaffold user training?  Yes  No
- 6A. Is fall protection required on the project? (working on elevations > 6 ft)  Yes  No
- 6B. If yes, have employees been trained on the required equipment?  
 Safety Harness  Lanyard  Lifeline  Tie-off  Other \_\_\_\_\_
7. Have all project company workers completed the Company Safety Orientation and Training Program?  Yes  No
- 8A. Will powered vehicle be used?  Yes  No
- 8B. If yes, identify:  
 Fork-Lift  Scissor Lift  Boom Lift (JLG)  Other \_\_\_\_\_
- 8C. Has operator training been verified on applicable equipment?  Yes  No
- 8D. Will any employee be operating a motor vehicle (autos/truck)?  Yes  No
- 8E. If yes, complete Vehicle Project Authorization Form. See Section 1.13.
- 9A. Will ladders be used on the project by company workers?  Yes  No
- 9B. If yes, have workers been trained on ladder safety ?  Yes  No
- 10A. Are there non-routine tasks required?  Yes  No  
 Identify specific tasks:  
 Confined Space Entry  Burning/Welding  Excavation  
 Electrical Lockout  Process Safety Mgmt  Other \_\_\_\_\_
- 10B. If yes, have workers been trained in the tasks identified above (10A)?  Yes  No
- 10C. Do you have Task Safety Analysis cards readily available?  Yes  No
11. Special Safety, Health and Environmental Considerations:  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**Safety is Our #1 Priority**

# D-109 – 7.4 SUPERVISOR'S INCIDENT INVESTIGATION REPORT

**This form shall be completed by the Supervisor within 24 hours for injuries, illnesses and serious near misses.**

1. **Verbal notifications** to the Safety and Health Manager and Corporate Workers Compensation Administrator **are required for all** injuries requiring medical attention. Check departments notified.

Safety Mgr. \_\_\_\_\_ Corp. Risk Management: \_\_\_\_\_  
Person Notified Person Notified

2. Incident Date: \_\_\_\_\_ 3. Time \_\_\_\_\_ a.m. p.m.

4. Incident Type Injury ( ) Illness ( ) Property Damage ( ) Serious Near-miss ( ) Auto ( )

5. Responsible Office \_\_\_\_\_ 6. Supervisor in Charge \_\_\_\_\_

7. Incident Location \_\_\_\_\_ 8. Contract No \_\_\_\_\_

9. Name of Person(s) Injured \_\_\_\_\_ Job Title \_\_\_\_\_

10. Telephone Numbers - Supervisor \_\_\_\_\_ Injured Worker \_\_\_\_\_

11. Personnel involved:
- |   |  |
|---|--|
| a. Company (list name(s), title)<br>_____<br>_____<br>_____ | b. Non-Company (list name(s), company and phone number)<br>_____<br>_____<br>_____ |
|---|--|

12. Witnesses:
- |   |  |
|---|--|
| a. Company (list name(s), title)<br>_____<br>_____<br>_____ | b. Non-Company (list name(s), company and phone number)<br>_____<br>_____<br>_____ |
|---|--|

13. Nature of injury/illness (if applicable) \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

14. Give detailed description of events of the incident in chronological order (use attachments if necessary)  
 \_\_\_\_\_  
 \_\_\_\_\_

15. Were pictures taken? No Yes If Yes, by whom? \_\_\_\_\_  
Name Date Time

16. Preliminary Summary: Incident resulted from (Check all that apply):

Unsafe Act	Unsafe Condition	Unauthorized Work	Failure to use P.P.E.
Procedural Violation	Equipment Failure	External Condition	Other (Explain)

\_\_\_\_\_

\_\_\_\_\_

Employee was offered medical care at this time but refused treatment. \_\_\_\_\_  
Supervisor/Mgr. Signature

Witnesses: \_\_\_\_\_



**SUPERVISOR'S INCIDENT INVESTIGATION FOLLOW-UP REPORT**

Items 17-20 can be completed by end of shift by Supervisor in charge if all causes can be determined. If not, notify the Safety Manager for assistance.

17. Root Cause(s) (i.e. that single cause which if corrected would prevent recurrence of this and similar incidents).  
Choose One:

- |   |   |
|---|---|
| attention diverted (distracted)                     | personal protective equipment not available/not used                |
| equipment problem                                   | training deficiencies (circle one or more):                         |
| no SOP or inadequate/defective SOP                  | - no training                      - refresher training needed      |
| personnel error                                     | - inadequate training            - insufficient hands-on experience |
| client error  | reduced stamina/acuteity (i.e., tired, ill, long hours, etc.)       |
| employee(s) did not follow established procedure(s) | external phenomenon (e.g., power failure, weather, theft)           |
| Other (explain – Use attachments if necessary)      |   |
- 

18. Contributing Cause(s) (i.e. the cause(s) that contributed to the incident but by itself would not have caused the incident.) (Choose one of more.):

- |  |   |
|--|---|
| attention diverted (distracted)                | personal protective equipment not available/not used                |
| equipment problem                              | training deficiencies (circle one or more):                         |
| personnel error                                | - no training                      - refresher training needed      |
| Other (explain – Use attachments if necessary) | - inadequate training            - insufficient hands-on experience |
- 

20.

Recommended Corrective Action(s) [use attachment if necessary]	Responsible Sup/Mgr	To be Completed by (Date)

Name(s) (print)                      Title(s)                      Signature(s)                      Date

21. Investigated by: \_\_\_\_\_

22.

<b>BOXED AREA COMPLETED BY SAFETY DEPARTMENT.</b> This incident has been classified as:			
OSHA: Injury or Illness	Due to: Lost Time	Restricted Duty	Medical Treatment
Describe specific medical treatment [use attachments if necessary]:			
Non_OSHA: First Aid	Near Miss with Serious Potential	Not applicable (Not an Injury or Illness)	
Does employee or personnel involved have a history of similar incidents or incidents due to similar causes?			
No    Yes    If Yes, when?			

23. Comments [use attachments if necessary] \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

24. Distribution \_\_\_\_\_

Fax Copy 1) Lancaster-Risk Management 717-393-3872 2) Regional Safety Mgrs-Mark 724-934-8704 or Tom 562-420-9706 or Kevin 302-684-2957. Original to be retained in the location office Loss Control File

Supv. Investigation & Employee Incident Report information submitted via Lotus Notes Incident Reporting Database

# D – 109 7.5 - EMPLOYEE INCIDENT REPORT

Return completed form to your supervisor within 24 hours for all injuries, illnesses and “near misses.”

NAME: \_\_\_\_\_ Last 4 digits SS# \_\_\_\_\_ Phone \_\_\_\_\_

INCIDENT DATE: \_\_\_\_\_ TIME: \_\_\_\_\_ AM / PM (circle one)

INCIDENT TYPE: (circle one) INJURY ILLNESS PROPERTY DAMAGE NEAR MISS

INCIDENT LOCATION: JOB SITE NAME \_\_\_\_\_

BUILDING /AREA/ EQUIPMENT WORKING ON AT TIME \_\_\_\_\_

DESCRIBE IN YOUR OWN WORDS “WHAT HAPPENED”:

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

DESCRIBE RESULTING INJURY/ILLNESS/DAMAGES:  
(contusion/strain/laceration; right/left side; upper/lower, etc.)

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

HAVE YOU BEEN TREATED PREVIOUSLY FOR AN INJURY OF THE SAME TYPE FOR EITHER  
SIMILAR SIGNS OR SYMPTOMS. [ ] Yes [ ] No (check one)

WITNESSES: \_\_\_\_\_

PERSON(S) NOTIFIED/TITLE: \_\_\_\_\_

DATE/TIME NOTIFIED: \_\_\_\_\_ AM PM (circle one)

COMMENTS: \_\_\_\_\_

EMPLOYEE SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_

MY EMPLOYER HAS OFFERED ME MEDICAL CARE FOR THIS INJURY AND I DECLINE  
TREATMENT AT THIS TIME. IF LATER I WISH TO SEEK MEDICAL CARE FOR THIS INJURY I  
WILL NOTIFY MY EMPLOYER PRIOR TO SEEKING TREATMENT.

EMPLOYEE SIGNATURE: \_\_\_\_\_ DATE: \_\_\_\_\_