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SECTION 1 – ORGANIZATION AND RESPONSIBILITIES

1.0 GENERAL REQUIREMENTS

1.1 This section defines the organizational structure, and specifies the areas of responsibility for the establishment, execution and evaluation of an effective, on-going program for the protection of employees, and the conservation of assets.

2.0 CORPORATE SAFETY PLANNING COMMITTEE

2.1 The company has established a corporate safety planning committee consisting of the President, Safety Manager, and other company personnel. This committee shall meet periodically as scheduled by the Chairman and shall:

- a. Establish safety policy and procedures
- b. Monitor legislation and regulation changes as they relate to safety policy.
- c. Monitor safety performance and program effectiveness.
- d. Evaluate job hazards and establish corrective action.
- e. Make safety equipment decisions.
- f. Establish training requirements and safety training programs.

3.0 SAFETY MANAGER

3.1 The Safety Manager is an employee of the Company designated to serve as the management representative who is responsible for coordination of the total safety effort and monitoring the day to day performance of the safety program.

3.2 The duties of the Safety Manager shall include:

- a. Serve as chairman of the corporate safety planning committee
- b. Communicate with all levels of management and labor on safety problems as they may arise.
- c. First contact for all serious accident or injuries and monitor investigations.
- d. Maintain required safety records
- e. Coordinate all field safety activities with Project Managers and Job Superintendents.
- f. Review and approve all special safety procedures or equipment requirements for new jobs.
- g. Direct all company safety training activities.
- h. Serve as management's representative in contacts with OSHA and other safety regulatory agencies.
- i. Conduct periodic safety evaluations of job sites.
- j. Supervise investigations of all accidents, injuries, and near misses.
- k. Serve as the Company's Hazard Communications Program Coordinator.
- l. Enforcement of the company disciplinary policy.

SECTION 1 – ORGANIZATION AND RESPONSIBILITIES

4.0 SAFETY REPRESENTATIVES

4.1 The Safety Manager shall appoint a safety representative for certain job sites as necessary to assure compliance with Company and Customer safety program requirements.

4.2 This individual shall:

- a. Coordinate all safety activities at the locations
- b. Assist in training activities
- c. Conduct periodic safety audits of the job site
- d. Participate in job site safety meetings
- e. Assist with emergency procedures when a works is injured
- f. Conduct investigations of all job site accidents, injuries, and near misses
- g. Be familiar with job site emergency procedures and take charge of employee assembly in case of an emergency.

NOTE: When a safety representative is appointed to a project, he/she may be assigned additional safety related tasks which are listed as Project Manager, Job Superintendent, and Forman duties.

5.0 PROJECT MANAGER

5.1 The Project Manager shall serve as liaison between the Safety Manager and the Job Superintendent. The Project Manager shall:

- a. Evaluate all special safety requirements for each new job in conjunction with the Safety Manager.
- b. Help the Job Superintendent to obtain all necessary safety equipment, and develop site safety policy.
- c. Coordinates safety activities with owners/clients, and all prime, general, and/or subcontractors, plus all multi-employer job site safety issues.

6.0 JOB SUPERINTENDENT

6.1 All Job Superintendents shall:

- a. Monitor the safety of all operations, including those of subcontractors.
- b. Coordinate safety with the owner/client and others on the job site.
- c. Set a proper example by following Company safety policy, and by using proper safety equipment and protective clothing.
- d. Review company safety policy with all foremen and supervisory personnel under their jurisdiction.
- e. Be responsible for job site employee safety training, providing personal protective equipment and first aid.
- f. Plan and arrange job site safety meetings, as may be required, and conduct the weekly Tool Box Safety Talks.
- g. Pre-select a medical facility and expedite emergency medical services for job related injury or illness and follow-up on re-visits as requested by the attending physician.

SECTION 1 – ORGANIZATION AND RESPONSIBILITIES

- h. Personally prepare or review job site accident reports with the foremen to be certain that the required reports are properly completed.
- i. Investigate and complete an accident investigation report on all accidents. Investigate and record near misses.
- j. Maintain emergency phone numbers, OSHA posters and log, accident records, safety training records, records of tool box talks, and documentation of safety matters.
- k. Enforce safety policy and regulations; take appropriate action in the event of a violation.
- l. Personally pre-plan all work tasks or provide direction to foremen performing this function.
- m. Conduct a weekly safety audit in all work areas.

7.0 FOREMAN

7.1 Foreman will strive to maintain safety working conditions in their work areas, and will enforce safe work practices among the personnel under their supervision. The foreman shall:

- a. Continuously inspect the work area for job hazards, unsafe conditions and fire protection, take corrective action when possible, otherwise warn workers to avoid the hazard, post appropriate notices, and report hazards to his supervisor.
- b. Set a proper example; develop a positive attitude toward safety, obey safety rules and wear appropriate protective clothing and equipment.
- c. Enforce safety rules established by the Company and job site policy; this includes the use of safe work practices and use of protective clothing and equipment.
- d. Conduct safety training of employees by holding weekly tool box safety talks, and by correcting unsafe work practices.
- e. Attend and participate in the job site safety meetings, as applicable.
- f. Be familiar with job site emergency procedures to be followed when a worker is injured. Arrange immediate medical attention and transportation, if required.
- g. Investigate all accidents and “near misses”, document the findings, take corrective action, and complete the required reports.
- h. Be familiar with plant evacuation procedures and take charge of the assembly and evacuation of their crew in the event of a job site emergency.
- i. Preplan all work tasks utilizing the daily safe work plan
- j. Conduct a weekly safety audits.

SECTION 1 – ORGANIZATION AND RESPONSIBILITIES

8.0 EMPLOYEES

8.1 All employees must accept responsibility for their own safety and the safety of their assigned work area. Each and every employee shall:

- a. Adhere to safety policy and work rules; perform all work in a safe manner.
- b. Use protective clothing and safety equipment required by job site rules and safety standards.
- c. Report all unsafe conditions or other job hazards to his immediate supervisor.
- d. Protect tool and/or equipment entrusted to him for his use from damage or loss; report defective tools or equipment
- e. Attend and participate in the tool box talks and other safety meetings.
- f. Report all accidents, near accidents, injuries or illness without delay; report for medical treatment as indicated. Participate in the accident investigation, as required.
- g. Be aware of the Hazard Communication Employee Information Program and follow the safety procedures that are described.
- h. All employees are required to attend the company sponsored annual safety days. This training program covers electrical, confined space, MSHA, OSHA, cranes, rigging, lifts, forklifts, first aid, and CPR as required for customer specific training.
- i. Participate in the pre-task safety analysis.

SECTION 2 – SAFETY RULES AND EMPLOYEE ORIENTATION

1.0 INTRODUCTION

- 1.1 This section sets forth the safety rules established by the Corporate Safety Planning Committee and the training required to meet Company, Customer, and OSHA requirements.

2.0 CUSTOMER JOB SITE SAFETY RULES

- 2.1 Upon award, the Project Manager shall request, from the Customer, the job site safety rules and job hazard information. Upon receipt, this information shall be transmitted to the Safety Manager and the Job Superintendent.

- 2.2 It is the responsibility of the Job Superintendent to inform his employees of the Customer's job site rules and job hazard information.

3.0 PROCESS SAFETY MANAGEMENT

- 3.1 Upon award of a project to be performed at a facility which is governed by OSHA Standard 1910.119, "Process Safety Management-Hazardous Chemicals", the Project Manager shall request the following information from the Customer:
 - a. Potential fire, explosion, or toxic release hazards related to our work, and the covered process.
 - b. The emergency action plan required by OSHA regulations.
 - c. The controls for our employee's entrance, presence, and exit in covered process areas.

- 3.2 Upon receipt, this information shall be transmitted to the Safety Manager and the Job Superintendent. The Job Superintendent, utilizing the customer's response, will conduct training for all employees in the safe work practices necessary to perform assigned tasks.

4.0 PROJECT SAFETY ANALYSIS

- 4.1 Before work begins on a new project, the Project Manager, Job Superintendent, and Safety Manager shall conduct a review of the scope of work with a special emphasis on the safety hazards associated with the various activities. This analysis shall be utilized to identify high risk or non routine tasks which require specific employee training prior to assignment.

5.0 EMPLOYEE ORIENTATION

- 5.1 The Job Superintendent shall provide a safety orientation to all Company employees working on the job site. This orientation should include all newly hired employees and those employees who have transferred from other jobs.

- 5.2 Topics to be discussed during the safety orientation are as follows:
 - a. Review the company safety orientation power point.
 - b. Issue the employee a copy of the Customer Job Site Safety Rules and review.
 - c. Review accident procedures and First Aid locations.

SECTION 2 – SAFETY RULES AND EMPLOYEE ORIENTATION

- d. Review required personal protective equipment
- e. Review safety violation notification and enforcement program.
- f. Hazard Communication Program – Review information in company safety orientation power point.
- g. Instruct employee to immediately report any unsafe act or condition to project supervisor.
- h. Instruct employee to report all accidents, injuries, or illness without delay.

5.3 Upon completion of the above indoctrination, the employee should read, sign, and date the Safety Training sheet in the new hire packet.

5.4 The Job Superintendent shall maintain these signed forms in the jobs site file.

6.0 SPECIAL SAFETY REQUIREMENTS

6.1 Special Safety Requirements have been established for many routine operations that are considered to be inherently dangerous and which require special safety precautions. Any employee who is assigned any of these tasks must be trained as required and a training record maintained in the jobs site records.

7.0 SAFETY HAZARD NOTIFICATION

7.1 Safety Hazard Notification consists of a person in a supervisory capacity advising a worker of a recognized hazard which cannot be immediately corrected. The hazard shall be barricaded or posted, and employees instructed in the proper method to reduce the hazard to an acceptable level, or to avoid the hazard.

8.0 SAFETY ALERT

8.1 The Safety Manager shall prepare and distribute a "Safety Alert" to all Company employees when an accident, injury, or near miss occurs, which points up a hazard which is germane to all Company operations.

SECTION 2 – SAFETY RULES AND EMPLOYEE ORIENTATION

9.0 TOOL BOX SAFETY TALKS

9.1 Tool Box Safety Talks shall be conducted by the foreman or other supervisory personnel on a weekly basis. The Job Superintendent is encouraged to participate as circumstances permit. The Tool Box talks shall be:

- a. Five to ten minute duration.
- b. Attended by all craft personnel and attendance recorded. Attendance records are to be maintained on file at the job site for review by the Safety Manager.
- c. Based on the specific safety concerns of the work in progress. Content of the tool box talks is provided by the Employee Safety Rules, Safety Handbook, and by preprinted Tool Box Talks supplied to the jobsite by the Project Manager.
- d. Conducted in a format to encourage employee participation.
- e. Supplemented by visual aids such as defective tools or equipment, protective clothing or equipment, or demonstrations of procedures.

10.0 SUPERVISOR SAFETY TRAINING

10.1 Job Superintendents should be properly trained and knowledgeable in the Company safety program before being assigned to the field.

10.2 Each Foreman should be properly trained in the safety requirements of his assignment.

11.0 SAFETY VIOLATION AND ENFORCEMENT PROGRAM

11.1 It is mandatory the Company and Customer safety rules are followed on the job site.

11.2 For minor violations of the safety rules, the Job Superintendent will verbally reprimand the employee and will document the reprimand on the Warning Notice form.

11.3 For major violation of safety rules, the Job Superintendent will issue a Warning Notice to the employee.

11.4 If the employee receives two written Warning Notices within a three month period or the major violation is one which flagrantly violates the rules to the extent that serious harm could be been caused, the violator's employment with the Company may be terminated or other disciplinary action may be taken.

SECTION 3 – SAFETY INSPECTIONS

1.0 INTRODUCTION

1.1 Safety Inspections are required to ensure that all Company property, and all job sites, are maintained in compliance with federal, state, and local safety laws and regulations, insurance safety standards and practices, and Company policy.

2.0 WEEKLY SAFETY AUDITS

2.1 Weekly safety audits shall be conducted in all work areas on a weekly basis by Job Superintendents and Foremen.

3.0 SAFETY COMPLIANCE AUDITS

3.1 Internal Safety Compliance Audits on all job sites shall be conducted on a non-scheduled, irregular, unannounced basis by the Safety Manager, Project Manager, or his designee. The Safety Compliance Audit frequency shall be adjusted according to the size of the work force, the nature of the work, and the job hazards. The audit will involve policy and procedure compliance, plus job site safety and health hazards. These audits shall be recorded on the Safety Audit Form.

4.0 OTHER SAFETY INSPECTIONS

4.1 Miscellaneous Safety Inspections and audits of Company safety programs are periodically conducted by federal and state agencies, insurance carriers, and by the customer's safety department.

4.2 OSHA inspections may be conducted at any Company office, shop, job site or other location without appointment or advance notice. Full details of procedures to be followed for these inspections are outlined in Section 6.

4.3 The Safety Manager and the Company insurance carrier will conduct periodic job site inspections and may also inspect Company property. The Job Superintendent shall extend full cooperation and shall accompany, or shall designate a foreman to accompany the inspector. The Safety Manager, his designee or the insurance company will submit a written report, with recommendations for correcting any deficiencies noted, to the job superintendent with a copy to the Rick Manager. A copy of the report will be sent to the Project Manager, and the Job Superintendent will respond in writing to any recommendations either by indicating compliance and the date this was accomplished, or by stating reasons for non-compliance, including alternative suggestions. This response is to be sent to the Safety Manager, within one week of the job site inspection.

SECTION 3 – SAFETY INSPECTIONS

4.4 Reports of inspections conducted by the Customer may be received by the Job Superintendent. Copies with comments regarding the inspection, recommendations and compliance are to be sent to the Safety Manager and the Project Manager. The Project Manager will coordinate our response to the inspections report.

5.0 SAFE WORK PLAN

5.1 The company has established this procedure as a means of recognizing work place hazards and preventing these hazards from causing accidents.

5.2 This activity of identifying work place hazards should take place before the crew begins to perform job tasks for the day or begin work in a new work environment during the day.

5.3 The Foreman shall, as part of making the daily work assignments, discuss with the crew members the various potential safety hazards that might be encountered and how to recognize, avoid, or prevent them from causing accidents.

5.4 It is important when conducting pre-task planning that the necessary time is taken to identify possible hazards. The amount of time will depend on the work environment, the potential hazards involved, crew size, and type of work being performed.

5.5 Besides devoting the necessary time to pre-task planning, the Foreman must involve the crew members in the activity. It is a known fact that involving people in the solution of a problem will motivate them to solve it and involve them in consideration of the safety aspects of the task. Everyone in the crew has a stake in the safety of their fellow workers and, of course, themselves. Each crew member has some level of awareness concerning the safety hazards of the work they are performing, the tools and equipment they are using, and the environment in which work is being performed. Any one crew member, however, may not be aware of all the possible hazards, whereas other are. For these reasons, it is critical that every one of the crew members participate in the pre-task safety analysis.

5.6 The Safe Work Plan form should be used as a guide for the pre-task safety analysis.

5.7 The Safe Work Plan should be signed by the Foreman and all members of the crew after the pre-task safety analysis is completed. After the task has been completed and the area cleaned up, the Foreman should again sign the form in the appropriate area. Completed Safe Work Plans should be turned into the office for review by Safety Manager.

5.8 Finally, keep in mind that when relocating to a new work site, the pre-task safety analysis described above should be repeated.

SECTION 4 – ACCIDENT INVESTIGATION AND REPORTING

1.0 INTRODUCTION

- 1.1 These Accident Investigation and Reporting Procedures outline the requirements applicable to the investigation, reporting and recording of accidents which result in injury to a person or damage to property, in order to ensure compliance with federal, state, and local laws, contract provisions, and insurance policy requirements
- 1.2 Employee Injury or Illness, non-employee injury, or damage to property which occurs on Company property, on the job site and/or while on duty shall be investigated, reported and recorded pursuant to this section.
- 1.3 All employee injuries, damage to property, and/or production interruption, shall be immediately reported by phone to the Safety Manager or the Rick Manager.

2.0 MEDICAL SERVICES

- 2.1 Emergency First Aid Services will be provided by the Company at every job site. Specific provisions and procedures will vary according to the job site conditions.
- 2.2 Minimum requirements consist of:
 - a. First Aid Kits located in a conspicuous location, equipped with supplies adequate to comply with job needs and OSHA requirements serviced on a regular basis, and personnel certified in first aid, or
 - b. Ambulance service for transportation to immediate off site medical treatment
 - c. In the absence of reasonably available medical assistance, a person holding a valid certificate in first aid shall be available to render first aid. Said first aid training must be obtained from the American Red Cross, US Bureau of Mines or equivalent training.
- 2.3 Medical treatment for emergency care and follow up treatment shall be provided by the Company at a hospital or medical clinic convenient to each job site. In the event of unconsciousness or serious injury, or apparent life threatening situation, the victim is to be immediately transported by ambulance to the hospital. If in the opinion of the job superintendent and/or first aid technician, the injured employee requests medical care, or if the employee so requests, they are to be transported to the appropriate clinic or hospital and returned to the job site. A company representative shall accompany the individual to the medical provider.
- 2.4 The selection of a medical facility for each specific job site location is the responsibility of the Job Superintendent and is an important consideration in the startup of any new project. The facility where we would take an injured employee must be determined before the need arises. Contact the Safety Manger for help in choosing a medical facility.

SECTION 4 – ACCIDENT INVESTIGATION AND REPORTING

2.5 Subsequent visits by the employee to the clinic or hospital for continued treatment and/or therapy are to be scheduled during off duty hours if local conditions and contract provisions permit. If not practical, the employee must be permitted to leave the job site, must sign out and sign in upon return. The Company is not required to provide transportation for repeat visits.

2.6 If an employee elects to have the follow up treatment performed by their personal physician they must be permitted to do so, however, this treatment will be during off duty hours and the employee shall be required to furnish his own transportation.

3.0 ACCIDENT INVESTIGATION

3.1 When an accident is reported to the Safety Manager or Project Manager, they will determine the accident classification and the level of investigation required.

3.2 In general, first aid cases (A) will be investigated by the Job Superintendent. OSHA Recordable (B), Restricted Duty (C), and Lost Time (D) incidents as well as property damage cases will be investigated by the Safety Manager or Project Manager and the Job Superintendent.

3.3 The Job Superintendent will document the investigation on the Accident Investigation Report and fax the report and any supporting documents (i.e.: doctors reports, witness statements) to the Safety Manager as soon as possible.

3.4 Upon receipt of the Accident Investigation Report, the Foreman or Project Manager will prepare the First Report of Injury Form and distribute it as required.

3.5 All jobsite accidents should be discussed at the next tool box training sessions.

4.0 INJURY TO OTHERS

4.1 Injury to others, such as employees of the Customer, other contractors, suppliers or members of the public which occur on the job site are to be reported immediately to the Safety Manager, President and Project Manager.

4.2 Emergency First Aid and Medical Care are to be made available to any non-employee on the job site regardless of questionable legal responsibility. If the injured person is referred to a doctor, clinic, hospital or other medical service, the provider of that service is to be informed that the referral is for necessary emergency service and no further obligation is assumed.

SECTION 4 – ACCIDENT INVESTIGATION AND REPORTING

4.3 Accidents on the job site which result in bodily injury to non-employees are to be immediately investigated by the foreman or supervisor of the work area involved. The investigation is to determine the person's identity, their purpose for being on the job site, the exact location of the incident, the date, time, weather and lighting conditions, the cause, all apparent injuries and all complaints of injuries. All witnesses are to be identified.

5.0 DAMAGE TO PROPERTY

5.1 Damage to Property shall be reported by phone to the Project Manager.

5.2 Damage control procedures shall be initiated to secure the involved property and prevent further damage, when such action can be taken without endangering the safety of personnel. Salvage operations shall be conducted to minimize the loss. Disposal shall not be permitted however, without prior authorization by the Risk Manager.

5.3 Accident Investigations shall be conducted by the foreman or supervisor as outlined in 3.2. The investigation is to determine the owner of the property, a detailed description of the property, its exact location, description and estimate of the damage, date, time and cause of the incident, control measures taken, and witnesses.

6.0 NEAR MISS

6.1 A near miss is a red flag – an indication that something is not right. In a near accident, however, no injury occurred and property damage did not take place. It's an opportunity to indicate corrective action without experiencing a loss. When we develop corrective actions for a near miss and put them in a place we avoid the loss that might occur when the same circumstances present themselves again.

6.2 Near misses are to be reported on the near miss report.

6.3 Near misses and the corrective actions taken should be communicated to all job site employees through tool box talks.

6.4 Near accident reports are to be submitted to the Safety Manager.

6.5 Safety Alerts shall be prepared and distributed by the Safety Manager if he determines that the near accident report is relevant to the entire Company.

SECTION 4 – ACCIDENT INVESTIGATION AND REPORTING

7.0 PUBLIC STATEMENTS/PRESS RELEASES

7.1 Public Statements/Press Releases and the release of any information pertaining to any accident, safety and health, insurance, investigation, or other area of operation, to any individual, to the media, or to any other organization shall not be permitted without the express authorization of the President. Media personnel are not to be authorized entry to a job site without the express authorization of the President and the Customer. Any and all requests for information are to be referred to the office of the President. Any and all request for statements, documents and records, or other information, made by our insurance carries, or attorneys and investigators action on their behalf, are to be referred to the Safety Manager.

SECTION 5 - OSHA

1.0 INTRODUCTION

1.1 OSHA, the Occupational Safety and Health Administrations, is a federal agency created within the Department of Labor to develop and enforce mandatory job safety and health standards. Corporate safety and health policy shall meet or exceed OSHA standards. There shall be no variations from OSHA standards unless the Safety manager submits an application for a permanent variance and such variance is granted. The Job Superintendent shall be responsible for OSHA compliance. Deficiencies are to be promptly corrected, or reported to the Safety Manager for management action, if applicable.

2.0 OSHA RECORDS

2.1 OSHA Records must be maintained to document the employer's efforts to comply with OSHA standards and to provide a safe and healthful workplace. These records consist of the Great Lakes Mechanical Safety Manual, Employee Safety Handbook, safety meeting minutes, records of toolbox talks, safety training records, safety inspection records, injury reports, MSDS Log, and the OSHA 300 log. These records are subject to OSHA review and shall be made available upon request by an authorized OSHA representative. The records may be reviewed or copied by the OSHA representative, but originals are not to be removed from the premises except by subpoena.

2.2 Injuries and illnesses Incident Reports, OSHA 301, must be completed to record details of each work related injury or illness. The State Industrial Commission Reports (Employer's First Report of Injury) are acceptable in lieu of OSHA 301, therefore, to avoid duplication, only the State Industrial Commission reports (refer to Section 4) shall be completed. These reports are not to be sent to OSHA, but must be retained by the employer for five (5) years. If an "on-the-job" accident results in the death of an employee, or the admission of three (3) or more employees to a hospital, the Safety Manager must phone the nearest OSHA office and provide a detailed report within eight (8) hours of the accident.

2.3 OSHA 300 log of work related injuries and illnesses are required for each job site that is expected to remain in operation for one year or longer. OSHA requires that each "recordable" occupational injury and all illnesses must be recorded on the log within seven (7) working days after being reported to the employer. OSHA's definition of "recordable" and instructions for completion of OSHA 300, and OSHA 300A, Summary of Work Related Injuries and Illnesses area available for the Safety Manager. The OSHA 300A summary must be posted from February 1 to April 30 of the year following the year covered by the form.

2.4 Recordable injuries or illnesses involve death, one or more days away from work, one or more days of restricted work, one or more days of job transfer, or medical treatment beyond observation, counseling, diagnostic procedures, and first aid. Consult with the Safety Manager to determine which injuries or illnesses are recordable.

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2.5 The OSHA Job Safety and Health Protection poster and other required posters shall be posted in a conspicuous place where notices to employees are customarily posted, at each office, shop and jobsite.

3.0 OSHA INSPECTIONS

3.1 OSHA inspections may be conducted by OSHA inspectors at any workplace, and are conducted without advance notice. This procedure is an outline of the steps to be taken in event of an OSHA inspection. It is not our policy to require a warrant; however, we must conform to the customer's policy if they require a warrant. We shall be courteous and cooperative, and we shall also protect our legal rights under the Occupational Safety and Health Act. Inspections must be conducted during regular work hours, and without unreasonable disruption of the work.

3.2 At our projects, the OSHA inspector will usually make initial contact at a security gate, or the customer's office. At this time it will generally be determined whether the inspection is a routine safety and/or health inspection of the job site, a re-inspection to confirm abatement of prior citations, or in response to a complaint. If the inspection involves a re-inspection or complaint involving only another employer on site we need not, and are not to be involved. If the OSHA visit is for general job site inspection, or if we are involved in a special inspection we should be immediately notified of the inspector's arrival. The employee initially contacted shall immediately notify the Job Superintendent, who may elect to participate in the conferences and/or walk around inspection, or may designate some other site supervisory representative. Our actions will be governed by whether the Customer and/or other contractors will be involved. Multi-Employer Inspections will require coordination of the activities of all employer representatives. The Job Superintendent, or designated representative shall:

- a. As soon as possible, notify the Project Manager and the Safety Manager that an OSHA inspection is to be conducted and advise the purpose of the inspection.
- b. Verify the inspector's OSHA identification credentials. If there are any questions, phone the OSHA Regional Office for confirmation.
- c. Make detailed notes of the conferences and inspection. Include the OSHA inspector's name and ID number; time of the inspector's arrival, start and finish of the walk through and departure; purpose of the inspection; conference topics and names of all persons present; persons interviewed; areas inspected; operations observed; records requested; photos taken; inspector's comments and potential citations.
- d. In a general inspection, the owner's representative is expected to conduct the conferences; our representative is to protect Company interests and to conduct the walk through our work areas. The inspector is to be given access to any work area he requests, and he must adhere to all safety rules in effect.

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- 3.3 If the inspection is to confirm abatement of previous citations issued at that job site, those citations are the only valid topic for the conferences and inspection.
- 3.4 If the inspection is due to a complaint, obtain a copy of the complaint. Only the specific subject of that complaint is to be discussed and inspected. If an inspector observes another hazard while en route to inspect the subject of a complaint or reinspection, however, that hazard becomes subject to inspection.
- 3.5 Pre-Inspection Conferences are brief meetings of the OSHA inspector and employer(s) management or supervisor. The inspector may request that an employee representative (Union Steward) be present. This request must be granted. The inspector may also request to interview other employees in privacy. This request is also to be granted, within reasonable limits. The inspector may request records to review. Records which are to be produced, upon request, when applicable to the inspection, are the OSHA 300, injury reports with all pertinent accident investigation and medical records, Tool Box talk records, safety meeting and training records, confined space entry and hot work permits, the safety manual and safety rules. Records may be copied; originals are not to be taken off site except by subpoena. The inspector may request permission to take photos. Determine the customer's policy regarding photos and comply with that policy.
- 3.6 During the walk around inspection, escort the inspectors to wherever they request during a general inspection, only to specific areas involved in reinspection and inspections due to complaints. Avoid undue interruption of the work. An authorized employee representative may accompany the inspector and management representative. If the inspector points out any obvious infractions during the walk around, correct these at once, if feasible. If there is an Imminent Danger situation, this is to be immediately evaluated by the Job Superintendent and necessary corrective action taken.
- 3.7 At the Post Inspection Conference, the inspector will discuss his observations and conclusions about potential citations. The inspector does not have authority to issue a citation. Do not admit any violations, or agree to any specific abatement dates. After the conference, the inspector is to be escorted off the job site.
- 3.8 The Project Manager and Safety Manager are to be notified that the inspection has been completed, and advised of potential citations, requests for information or any return visits indicated. If a Notice of Citation is received, notify the Project Manager and Safety Manager who will conduct an onsite inquiry to evaluate the citations/corrective actions and coordinate the Company response.

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3.9 OSHA State Plans are authorized by OSHA and administered by the state after the plan has been approved. OSHA requires that any state plan be at least as strict as the federal law. State inspections are to be handled in the same manner as an OSHA inspection.

SECTION 6.1 – SAFETY PROGRAM: AERIAL BASKETS/SUSPENDED WORK PLATFORM

1.0 GENERAL REQUIREMENTS

- 1.1 The use of a crane to hoist employees in an aerial basket or on a suspended platform is strictly prohibited except when the use of other means of reaching the worksite would be more hazardous, or not possible because of structural design or worksite conditions.
- 1.2 If you believe that it is absolutely necessary to use an aerial basket/ suspended work platform on your job, contract the Safety Manager as soon as possible to make a job hazard evaluation.
- 1.3 If it is determined that an aerial basket/suspended work platform is necessary, the Safety Manager will provide a procedure to control the use of this equipment. Strict regulations apply to the design and construction of the basket/platform, the inspection and testing of the basket/platform and the crane to be used, the required training and the necessary documentation.
- 1.4 These requirements apply to rented or leased baskets/platforms and cranes. They also apply to the use of customer provided equipment.
- 1.5 It is the policy of the Company that aerial basket/suspended work platforms are permissible only when absolutely necessary, and then only with the express permission of the Safety Manager.
- 1.6 If it is absolutely necessary to use an aerial basket/suspended work platform and the Safety Manger has approved its use, the following criteria shall be incorporated into the procedure used to control the use of the equipment.

2.0 CRANES AND DERRICKS

- 2.1 The following operational criteria shall be reviewed by all involved personnel prior to use of any suspended platform.
 - a. Hoisting of the personnel platform shall be performed in a slow, controlled, cautious manner with no sudden movements of the crane or derrick, or the platform.
 - b. Load lines shall be capable of supporting, without failure, at least seven times the maximum intended load except that where rotation resistant rope is used the line shall be capable of supporting without failure, at least ten times the maximum intended load.
 - c. Load the boom hoist drum brakes, swing brakes, and locking devices such as pawls or dogs shall be engaged when the occupied personnel platform is in a stationary working position.
 - d. The crane shall be uniformly level within one percent of level grade and located on firm footing, Cranes equipped with outriggers shall have them all fully deployed

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following manufacturer's specifications, insofar as applicable, when hoisting employees.

- e. The total weight of the loaded personnel platform and related rigging shall not exceed 50 percent of the rated capacity for the radius and configuration of the crane or derrick.
- f. The use of machines having live booms (booms in which lowering is controlled by a brake without aid from other devices which slow the lowering speeds) is prohibited.

2.2 Cranes and derricks with variable angle booms shall be equipped with a boom angle indicator, readily visible to the operator.

2.3 Cranes with telescoping booms shall be equipped with a device to indicate clearly to the operator, at all times, the boom's extended length or an accurate determination of the load radius to be used during the lift shall be made prior to hoisting personnel.

2.4 A positive acting device shall be used which prevents contact between the load block or overhaul ball and the boom tip (anti-two-blocking device), or a system shall be used which deactivates the hoisting action before damage occurs in the event of a two-blocking situation (two-block damage prevention feature).

2.5 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.

3.0 PERSONNEL PLATFORMS

3.1 The personnel platform and suspension system shall be designed by a qualified engineer or a qualified person competent in structural design.

- a. The suspension system shall be designed to minimize tipping of the platform due to movement of employees occupying the platform.
- b. The personnel platform itself, except the guardrail system and personal fall arrest system anchorages, shall be capable of supporting, without failure, its own weight and at least five times the maximum intended load. Criteria for guardrail systems and personal fall arrest system anchorages are contained in other sections of this manual.
- c. Each personnel platform shall be equipped with a guardrail system and shall be enclosed at least from the toe-board to mid-rail with either solid construction or expanded metal having openings no greater than ½ inch.
- d. A grab rail shall be installed inside the entire perimeter of the personnel platform.
- e. Access gates, if installed, shall not swing outward during hoisting.

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- f. Access gates, including sliding or folding gates, shall be equipped with a restraining device to prevent accidental opening.
- g. Headroom shall be provided which allows employees to stand upright in the platform.
- h. In addition to the use of hard hats, employees shall be protected by overhead protection on the personnel platform when employees are exposed to falling objects.
- i. All rough edges exposed to contact by employees shall be surfaced or smoothed in order to prevent injury to employees from punctures or lacerations.
- j. All welding of the personnel platform and its components shall be performed by a qualified welder familiar with the weld grades, types and material specified in the platform design.
- k. The personnel platform shall be conspicuously posted with a plate or other permanent marking which indicates the weight of the platform, and its rated load capacity or maximum intended load.
- l. The personnel platform shall not be loaded in excess of its rated load capacity. When a personnel platform does not have a rated load capacity then the personnel platform shall not be loaded in excess of its maximum intended load.
- m. The number of employees occupying the personnel platform shall not exceed the number required for the work being performed.
- n. Personnel platforms shall be used only for employees, their tools and the materials necessary to do their work, and shall not be used to hoist only materials or tools when not hoisting personnel.
- o. Materials and tools for use during a personnel lift shall be secured to prevent displacement.
- p. Materials and tools for use during a personnel lift shall be evenly distributed within the confines of the platform while the platform is suspended.

4.0 RIGGING

- 4.1 When a wire rope bridle is used to connect the personnel platform to the load line, each bridle leg shall be connected to a master link or shackle in such a manner to ensure that the load is evenly divided among the bridle legs.
- 4.2 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.
- 4.3 Wire rope, shackles, rings, master links, and other rigging hardware must be capable of supporting, without failure, at least five times the maximum intended load applied or transmitted to the component. Where rotation resistant rope is used, the slings shall be capable of supporting without failure at least ten times the maximum intended load.

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4.4 All eyes in wire rope slings shall be fabricated with thimbles.

4.5 Bridles and associated rigging for attaching the personnel platform to the hoist line shall be used only for the platform and the necessary employees, their tools and the materials necessary to do their work and shall not be used for any other purpose when not hoisting personnel.

5.0 TRIAL LIFT, INSPECTIONS AND PROOF TESTING

5.1 A trial lift with the unoccupied personnel platform loaded at least to the anticipated lift-weight shall be made from ground level, or any other location where employees will enter the platform to each location at which the personnel platform is to be hoisted and positioned.

- a. This trial lift shall be performed immediately prior to placing personnel on the platform.
- b. The operator shall determine that all systems, controls and safety devices are activated and functioning properly;; that no interferences exist; and that all configurations necessary to reach those work locations will allow the operator to remain under the 50 percent limit of the hoist's rated capacity.
- c. Material and tools to be used during the actual lift can be loaded in the platform for the trial lift.
- d. A single trial lift may be performed at one time for all locations that are to be reached from a single set up position.

5.2 The trial lift shall be repeated prior to hoisting employees whenever the crane or derrick is moved and set up in a new location or returned to a previously used location. Additionally, the trial lift shall be repeated when the lift route is changed unless the operator determines that the route change is not significant (i.e. the route change would not affect the safety of hoisted employees.)

5.3 After the trial lift, and just prior to hoisting personnel, the platform shall be hoisted a few inches and inspected to ensure that it is secure and properly balanced. Employees shall not be hoisted unless the following conditions are determined to exist:

- a. Hoist ropes shall be free of kinks;
- b. Multiple part lines shall not be twisted around each other;
- c. The primary attachment shall be centered over the platform; and
- d. The hoisting system shall be inspected if the load rope is slack to ensure all ropes are properly stated on drums and in sheaves.

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- 5.4 A visual inspection of the crane or derrick, rigging, personnel platform, and the crane or derrick base support or ground shall be conducted by a competent person immediately after the trial lift to determine whether the testing has exposed any defect or produce any adverse effect upon any component or structure.
- 5.5 Any defects found during inspections which create a safety hazard shall be corrected before hoisting personnel.
- 5.6 At each jobsite, prior to hoisting employees on the personnel platform, and after any repair or modification, the platform and rigging shall be proof tested to 125 percent of the platform's rated capacity by holding it in a suspended position for five minute with the test load evenly distributed on the platform (this may be done concurrently with the trial lift). After proof testing, a competent person shall inspect the platform and rigging. Any deficiencies found shall be corrected and another proof test shall be conducted. Personnel hoisting shall e conducted until the proof testing requirements are satisfied.

6.0 WORK PRACTICES

- 6.1 Employees shall keep all parts of the body inside the platform during raising, lowering, and positioning. This provision does not apply to an occupant of the platform performing the duties of a signal person.
- 6.2 Before employees exit or enter a hoisted personnel platform that is not landed, the platform shall be secured to the structure where the work is to be performed, unless securing to the structure creates an unsafe situation.
- 6.3 Tag lines shall be used unless their use creates an unsafe condition.
- 6.4 The crane or derrick operator shall remain at the controls at all times when the crane engine is running and the platform is occupied.
- 6.5 Hoisting of employees shall be promptly discontinued upon indication of any dangerous weather conditions or other impending danger.
- 6.6 Employees being hoisted shall remain in continuous sight of and in direct communication with the operator or signal person. In those situations where direct visual contract with the operator is not possible, and the use of a signal person would create a greater hazard for the person, direct communication alone such as by radio may be used.

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6.7 Employees occupying the personnel platform shall use a body belt/harness system with lanyard appropriately attached to the lower load block or overhaul ball, or to a structural member within the personnel platform capable of supporting a fall impact for employees using the anchorage.

6.8 No lifts shall be made on another of the crane's or derrick's load line when personnel are suspended on a platform.

7.0 TRAVELING

7.1 Hoisting of employees while the crane is traveling is prohibited unless prior approval is obtained from the Safety Manager.

7.2 Under any circumstances where a crane would travel while hoisting personnel, the employer shall implement the following procedures to safeguard employees:

- a. Crane travel shall be restricted to a fixed track or runway.
- b. Travel shall be limited to the load radius of the boom used during the lift.
- c. The boom must be parallel to the direction of travel.
- d. A complete trial run shall be performed to test the route of travel before employees are allowed to occupy the platform. This trial run can be performed at the same time as the trial lift which tests the route of the lift.
- e. If travel is done with a rubber tired-carrier, the condition and air pressure of the tires shall be checked. The chart capacity for lifts on rubber shall be used for application of the 50 percent reduction of rated capacity. Outriggers may be partially retracted as necessary for travel.

8.0 PRE-LIFT MEETING

8.1 The Job Superintendent shall conduct a pre-lift meeting attended by the crane or derrick operator, signal person(s) (if necessary for the lift), employees to be lifted and other personnel involved in the operation to review the appropriate requirements of this section and the procedures to be followed.

SECTION 6.2 – SAFETY PROGRAM: ASBESTOS CONTROL POLICY

1.0 GENERAL REQUIREMENTS

- 1.1 It is the policy of the Company to avoid direct involvement in the removal of asbestos and not expose any employee to asbestos hazards. This policy has been established in recognition of the safety and health hazards, and the stringent regulation applicable to this highly specialized work.

- 1.2 When removal or demolition of any insulating material is required, unless we can receive documentation from our Customer that the material is asbestos free, the material shall be regarded as asbestos and the following procedures are to be followed:
 - a. The Safety Manager shall be notified
 - b. The Safety Manager or his designee shall collect samples and arrange for a certified laboratory to analyze the samples.
 - c. Removal or demolition shall not proceed until laboratory tests establish that the material is asbestos free.
 - d. If the test report confirms that the material is asbestos, the removal or demolition of that material is to be subcontracted to a licensed asbestos removal contractor.
 - e. All employees are to be trained prior to working in any facility known to contain asbestos in our work area. This training is to be conducted at our annual safety training.

2.0 MULTI-EMPLOYER SITES

- 2.1 On multi-employer jobsites, an employer performing asbestos work is required by OSHA to notify other employees on the site as to the nature of the work and the existence of a d requirements pertaining to regulated areas. The Job Superintendent shall require all Company employees to adhere to those requirements when working in regulated areas. Questions relative to applicable requirements are to be referred to the Safety Manager for resolution.

3.0 ACCIDENTAL EXPOSURE

- 3.1 If during the course of normal duties, accidental exposure to a substance not documented as asbestos free is suspected , the Job Superintendent shall take the following action:
 - a. Immediately clear the area, minimizing dust and additional exposure to employees.
 - b. Notify the Safety Manger immediately.
 - c. Notify the Owner’s representative and request any information the Owner may have on the material in question.
 - d. Have potentially exposed employee remove clothing, placing them in plastic sealed bags, shower and thoroughly clean themselves. Temporary clothing shall be provided to the employees.
 - e. A sample of the substance shall be taken by the Safety Manager and sent to a certified lab for analysis.

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- f. If the material is determined to contain asbestos, the employees exposed will be medically evaluated. Personal clothing will be cleaned by a facility able to handle asbestos and returned to the employee. Information pertaining to this exposure will also be provided to the employee. All the above is at the companies expense.

SECTION 6.3 – SAFETY PROGRAM: BLOODBORNE PATHOGENS EXPOSURE CONTROL

1.0 GENERAL REQUIREMENTS

- 1.1 The plan applies to prevention of accidental exposure to blood or other potentially infectious human body fluids that can cause disease in humans.
 - a. The primary exposure to our employees is through job site accident.
 - b. Each jobsite shall be equipped with a readily available exposure control plan, Blood borne pathogens kit containing personal protection items, antiseptic solutions, towelettes (when sinks are not available) and disposal items. It is to be used, without exception, wherever incidents occur which place any employee in potential contact with body fluids. The Job Superintendent is responsible for assuring that the instructions in the kit are followed without deviation.
 - c. If a specific project has a risk of exposure to hepatitis B, vaccinations will be provided to the employee at no cost.

- 1.2 General training on the hazards of bloodborne pathogens shall be provided for all employees through First Aid/CPR Training and the Toolbox Talk program. This training is to be done at our annual safety day and record of will be maintained for 7 years.

- 1.3 If an incident occurs where an employee is exposed to blood or other potentially infectious materials, the following steps shall be followed.
 - a. Administer first aid or obtain medical attention as necessary for the affected employee observing universal precautions.
 - b. Follow the accident reporting and investigation procedure and notify the Safety Manager immediately.
 - c. Decontaminate the area affected by the blood born pathogen including equipment and surfaces and dispose of contaminated material in the proper manner.
 - d. All medical records pertaining to a specific incident are to be maintained in employee personnel files indefinitely.

SECTION 6.4 – SAFETY PROGRAM: COMPRESSED GAS CYLINDERS

1.0 GENERAL REQUIREMENTS

- 1.1 Compressed gas cylinders can be dangerous, if not handled properly. Because of the hazards of compressed gases, it's very important to know what you're working with, what is hazardous properties are and how to safely handle its container-the compressed gas cylinder.

2.0 MOVING, STORAGE AND USE

- 2.1 Store and use cylinders in an upright position. Be sure to securely chain or use #9 wire to tie them so they won't be knocked over.
- 2.2 Keep the metal cap in place to protect the valve when a cylinder is not connected for use. A blow to an unprotected valve might cause gas under high pressure to escape.
- 2.3 Oxygen cylinders must be stored more than 20 feet from cylinders that contain flammable gases or other highly combustible materials. If they must be stored closer, cylinders should be separated by a fire resistant partition at least 5 feet high, having a fire resistance rating of at least one-half hour.
- 2.4 Do not permit sparks, molten metal, electric current, excessive heat or flames to come into contact with the cylinders or attachments.
- 2.5 Never use oil or grease as a lubricant on valves or attachments of oxygen cylinders. Keep oxygen cylinders and fittings away from oil and grease, and do not handle such cylinders or apparatus with oily hands, gloves, or clothing.
- 2.6 Never use oxygen as a substitute for compressed air.
- 2.7 Never bring cylinders into tanks, unventilated rooms, or other close quarters.
- 2.8 Never use cylinders without proper regulators.
- 2.9 Cylinders may be held upright and rolled on their bottom edge, but must never be dragged.
- 2.10 Where cylinders must be handled by a crane, place them in a cradle and take extreme care not to drop or bump them.
- 2.11 LP-Gas cylinders must be stored and used upright upon firm foundations or otherwise firmly secured.

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- 2.12 Piping connections to LP-Gas Cylinders should be sufficiently flexible to minimize the possibility of breakage or leaking of connections of the container settles, moves, or is otherwise displaced.
- 2.13 When damage to LP-Gas systems by vehicular traffic is a possibility, precautions against such damage must be taken.
- 2.14 Storage of LP-Gas cylinders in buildings is prohibited.
- 2.15 LP-Gas containers and connections must be located to minimize exposure to high temperatures or physical damage.

SECTION 6.5 – SAFETY PROGRAM: CONFINED SPACE ENTRY

1.0 GENERAL REQUIREMENTS

- 1.1 This Confined Space Entry Procedure outlines the minimum requirements for preparation and entry into confined spaces in order to protect personnel from hazards associated with these environments. Our Customer's Confined Space Entry Procedure may be used in lieu of this procedure if it meets or exceeds the requirements herein. The following procedures are to be reviewed annually by the company safety committee.

2.0 DEFINITIONS

- 2.1 "Confined Space" means an area that:
- Is large enough for a person to physically enter the space to perform work;
 - Has limited or restricted means for entry and exit;
 - Is not designed for continuous employee occupancy. Examples of confined spaces are but are not limited to, tanks, vessels, silos, storage bins, hoppers, vaults and pits. Doorways and portals through which a person can walk are not considered "limited means for entry and exit".
- 2.2 "Permit Required Confined Space" is an area with one or more of the following characteristics:
- Contains or has a potential to contain a hazardous atmosphere;
 - Contains a material that has the potential for collapsing or caving in on an entrant;
 - Has an internal configuration such as an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross-section;
 - Contains any other recognized serious safety or health hazard.
- 2.3 "Non-Permit Confined Space" is a confined space which does not contain serious hazards, has no potential for serious atmospheric hazards and has not been defined as a permit required space by the Customer. This space may require engineering control (i.e.: ventilation). If proof can be shown that a safe work environment exists, no permit is required.
- 2.4 "Entry Supervisor" is the person responsible for determining if acceptable entry conditions are present at the permit required confined space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required for changes in condition. The Entry Supervisor shall be designated by the Job Superintendent. This person shall be capable (by education and/or specialized training) of anticipating, recognizing, and evaluating employee exposure to hazards in a confined space and also be capable of specifying necessary control and/or protective action to ensure worker safety.

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2.5 “Attendant” is the person stationed outside the permit required confined space that is trained as required by this procedure, and who monitors the authorized entrants in the permit required confined space.

2.6 “Authorized Entrant” is a properly trained employee who is authorized by the Company to enter a permit required confined space.

3.0 HAZARDS

3.1 The prominent potential hazards in confined spaces are:

- a. Mechanical equipment which may be defective or which may be inadvertently activated.
- b. Electric shock from energized equipment, portable lights, or portable tools.
- c. Toxic vapors from residue or was produced y the work.
- d. Acids, corrosives, other harmful chemicals, or steam which was in the confined space, or released into the space while work is in progress.
- e. Flammable gas vapors which may be ignited by tools or static electricity.
- f. Oxygen deficiency or oxygen enrichment.
- g. Physical hazards created by space restrictions, smooth wet walking surfaces and limited maneuverability.
- h. Including, but not limited to, pedestrians and vehicles.
- i. Material which has the potential for engulfing an entrant.

4.0 REQUIREMENTS

4.1 A Pre-Entry Check List shall be prepared for every Confined Space. All Confined Spaces shall be considered Permit Required Confined Spaces until they pre-entry procedures demonstrate otherwise. If the work area meets the definition of a Permit Required Confined Space, the Job Superintendent will notify the Safety Manager and proceed with the following procedure.

- a. The Job Superintendent will appoint an Entry Supervisor and the Entry Supervisor will initiate preparation of an Entry Permit
- b. If during the execution of the checklist it is determined that the area is IDLH, no permit is to be issued. No permit is to be issued until the hazards have been removed.
- c. If the Safety Manager and Owner determine that this hazard cannot be addressed, the permit will only be issued when a rescue service will be onsite to monitor activities until the completion of the work.
- d. The entrance to the Permit Space shall be posted with a conspicuous sign which will state the following:

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DANGER PERMIT REQUIRED CONFINED SPACE DO NOT ENTER

5.0 PERMIT PROCEDURE

- 5.1 The Entry Supervisor will verify that all testing and other necessary precautions have been taken and documented on the Entry Permit before entry to the Permit Space.
- 5.2 The completed pre-entry Check List and Entry Permit shall be posted at the point of entry and shall remain posted until the work is completed, or the end of the shift.
- 5.3 The duration of the entry permits may not exceed the time required to perform the assigned job or the end of the shift. A new entry permit must be completed if subsequent shifts are required.
- 5.4 The Entry Supervisor will terminate the entry permit when:
 - a. Operations covered by the entry permit have been completed or the shift ends;
 - b. A condition that is not allowed under the entry permit arises in or near the permit space.
- 5.5 All tanks, vessels and similar Permit Spaces must be made safe by:
 - a. Tanks will be emptied or purged in keeping with the work to be done.
 - b. If the possibility of unintended movement of rotating equipment exists, the equipment will be blocked or secured to prevent movement.
 - c. All electrical equipment and power equipment will be shut down, locked and tagged.
 - d. All lines entering the Permit Space are to be disconnected or blanked.
 - e. Openings into the Permit Space are to be inspected and evaluated for ease of entry and exit, including rescue and emergency evacuation.
- 5.6 Requirements for Forced Air Ventilation including:
 - a. An authorized entrant may not enter the Permit Space until the forced air ventilation has eliminated any hazardous atmosphere.
 - b. The forced air ventilation shall be so directed as to ventilate the immediate areas where an authorized entrant is or will be present within the permit space and shall continue until all authorized entrants have left the permit space.
 - c. The air supply for the forced air must be from a clean source.
 - d. The atmosphere within the Permit Space shall be tested and continuously monitored to ensure that the continuous forced air ventilation is preventing the accumulation of hazardous atmosphere.
- 5.7 Atmosphere tests will be performed by the Entry Supervisor using an approved monitor, prior to entry. Atmospheric Testing requirements are:
 - a. Analysis must be conducted within one hour prior to initial entry.
 - b. Tests must be conducted at the lowest elevation and from the working elevation.
 - c. Tests must be conducted for the following conditions in the order given:

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- Oxygen content
 - Flammable gases and Vapors
 - Potential Toxic Air Contaminants
- d. The atmospheric testing must prove oxygen in the Permit Space to be between 19.5% and 23.5% before entry is permitted.
 - e. Where combustible gases may be present, or generated, a concentration determination must be made and entry must not be permitted when any combustible gas is present in an amount equal or greater than 10% of the lower flammable limit.
 - f. Where toxic gases or vapors may be present, determination must be made before entry. If the level excess the 8-hour Time weighted Average (TWA) or the permissible short term exposure limit, adequate protective equipment must be provided and utilized. The Threshold Limit Value (TLV) must be on the Confined Space Entry Permit.
 - g. Continuous monitoring of the permit space must be maintained until all authorized entrants have left the permit space. Monitoring results must be recorded on the entry permit.
- 5.8 The Entry Supervisor will determine the protective clothing and equipment requirements relative to policy requirements and job conditions. In addition to hard hats, safety glasses or goggles, hearing protection, gloves and other standard equipment, the need for protective clothing must be evaluated. Other requirements are:
- a. Each Authorized Entrant entering a Permit Space must wear a full body harness secured to a nylon or Dacron life line unless chemical conditions require another material. The outside end of the life line must be secured to a mechanical device or fixed point outside Permit Space.
 - b. The Atmosphere Testing results and hazards involved will determine the respiratory protection required. The Entry Supervisor will make the determination based upon these standards, the Customer's policy and local requirements. Conflicts are to be referred to the Safety Manager.
 - c. Portable electric lights inside any tank, vessel, boiler or similar Permit Space shall be no more than 12 volts. Transformers must remain on the outside. The lights must be shielded from breakage; lights and cords must be visually inspected each day by the user. Explosion proof lighting must be used where flammable vapors may exist.
 - d. Portable power tools should be pneumatic; 120 volt equipment may be used only with Ground Fault Circuit Interrupters. The GFCI must be located outside the Permit Space.
- 5.9 Equipment designated or use in confined space operations will be inspected before use by the entry supervisor. This equipment will also be periodically inspected by qualified personnel as recommended by the manufacturer.
- 5.10 Prior to any welding, cutting, or heating in the Permit Space, the following requirements must also be met:
- a. Gas cylinders and welding machines must be located outside the Permit Space

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- b. Gas fired torches must be checked for leaks prior to use and must not be placed inside the confined space until ready to use. The equipment must be removed when welding, cutting, or heating is complete.
 - c. Working on metals which produce toxic fumes, such as cadmium, chromium, lead and zinc require local exhaust ventilation. All surfaces coated with toxic preservatives shall be stripped as least four (4) inches from the area of heat application, or employees shall be protected with appropriate respiratory equipment.
 - d. All employees welding, cutting, or heating in confined spaces must wear flame retardant clothing or protective equipment to protect from sparks or slag.
 - e. Chemical fire extinguishers should not be taken or used in a Permit Space due to the potential respiratory hazard. Water extinguishers are acceptable; water hoses with spray nozzles are preferred.
- 5.11 At least one Attendant is required at the entrance in visual and/or voice contact with the workers inside. A means to signal assistance must be readily available.
- 5.12 Objectionable work such as grinding and hammering on the outside of tanks and vessels should be discontinued while works are inside. Dusts, fumes and vapors from nearby work must not be allowed to enter the Permit Space.

6.0 DUTIES

- 6.1 The Company shall assure that each person who will have an active role in the permit entry is aware of his duties.
- 6.2 The duties of the Entry Supervisor are as follows:
- a. Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
 - b. Verifies, by checking that the appropriate entries have been made on the permit, that all tests specified by the permit have been conducted and that all procedures and equipment specified by the permit are in place before endorsing the permit and allowing the entry to begin;
 - c. Verifies that rescue services are available and that the means for summoning them are operable;
 - d. Removes unauthorized individuals who enter or who attempt to enter the Permit Space during operations; and
 - e. Determines, whenever responsibility for a Permit Space entry operation is transferred and at intervals dictated by the hazards and operations performed with in the space, that entry operations remains consistent with terms of the entry permit and that acceptable entry conditions are maintained.
 - f. Terminates the entry and cancels the permit;
- 6.3 The duties of the Attendant are as follows:
- a. Knows the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure.
 - b. Each attendant is to monitor only one confined space at a time.

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- c. Continuously maintains an accurate count of authorized entrants in the Permit Space.
- d. Remains outside the Permit Space during entry operations until relieved by another attendant.
- e. Communicates with authorized entrants as necessary to monitor entrant status and to alert entrants of the need to evacuate the space.
- f. Monitors activities inside and outside the space to determine it is safe for entrants to remain in the space and order the authorized entrants to evacuate the Permit Space immediately under any of the following conditions:
 - If the attendant detects a prohibited condition
 - If the attendant detects the behavioral effects of hazard exposure in an authorized entrant.
 - If the attendant detects a situation outside the space that could endanger the authorized entrants.
- g. Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from Permit Space hazards.
- h. Take the following actions when unauthorized persons approach or enter a Permit Space while entry is under way:
 - Warn the unauthorized persons that they must stay away from the Permit Space
 - Advise the unauthorized persons that they must exit immediately if they have entered the Permit Space
 - Inform the authorized entrants and the entry supervisor that unauthorized persons have entered the Permit Space.
- i. Performs no duties that might interfere with the attendant's primary duty to monitor and protect the authorized entrants.

6.4 The duties of Authorized Entrants are:

- a. Know the hazards that may be faced during entry, including information on the mode, signs or symptoms, and consequences of the exposure;
- b. Properly use equipment;
- c. Communicate with the attendant as necessary to enable the attendant to monitor entrant status and to enable the attendant to alert entrants if the need to evacuate the space arises;
- d. Alert the attendant whenever:
 - The entrant recognizes any warning sign or symptom of the exposure to a dangerous situation.
 - The entrant detects a prohibited condition.

7.0 RESCUE AND EMERGENCY SERVICES

- 7.1 When possible, non-entry retrievals should be conducted utilizing the lifeline attached to the Authorized Entrant's body harness to remove him from the Permit Space. A mechanical device to retrieve personnel from a Permit Space shall be available, for immediate use, if required.

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- 7.2 If multiple contractors are working in the same confined space, each contractor is to provide his own attendant. Prior to this work taking place, these contractors are to take part in a meeting to confirm what each activity will be and what the attendant responsibility will be.
- 7.3 If entry must be made to the Permit Space for rescue, the attendant shall immediately contract the rescue and emergency service. In most cases the Customer will provide Rescue and Emergency Services. If the Customer does not provide these services, the Company will contact an outside rescue organization, such as the local fire department, to provide these services.
- 7.4 The Company shall assure that all rescue personnel are trained to perform the duties assigned to them and to properly use the PPE and rescue equipment necessary for making rescues from the Permit Space.
- 7.5 In the event that an outside service is issued for emergency rescue, the services must be informed of the hazards that they may confront when called on to perform the rescue.
- 7.6 The outside rescue service will be provided with access to all permit spaces from which rescue may be necessary so that they can develop appropriate rescue plans and practice rescue operations.
- 7.7 Each member of the rescue team shall practice making Permit Space rescues at least once every twelve months.
- 7.8 Each member of the rescue service shall be trained in basic First Aid and CPR.

8.0 TRAINING

- 8.1 Entry Supervisors, Attendants, and authorized Entrants will be trained by the Company based on their assigned duties to work safely in and around permit required confined spaces. This training will be done annually at the company safety day with site/situation specific training prior to each assignment, prior to a new assignment, or if there is a change in the work environment.
- 8.2 All personnel working in or around the permit required confined space will be instructed that they are forbidden to enter the confined space unless they have been trained and designated as Authorized Entrants.

9.0 DOCUMENTATION

- 9.1 All training will be documented so that the Entry Supervisor can verify that the workers entering into the permit Space have completed appropriate training for the task they will be assigned.
- 9.2 All Confined Space pre-entry checklists and Entry Permits will be retained for one year to allow for review of all permits on an annual basis.

SECTION 6.6 – SAFETY PROGRAM: CRANE AND LIFT SAFETY

1.0 GENERAL REQUIREMENTS - CRANES

- 1.1 Rated load capacities and recommended operating speeds, special hazard warnings, or instructions must be conspicuously posted on all equipment.
- 1.2 The designated and qualified equipment operator shall inspect their assigned piece of equipment prior to commencing the first lift of the day to include all safety devices. The operator and other employees working with the crane shall maintain constant visual inspection of the equipment to assure safe operating conditions. No equipment shall be orientated as such that any part of said equipment would be closer than 20' to a power line. Any deficiency shall be reported promptly to the Job Superintendent. Relief operators will inspect crane prior to assuming duties. All information about crane condition and operating situations must be communicated from operator to operator. In some cases, a written checklist may be needed.
- 1.3 No modifications or additions to the equipment shall be made without the manufacturer's written approval. The original safety factor of the equipment must not be reduced. All manufacturer's instructions and procedures must be complied with.
- 1.4 Cranes are not to be operated if the ground conditions are not suitable to meet the manufacturer's specifications.
- 1.5 All equipment is to be inspected monthly by a competent person.
- 1.6 Manufactures instructions and warnings are to be followed and addressed while assembling or disassembling the equipment. A competent person is to oversee all of these activities.
- 1.7 Refer to Section 6.13 on hearing protection for excessive noise limits and protective equipment required.

2.0 CRANE SELECTION AND OPERATION

- 2.1 The crane must be of sufficient capacity and proper type (crawler or transit, mechanical or hydraulic) to fulfill all requirements of the work without endangering personnel or equipment.
- 2.2 All operators are to be properly trained on the piece of equipment he/she is there to operate.
- 2.3 The crane operator shall respond to signals only from the appointed signal person, but shall obey a stop signal at any time, no matter who gives it. Additional signal persons or radios will be provided if the operators view is obstructed or upon his request. The operator has the authority to shut down all operations if he deems there is a safety concern.
- 2.4 Outriggers on all transit cranes will be set and the crane leveled for all lifts. (Exception to this must be approved by Project Management.)

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- 2.5 “Walking” of suspended loads should be avoided. All loads should be hauled on a truck if at all possible. Where necessary to walk load the following applies:
 - a. Investigate route to be followed for solid and level footing.
 - b. Keep loads close to the ground and control with tag lines. Do not walk alongside the load with hands on load.

- 2.6 Weight of the load must be established prior to handling the load. Check brakes and machine stability when load is still only inches about the ground

- 2.7 A safety procedure for installing crane booms shall be followed. The use of ladders, scaffolds, or man lifts should be used to gain access to the boom. Personnel should not jump from boom section to ground or walk the boom.

- 2.8 No one is permitted to ride the hook, ball or load.

- 2.9 Accessible areas within the swing radius of the crane or equipment shall be red barricaded in such a manner as to prevent an employee from being struck or crushed by the crane’s or equipment’s pinch points.

- 2.10 All exhaust pipes shall be guarded or insulated in areas where contact by employees is possible in the performance of normal duties.

- 2.11 All windows in cabs shall be of safety glass, or equivalent, that introduces no visible distortion that will interfere with the safe operation of the machine.

3.0 CRANE WORK NEAR OVERHEAD ELECTRICAL LINES

- 3.1 The Job Superintendent will notify the Safety Manager and the Customer Representative. These individuals will meet at the location to decide the safest method to perform the work.

- 3.2 If a crane must operate or travel where it is possible for any part to come within 20 feet of an energized electrical line, special precautions must be as follows.
 - 1. Confirm with the power company that the line is deenergized and visibly grounded at the worksite.
 - 2. Make sure no part gets within 20 feet of the power line
 - 3. Follow the table below which has minimum clearance distances based on voltage.

| | |
|--------------|-----------------------------|
| Up to 50 KV | 10 ft |
| 50 to 200 | 15 ft |
| 200 to 350 | 20 ft |
| 350 to 500 | 25 ft |
| 500 to 750 | 35 ft |
| 750 to 1,000 | 45 ft |
| Over 1,000 | determined by utility/owner |

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3.3 If the line is not deenergized

1. Conduct a meeting with the assembly/disassembly crew to review measures to prevent encroachment.
2. Use only non conductive tag lines
3. Use a dedicated spotter, a proximity alarm, a range control warning device, an automatic limit device or an elevated warning line/barrier placed in view of the operator.

3.4 As a minimum, the following requirements shall be met:

- a. A signal man – whose sole function shall be to assure that clearances are maintained – shall be present.
- b. The crane operator is the only person on the rig.
- c. Restrict working radius of boom
- d. Do not work on rainy or foggy day.

4.0 AERIAL LIFTS

4.1 Aerial lifts (boom and scissors lifts) are used to elevate personnel to work areas above ground or floor. The following general rules apply to the use of aerial lifts on Company jobsites.

- a. The aerial lift shall be used only in accordance with the manufacturer's operating instructions and safety rules.
- b. Only trained and authorized personnel shall be permitted to operate the aerial lift. The operator shall be trained by a competent person. Training shall be conducted by the supplier when such items are rented. Training shall be documented.
- c. 100% tie-off is required at all times while anyone is in the basket. Personnel shall tie-off only to the inside handrails or to the D-rings located under the control panel. Personnel shall not tie-off to a structure, landing, or similar support while working from inside the basket.
- d. The rated weight capacity of the basket shall not be exceeded. Remember that the total weight is the combined weight of the personnel, tools, and materials. Material that extends beyond the perimeter of the basket shall not be placed in the basket.
- e. Aerial lifts shall not be operated within 20 feet of any suspended overhead lines.
- f. Aerial lifts shall not be operated in wind conditions that exceed the maximum allowable wind speed established in the operations manual, heavy snow, or during electrical storms.
- g. Aerial lifts shall not be operated when any malfunction or accident damage, whether mechanical or electrical, compromises the safe operation of any aerial lift. Any malfunction or accident damage to any aerial lift shall be immediately reported by the operator to his/her supervisor. The aerial lift shall be red-tagged and removed from service until the damage or malfunction is corrected and an inspection by a competent person determines that the aerial lift can safely return to service.
- h. The basket of the aerial lift shall remain clean and free of unnecessary debris, trash, or materials. Bolts, fittings, and other small items shall not be placed on the control panel.

SECTION 6.6 – SAFETY PROGRAM: CRANE AND LIFT SAFETY

- i. Employees shall enter and exit the basket only when it is lowered to ground level. Exceptions to this rule must be approved by the Safety Manager.
- j. All employees working inside the basket shall keep both feet placed firmly on the floor. Standing or working from the mid-rail for use as a work platform.
- k. Ladders shall not be used inside the basket to access upper elevations and boards shall not be placed across the mid-rails or top-rail for use as a work platform.
- l. The aerial lift controls shall be operated in a smooth progressive fashion and momentarily returned to the neutral position before proceeding in the opposite direction. Only the operator handling the aerial lift controls shall activate the foot pedal switch.
- m. Aerial lifts shall be traveled only when the base of the basket is within 6 feet of the ground, and the boom is fully retracted.
- n. Aerial lifts shall not be traveled within 6 feet of any ditch, open hole, drop off point, or excavation.
- o. Aerial lifts shall not be traveled over excessively uneven ground or construction debris such as plywood, boards, or concrete spoilage.
- p. Aerial lifts shall not be traveled over drain gratings, hold covers, or other surfaces that are not designed to support the weight of the machine.
- q. When aerial lifts are traveled on any street or into any area that is congested with piping or structures, a flagman shall direct the operation.
- r. If the aerial lift becomes stuck or otherwise will not travel, the boom shall not be extended to contact the ground or a solid structure in an effort to push the aerial lift.
- s. Aerial lifts shall be set-up to operate on solid level surfaces, such as concrete, asphalt or compacted soil. Operating on soft mud or loose sand is prohibited.
- t. When working overhead, a red barricade and “Danger Men Working Overhead” signs must be posted. The barricade shall prevent access to the area adjacent to the counterweight, and the area underneath the elevated boom and basket.
- u. Prior to a lift, the operator shall conduct an operational check on all lifting controls.
- v. Aerial lifts shall not be used to raise material to work location unless authorized by the Safety Manager.

SECTION 6.6 – SAFETY PROGRAM: CRANE AND LIFT SAFETY

5.0 FORKLIFTS

- 5.1 Forklifts shall be used only in accordance with the manufacturer's operating instructions and safety rules.
- 5.2 Only trained and authorized personnel shall be permitted to operate a forklift. The operator shall be trained by a competent person. Training shall be conducted by the supplier when such items are rented or by the Safety Manager. Training shall be documented.
- 5.3 The operator shall test the lift controls each day prior to use.
- 5.4 Employees shall not set or climb on the edge of the lift nor shall it be used as a personnel lift.
- 5.5 Seat belts shall be worn during operation.
- 5.6 Load limits shall be posted and not exceeded.
- 5.7 Brakes shall be set and wheel chocks installed when working on an incline.
- 5.8 The load shall be stable and/or secured before moving the forklift

SECTION 6.7 – SAFETY PROGRAM: ELECTRICAL SAFETY

1.0 GENERAL REQUIREMENTS

- 1.1 Employee shall not be allowed to work near an electrical power circuit that the employee could come into contact with unless the employee is protected against electrical shock by deenergizing the circuit and grounding it or guarding it effectively by insulation or other means. Deenergizing, grounding, and /or guarding shall be performed by a qualified person such as an electrician. Whereas the equipment and/or parts will be deenergized, it is to be treated as live.
- 1.2 All Great Lakes Mechanical employees are to be deemed unqualified and must maintain a minimum 10' distance from energized components. Including equipment and vehicles.
- 1.3 Employees may not enter a space with energized components without proper lighting.
- 1.4 Protective shield, barriers or insulating materials shall be used in confined or enclosed work spaces where electrical hazards may exist.
- 1.5 Conductive apparel shall not be worn unless rendered nonconductive by covering, wrapping or insulating means.
- 1.6 Before digging, the exact location of underground utility lines shall be located and marked by the utility companies.
- 1.7 All electrically operated tools must be properly grounded or double insulated. These tools must be periodically inspected and the grounded circuit checked to be sure that the pathway to ground is permanent and continuous.
- 1.8 All extension cords shall be three wire heavy duty type. These cords shall be periodically inspected and immediately removed from service if defective.
- 1.9 All extension cords shall be protected against accidental damage that may be caused by traffic, sharp corners, pinching in doors or elsewhere.
- 1.10 Extension cords shall not be fastened with staples, hung from nails or suspended by wire.
- 1.11 Temporary lights must not be suspended by their electric cords unless cords and lights are designed for this means of suspension.
- 1.12 All lamps for general illumination shall be protected from accidental contact or breakage. Metal case sockets shall be grounded.

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- 1.13 Portable electric lighting used in wet and/or other conductive locations, for example, drums, tanks, and vessels, shall be operated at 12 volts or less.

2.0 ELECTRICAL EQUIPMENT GROUNDING PROGRAM

- 2.1 The Company will use ground fault circuit interrupters (GFCI's) to protect employees from electrical hazards on all construction sites.
- 2.2 Ground fault circuit interrupters shall be installed on all 120 volt, single phase, 15 and 20 ampere receptacle outlets, used by Company employees, which are not part of the permanent wiring of the building or structure.
- 2.3 Each extension cord and cords on electric power tools shall be visually inspected before each day's use for external defects, such as deformed or missing pins or insulation damage, and for indications of possible internal damage. Equipment found damaged or defective shall be removed from the service and tagged.

3.0 STATIC ELECTRICITY

- 3.1 Static electricity is the transfer of excess electrons from one object to another by actual contact or by means of a spark that bridges the air gap between objects.
- 3.2 Excess electrons develop anywhere friction occurs, forming a negative charge. These excess electrons will seek a medium that has fewer electrons. This could include the air, liquids or equipment surfaces.
- 3.3 Surprisingly, flowing liquids cause a substantial amount of friction and electrons can easily build up as flammable liquids flow through piping systems or as they are agitated or poured. Even a slight imbalance in charges between a can and a drum or nozzle can cause sparks to jump, creating a potential ignition source for flammable liquid vapors.
- 3.4 Static electricity is almost impossible to avoid but the path it travels can be controlled. Obviously, you do not want sparks jumping through the air around flammable liquids. The solution is to provide a better path, or conductor, for the charge to follow. A metal wire is a better conductor than air, which is why bonding and grounding wires are effective in preventing static sparks.
- 3.5 Bonding is interconnecting two objects with clamps and wire to create a path that allows electrical charges to equalize without sparking. OSHA requires that proper bonding wires be attached between containers when dispensing and receiving flammable liquids.

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- 3.6 Grounding is providing a connection between a container and the “ground” to prevent static sparks. The contact can be made directly to an earth ground or can be made by a wire connecting the piece of equipment to a suitable grounding connection (grounding bar, water pipe). Grounding permits static electricity to dissipate harmlessly into the ground.
- 3.7 Gasoline cans should not be filled while in the bed of a truck. Place the cans on the ground before filling. Maintain contact between filler nozzle and gas can while filling.
- 3.8 Clamps are available in various styles (alligator clips, hand clamp, C clamp, etc.) to fit different container styles.
- 3.9 Wires also vary in length and material. Insulated and vinyl-coated wires add protective layers to bare wire, aiding in corrosion resistance. Bare wire allows easy detection of damage, fraying and corrosion.
- 3.10 Clamps and wires are available from safety supply vendors or call the Safety Manager for source information.
- 3.11 Both clamps and wires should be inspected frequently. Damaged components could become in-effective and result in a dangerous build up of electrostatic charge.
- 3.12 Clamp points should be sharp and clean. Connections must be direct and positive. They should be able to penetrate through paint, rust and any other surface contamination.
- 3.13 Clamp springs should be stiff and resistant, allowing firm, continuous contact with the metal surface.
- 3.14 Wires should be intact with no fraying and free of corrosion. Cable attachments between wire and clamps should be solid and free from wear. Worn components should be replaced immediately.

SECTION 6.8 – SAFETY PROGRAM: EMERGENCY ACTION PLAN

1.0 GENERAL REQUIREMENTS

1.1 Every job site must have an emergency action plan. This plan shall address the following information:

- a. Responsibilities – The Job Superintendent in conjunction with the Customer, and Project Manager shall perform a hazard analysis, identifying the areas with potential for initiating the emergency action plan. The Job Superintendent shall also assure that all employees understand and know how to initiate and follow the emergency action plan when it is put into effect.
- b. Notification – The Job Superintendent shall determine the method of notification with the Customer, and where possible use the same method – horn, siren, speakers, radio, etc.
- c. Evacuation Routes – Primary and secondary evacuation routes representing the safest, most expedient paths from the potential hazard area shall be determined. Prevailing wind direction shall be considered.
- d. Assembly Points – Designated assembly points shall be used to take a head count and assure that all employees have evacuated the danger area.
- e. Communications – The methods of communication shall be established and include those emergencies where power outages occur.
- f. Subcontractors – The Job Superintendent shall coordinate the emergency action plan with all subcontractors to assure that they are aware of the provisions.

SECTION 6.9 – SAFETY PROGRAM: FALL PROTECTION

1.0 INTRODUCTION

- 1.1 This Fall Protection Program has two main elements:
 - a. Fall hazard elimination and prevention
 - b. Use of personal fall protection equipment

- 1.2 Fall hazard elimination and prevention consists of pre-job planning and proper use of scaffolds, ladders, aerial lifts, guard rails, etc. to eliminate fall hazards as much as possible.

- 1.3 Fall protection is required on roofs, floors, and other walking/working surfaces with unprotected edges and sides when the walking/working surface is more than 6 feet above lower levels. IF THE EMPLOYEE CAN FALL 6 FEET OR MORE HE/SHE MUST BE PROTECTED.

2.0 PRE-JOB PLANNING

- 2.1 As part of the project safety analysis, the Safety Manager, Project Manager and Job Superintendent shall survey the fall hazards and determine the necessary engineering, construction, and safety procedures and controls necessary to eliminate fall hazards as much as possible. The proper fall arresting system for use on the project will be determined. If a procedure is required that falls outside the norm, it is to be developed by a qualified safety consultant.

3.0 LADDERS AND STAIRWAYS

- 3.1 The following rules and regulations are general guidelines on how ladders and stairways should be constructed and safely used.
 - a. All ladders must be inspected for visible defects by the Job Superintendent during his weekly safety audit. Broken, damaged, or defective ladders shall be tagged and removed from service immediately.
 - b. Ladders must only be used for their intended purpose.
 - c. All ladders must have equally spaced rungs and meet OSHA/ANSI requirements.
 - d. Ladders should also be inspected by employees before each use. Unsafe ladders should not be used and the employee should report the unsafe condition to his supervisor.
 - e. Never paint ladders. Doing so can hide otherwise noticeable defects.
 - f. Keep ladders free of oil, grease ice and all other slipping hazards. Employees should clear mud, grease, etc. from their shoes before climbing a ladder.
 - g. Ladders must be placed on a solid, level base unless secured to prevent accidental movement. Straight or extension ladders should be placed at a 4 to 1 pitch (one foot out for every four feet in height). Ladder capacities must be verified that they will be appropriate for the task they are to be used for.
 - h. The side rails of a portable ladder must extend at least 3 feet above the upper landing area that it serves. Ladders should be secured at the upper landing.

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- i. All ladders are to have nonconductive side rails.
- j. The area around the top and bottom of ladders must be kept clear.
- k. Employees must never carry any object or load when climbing a ladder. Carry tools in a belt or pouch or use a hand line to raise or lower them.
- l. Employees should always maintain a three point contact with the ladder. Keep two hands and one foot or two feet and one hand on the ladder at all times.
- m. To prevent loss of balance, employees should not reach out too far from a ladder in any direction – keep your belt buckle inside the rails. Move the ladder as the work requires. Work facing the ladder and hold on with one hand.
- n. A Stairway or ladder must be provided at all points of access where there is a break in elevation of 19 inches or more.
- o. All stairways must be properly lighted, maintained, and kept clean.
- p. All stairways over 30” high or with four or more risers must have at least one handrail. Unprotected edges of landing must have guard rails.
- q. All temporary construction stairways must have landings at least 30” deep and 22” wide.
- r. Where doors or gates open directly onto a stairway, a platform no less than 20” beyond the swing must be provided.
- s. Riser height must not vary more than ¼” within any stairway, and stairway pitch must be maintained between 30 degrees and 50 degrees from the horizontal.

4.0 SCAFFOLDS

- 4.1 The Job Superintendent is responsible to assure that the specific building and safety requirements for each type of scaffold are adhered to. The following are some of the rules designed to promote safety in the use of steel scaffolding:
 - a. All employees to work on scaffold shall be trained on the proper erection, fall hazards, electrical, falling objects, use, and load capacity. Retraining will be done annually at the company Safety Days.
 - b. No scaffold shall be erected, moved, dismantled, or altered except under the supervision of a competent person. This competent person must be knowledgeable in all safety and building requirements for the particular type of scaffolding being built. He must also have the authority to take prompt corrective action to protect employees from any hazards or dangers associated with the scaffolding.
 - c. All scaffold components must be capable of supporting, without failure; at least four times the maximum intended load and the footings are no exception. Never build scaffolds on objects such as barrels, boxes, loose bricks, concrete blocks, etc.
 - d. All scaffold components shall be inspected by a competent person before use and daily thereafter. Check for cracks or bent parts, connectors, bracing, guard rails, access ladders, and especially footings. Never use any equipment that is damaged.

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- e. Guard rails (2"x4" – minimum 38" high) and toe boards (minimum 4" high) shall be installed on all open sides and ends of platforms more than ten feet above ground or floor. Scaffolds four feet to ten feet high shall have standard guard rails installed on all open sides and ends of the platform.
- f. All scaffold working platforms must be fully planked or decked. All planking must be scaffold grade material, and extend over end supports not less than 6" or more than 12".
- g. An access ladder or equivalent means of safe access must be provided.
- h. Scaffold platforms must be kept free of rubbish and of snow, ice, oil or grease.
- i. Steel scaffold ladders get slippery. They should be cleaned and shoes cleaned before climbing. Remember to keep a three point contact with the ladder at all times and never carry anything when climbing a ladder

5.0 GUARD RAILS

- 5.1 Floor openings, roof openings, wall openings, open sided floors, stairway, ramps, platforms, and runways shall be guarded by a standard guard rail. Standard guard rails must meet the following general conditions. For more specific details see OSHA Standard 1926.500.
- a. A standard railing shall consist of top rail, intermediate rail, toe board, and posts.
 - b. The top rail shall be smooth surfaced and shall have a vertical height of 39" – 45" from floor, platform, runway, or ramp level.
 - c. The intermediate rail shall be halfway between the top rail and the floor, platform, runway, or ramp.
 - d. A standard toe board shall be 4 inches minimum in vertical height from its top edge to level of the floor, platform, runway, or ramp.
 - e. Railings shall have the strength to withstand at least the minimum requirement of 200 pounds top rail pressure with a minimum of deflection.

6.0 FALL HAZARD ELIMINATION

- 6.1 We can also reduce the number of falls by eliminating fall hazards on the jobsite. Secure footing is the prime requisite in avoiding falls, and good housekeeping is essential to good footing. The following housekeeping rules shall be adhered to by all employees:
- a. Clean up scrap on an "as you work" basis
 - b. Material should be stored neatly
 - c. Walkways must be free of cords, material, and all tripping hazards
 - d. Clean up oil, grease, water, ice, snow, etc. to prevent slipping.
 - e. Always look before you step
 - f. Use adequate lighting
 - g. Floor openings must be covered with a cover big enough and rigid enough to prevent failure. Covers must also be secured to prevent accidental displacement.
 - h. Never stand on chairs, crates, drums, or any other unstable object.

SECTION 6.9 – SAFETY PROGRAM: FALL PROTECTION

- i. Proper footwear must be worn at all times

7.0 PERSONAL FALL PROTECTION

- 7.1 Safety harnesses are defined as either a check harness with straps over the shoulder and around the waist or a full body harness. Body belts are strictly prohibited, and are not allowed on the jobsite. A harness must be worn where the possibility of a free fall exists.
- 7.2 Shock absorbing lanyards shall be used as the connecting device between harness and anchorage.
- 7.3 Lanyards shall be a minimum of ½” nylon or equivalent with a maximum length to provide for a fall of no greater than 6 feet. The rope shall have a nominal breaking strength of 5,000 pounds.
- 7.4 Lanyards shall be secured above the worker to an anchorage capable of supporting a minimum dead weight of 5,000 pounds.

8.0 TRAINING

- 8.1 All employees shall be trained to recognize and avoid fall hazards on the jobsite. Employees shall also be trained in the proper use of personal fall protection equipment and the procedure for prompt rescue of someone that has fallen. Training shall be done annually at the company safety days. All training is to be verified by test and documented.
- 8.2 The Job Superintendent has the responsibility to ensure that all his employees are properly trained.
- 8.3 At the completion of the training, each employee shall be tested to assure that he understood the material being presented.

9.0 EQUIPMENT MAINTENANCE

- 9.1 Fall protection equipment shall be inspected before each use by the user. The following guidelines should be followed when inspecting the equipment.
 - a. Inspect component hardware. These items must not be damaged, broken, distorted, nor have any sharp edges, burrs, cracks, worn parts, or corrosion. Make certain the connecting hooks work properly. Hook gates must move freely and lock upon closing. Make certain adjusters (if present), work properly.
 - b. Inspect webbing. Material must be free of frayed, cut or broken fibers and stitching. Check for chemical or heat damage (indicated by brown, discolored, or brittle areas). Check for ultraviolet damage (discoloration and presence of splinters and

SECTION 6.9 – SAFETY PROGRAM: FALL PROTECTION

slivers). Webbing must be free of knots, excessive soiling, heavy paint buildup and rust staining.

c. Inspect labels. All labels must be intact and fully legible.

9.2 Any equipment (scaffold, ladders, lanyards, harnesses etc.) found defective or suspect during inspection should be immediately tagged and removed from service and destroyed or sent to a factory authorized service center for repair.

9.3 Any piece of fall protection equipment which has been subjected to fall arrest or impact forces must be immediately removed from service and destroyed.

9.4 Check the equipment manufacture date on the label. Equipment manufactured more than five years from the use date shall be immediately removed from service and destroyed.

SECTION 6.10 – SAFETY PROGRAM: FIRE PROTECTION & PREVENTION

1.0 GENERAL REQUIREMENTS

- 1.1 Fire-fighting equipment shall be conspicuously located and easily accessible to all employees.
- 1.2 Fire extinguishers must be inspected periodically. Defective equipment should be replaced immediately. Partially discharged extinguishers must be recharged before being placed back into service.
- 1.3 All fire extinguishers are to be visually inspected monthly and recertified annually by a qualified outside source.
- 1.4 Employees shall be trained to recognized fire hazards, to know where fire-fighting equipment is located, and how to individually respond to a fire emergency.
- 1.5 Employees shall be informed about the location of fire exists.
- 1.6 The telephone numbers of the fire department or Customers fire brigade must be posted in conspicuous areas on the job.
- 1.7 Always assign a fire watch for welding and/or flame cutting operations in areas where fire danger exists. Fire watch is to remain for a period after work stops to be sure that no fire exists.
- 1.8 Observe smoking rules and remind others to do the same.
- 1.9 Inspect your work area and equipment for fire hazards. Report unsafe conditions.
- 1.10 Avoid piling trash and other flammables. Keep fire exits clear
- 1.11 Use extra caution around gas, flammable, and oxygen equipment.

2.0 STORAGE OF FLAMMABLE MATERIALS

- 2.1 Flammable materials shall be stored away from sources of ignition and areas where hot work is preformed.
- 2.2 Flammable material storage areas shall be clearly marked with signs denoting “FLAMMABLES – NO SMOKING OR OPEN FLAMES WITHIN 50 FEET”.
- 2.3 Flammable liquids shall be kept in approved safety cans except for bulk storage systems.

SECTION 6.10 – SAFETY PROGRAM: FIRE PROTECTION & PREVENTION

2.4 Containers of flammable liquids must be grounded and be provided with a bonding wire for interconnection between containers during transfer.

2.5 No more than twenty-five (25) gallons of flammable liquids may be stored in a building other than those specified for storage of flammable materials only, they must be in approved safety cans and smoking shall be prohibited in these buildings.

3.0 Training

3.1 All employees are to receive initial training with annual retraining on how to properly deploy a fire extinguisher and the hazards involved in putting out a fire.

SECTION 6.11 – SAFETY PROGRAM: GRINDER AND TOOL SAFETY

1.0 GENERAL REQUIREMENTS – GRINDERS

- 1.1 All guards must remain in place
- 1.2 The RPM of a wheel shall always exceed the RPM of the grinder on which it is used.
- 1.3 Under no circumstances shall field repairs be performed on damaged or defective grinders. Defective tools should be tagged “Defective” and sent to tool repair.
- 1.4 Soft metals, such as aluminum, are not to be ground on general purpose wheels.
- 1.5 Each employee using any grinder shall be responsible for its safe operating condition before putting it in use.
- 1.6 Shirttails out the lose fitting clothes will not be permitted while using grinders
- 1.7 Employees should always warn people in immediate area before start of grinding.
- 1.8 Ear protection is mandatory for operator and persons in close proximity
- 1.9 Never use cord to lower grinder from elevations.
- 1.10 Deflection screens may be needed to protect personnel or other equipment.
- 1.11 When small items are to be ground they should be placed in a vice.
- 1.12 Respiratory protection will be required in areas of poor ventilation
- 1.13 All wheels and disk must be checked for wear before use.

2.0 BENCH AND PEDESTAL GRINDERS

- 2.1 Operator must wear face shield and safety glasses.
- 2.2 Tight fitting appropriate leather gloves should be worn while grinding.
- 2.3 Make certain rest and tongue guard is properly set within 1/8” of wheel.
- 2.4 Stand clear of wheels until grinder reaches its maximum speed.
- 2.5 Do not grind on the side of wheels unless the grinding machine is designed for this express purpose.

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- 2.6 Do not adjust the work rest while the wheel is in motion
- 2.7 Do not use a wheel that is worn out of round until it is trued
- 2.8 To change wheel or make adjustment on 110 volt pedestal and bench grinder, de-energize the pushbutton or switch and pull 110 volt pull plug. Use “Danger-Do No Use” tag on plug.
- 2.9 All bench and pedestal grinders are to be equipped with:
 - a. A protection hood
 - b. An adjustable guard – hood guard.
 - c. Steel backup flanges. All straight, abrasive wheels shall be mounted between steel safety flanges, of equal size, not less than one-third (1/3) the diameter of the wheel
 - d. Adjustable work rest. Tool rest must not extend on side of wheel unless wheel is specifically made and marked for this service.

3.0 PORTABLE GRINDERS

- 3.1 Portable grinders must be equipped with guards; only when a grinder is used inside a pipe or similar enclosure where a guard cannot be used it is permissible to remove the guard, and then only with the approval of the Job Superintendent.
- 3.2 Angle grinders must have a handle attached if so designed by the manufacturer.
- 3.3 Operator must wear face shield and safety glasses.
- 3.4 Tight fitting appropriate leather gloves should be worn while grinding
- 3.5 The employee’s position for grinding must be such as to allow both hands to be placed firmly on the grinder. Never remove the handle from the grinder.
- 3.6 Never hold materials to be ground in one hand while grinding with the other.
- 3.7 When changing the grinding tool, always unplug the grinder.
- 3.8 Use some type of vise or clamping tool to firmly hold metal to be ground.
- 3.9 Damaged disks shall not be used. Disks with apparent damage shall be changed before use.
- 3.10 All portable grinders shall be equipped with a constant pressure control switch. Locking triggers are not allowed.

SECTION 6.11 – SAFETY PROGRAM: GRINDER AND TOOL SAFETY

4.0 GENERAL REQUIREMENTS – TOOLS

- 4.1 Inspect all tools before using. Never use defective tools.
- 4.2 Use all tools only for their intended purpose. For example, don't use a screwdriver as a pry bar.
- 4.3 Don't leave tools on scaffolds, ladders, or overhead working spaces.
- 4.4 Don't force tools beyond their capacity.
- 4.5 Always leave safety guards on the tool. They are designed and placed to keep you safe. Use them.
- 4.6 Know how to shut off a tool before turning it on.
- 4.7 Eye protection is required for protection from flying particles.
- 4.8 Check area for other persons that could be harmed from operation of tool.
- 4.9 Store tools in a safe place when not in use, safe from weather and elements.

5.0 HAND TOOLS

- 5.1 Wrenches shall not be used when jaws are sprung to the point that slippage occurs.
- 5.2 Impact tools, such as drift pins, wedges, and chisels, shall be kept free of mushroomed heads.
- 5.3 The wooden handles of tools shall be kept free of splinters or cracks and shall be kept tight in the tool.

6.0 ELECTRIC POWER TOOLS

- 6.1 Electric power tools shall be of the double insulated type or grounded in accordance with Section 6.7 of this manual.
- 6.2 The use of electrical cords for hoisting or lowering tools shall not be permitted.

SECTION 6.11 – SAFETY PROGRAM: GRINDER AND TOOL SAFETY

7.0 PNEUMATIC POWER TOOLS

- 7.1 Pneumatic power tools shall be secured to the hose or whip by some positive means to prevent the tool from being accidentally disconnected.
- 7.2 Non-metallic one piece retaining pin and ring shall be used to secure sockets and accessories on pneumatic impact tools to prevent attachments from being accidentally expelled. The retaining ring should be securely taped in place.
- 7.3 The impact wrench must be checked immediately before use to assure that the retaining pin, ring, and tape are securely in place. The operator should “field strip” the retaining pin area, if necessary, to be sure it has been assembled correctly.
- 7.4 The impact wrench operator should be in stable position have a tight grip, and be sure that he has enough room to safely utilize the tool.
- 7.5 The use of hoses for hoisting or lowering tools shall not be permitted.
- 7.6 All hoses exceeding ½” inside diameter shall have safety device at the source of supply or branch line to reduce pressure in case of hose failure.

8.0 FUEL POWERED TOOLS

- 8.1 All fuel powered tools shall be stopped while being refueled or serviced and fuel shall be transported, handled, and stored in a safe manner.
- 8.2 Fuel powered tools should not be used indoors or in any confined area where operator or persons nearby could be adversely affected by vapors.

SECTION 6.12 – SAFETY PROGRAM: HAZARD COMMUNICATION

1.0 POLICY

- 1.1 The Company developed this Hazard Communication Program to ensure that all of our employees are informed of the potential hazards associated with hazardous chemicals known to be present on the jobsite. It will be the responsibility of management and the Job Superintendent to ensure that proper information is obtained and made available to the appropriate employees. It will be the employees' responsibility to follow safe practices as outlined on the Material Safety Data Sheets (MSDS), on product labels, or in operation procedures.

2.0 INTRODUCTION

- 2.1 The federal government has enacted the Hazard Communication Regulations to ensure the hazards of all chemicals and other products are evaluated and the information concerning their hazards is transmitted to all employees. Transmittal of information is to be accomplished by means of a written Employee Information Program, container labeling and other forms of warning, Material Safety Data Sheets and employee training.

3.0 PROGRAM

- 3.1 Informing employees of their "right to know" regarding hazardous chemicals.
- 3.2 A list of the hazardous chemicals used on the jobsite.
- 3.3 Methods of informing employees of chemicals encountered on customer/client jobsites.
- 3.4 Methods of training, accompanied by documentation of that training.

4.0 RESPONSIBILITIES

- 4.1 Employees will review the Hazard Communication Program in the Employee Safety Manual with employees as part of the safety orientation.
- 4.2 MSDS's will be obtained for each toxic substance supplied to the jobsite by the Company and local suppliers and these MSDS's will be made available to the employees.
- 4.3 The Customer will supply the Company with a list of all toxic substances present on the jobsite.
- 4.4 Employees who work with toxic chemicals will be informed on how to read MSDS's and instructed on how to interpret label information on containers.
- 4.5 All Company supplied products must be adequately labeled. Labeling of all other materials on the jobsite is the responsibility of the Customer.

SECTION 6.12 – SAFETY PROGRAM: HAZARD COMMUNICATION

5.0 NOTIFICATION

- 5.1 The Company will notify the Customer of any toxic substances brought to the site and will make MSDS sheets for these toxic substances available upon request.

- 5.2 The Company will likewise notify the other contractors onsite of any toxic substances brought to the site and will make MSDS sheets for these toxic substances available upon request.

6.0 MATERIAL SAFETY DATA SHEETS

- 6.1 MSDS's for each toxic substances supplied to the jobsite by the Company as well as those obtained from local suppliers will be maintained on the jobsite by the Job Superintendent and will be made available to all employees.

7.0 LABELING INFORMATION

- 7.1 All chemicals used by the Company employees will have appropriate labels showing the following information:
 - a. Identify of the chemical
 - b. Appropriate hazard warnings
 - c. Name and address of the chemical manufacturer. It is the responsibility of the Customer to label their own products; however, Company employees must be able to interpret these labels.

8.0 TRAINING REQUIREMENTS

- 8.1 Understanding of their employee rights under the Hazard Communication Regulations

- 8.2 Information on toxic substances used at the jobsite

- 8.3 How to read MSDS. The specific areas covered should be fire and explosion data, health and reactivity data, spill and leak procedures, and special protection and precautionary information.

- 8.4 Labeling Information: All employees should be able to recognize color and numbering codes and protective and precautionary measures.

SECTION 6.13 – SAFETY PROGRAM: HEARING PROTECTION

1.0 GENERAL REQUIREMENTS

- 1.1 Standards have been set for the amount of noise exposure to which our workers can be subjected. Employees in construction are allowed exposure up to 90 decibels for an 8-hour time weighted average. In a general industry setting up to 85 dbA is allowed. A worker's quality of life can be seriously diminished after many years of unprotected noise exposure.
- 1.2 Exposure determination in occupational noise situations will be addressed by the Safety Manager or Superintendent. The Job Superintendent should contact the Safety manager prior to performing projects with high noise potential.
- 1.3 Use of personal hearing protection must be utilized in all situations where our clients have performed noise surveys and signage or policy requires the use of hearing protection. Additionally, if workers cannot carry on normal conversation and be heard while standing three (3) feet apart, it is expected that the allowance level of noise has been exceeded and hearing protection must be worn.
- 1.4 Hearing protection will be provided to all employees, on all projects, as necessary, at the no cost to the employee. Types of hearing protection may vary according to the level of exposure. Surveys and audits completed indicate that in 99% of high noise situations, foam or baffle type hearing protection with an NRR (Noise Reduction Rating) of 24-34 dB is acceptable.
- 1.5 Remember that in order to achieve the maximum intended NRR of a hearing protector; they must be correctly worn according to the manufacturer's instructions.

2.0 HEARING CONSERVATION PROGRAM

- 2.1 Hearing conservation is an important aspect of the overall safety and health program. Workplace noise can cause hearing loss, create physical and psychological stress, and contribute to accidents by making it difficult to communicate.
- 2.2 Fortunately, noise exposure can be controlled. Every effort is made to use quieter processes, machinery, and equipment. When feasible engineering controls do not reduce the noise level to or below the OSHA permissible exposure limit (PEL) of 90 dB, proper hearing protectors are used. Also, all employees exposed to noise levels above 85 dB are included in a hearing conservation program. There are many reasons for providing an effective hearing conservation program, including:
 - a. Protecting the organization's most important resource - employees
 - b. Providing a safe and healthful workplace
 - c. Complying with governmental regulations

SECTION 6.13 – SAFETY PROGRAM: HEARING PROTECTION

2.3 Management, supervisory, and employee commitment to hearing conservation and positive attitude are important aspects of the overall hearing conservation program. The key elements of the organization's hearing conservation program are:

- a. Noise exposure measurements
- b. Engineering and administrative noise exposure control
- c. Personal hearing protection
- d. Audiometric testing and follow-up
- e. Education.

3.0 NOISE EXPOSURE MEASUREMENT

3.1 The success of the company's hearing conservation program depends on an accurate knowledge of the existing noise environment. Accurate surveys define areas within acceptable guidelines for noise exposure and those areas where potentially harmful noise exposure exists. Effective noise exposure measurement prevents possible loss of hearing by detecting work areas where employees must wear hearing protectors and must be tested. Therefore, the company conducts detailed noise surveys using sound level meters that meet the appropriate ANSI standard and are calibrated acoustically before and after each survey. The initial area survey was performed using measurement techniques prescribed in the OSHA regulations. Measurements are made at employees' normal working positions. This procedure allows an accurate estimation of the employees' daily exposure except in instances where an employee is required to move from one working location to another in his/her daily routine, or when an employee's instantaneous noise exposure levels vary markedly during the shift because of machine cycling. In these cases, noise dosimetry is performed. Follow-up measurements are made whenever changes in work practices or methods may change workplace noise exposures. The results of all measurements are recorded, and employees are notified of their exposure level.

4.0 EMPLOYEE EDUCATION

4.1 Great Lakes Mechanical recognizes the need for a strong educational program. Therefore, Great Lakes Mechanical properly educates its noise-exposed employees. At least annually, (updated to be consistent with changes in the PPE and work processes) all new employees and those with a time-weighted average exposure level of 85 dBA and above are reminded of the need for an effective hearing conservation program. The educational program consists of an initial presentation by company personnel concerning the need for an effective hearing conservation program. During this program an explanation of company policy relative to the requirements of wearing hearing protective devices is given. All employees are encouraged to ask questions concerning the program. Topics covered include the effects of noise on hearing, the purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on the selection, fitting, use, and care of protectors. The purpose and procedures of audiometric testing are also discussed.

4.2 Great Lakes Mechanical recognizes the need for continuing education in the implementation of any safety program and, therefore, will regularly remind employees of the necessity for

SECTION 6.13 – SAFETY PROGRAM: HEARING PROTECTION

preserving their hearing. This is achieved by posting educational materials at appropriate locations. All areas where hearing protection is required are posted with appropriate signs in order to alert employees to the need for wearing protective devices.

- 4.3 Employees not exposed to noise levels exceeding the accepted guidelines are encouraged to participate whenever possible in the educational programs provided.
- 4.4 Great Lakes Mechanical recognizes the fact that a loss of one's ability to hear can occur from many causes other than industrial noise exposure, and that for this reason all employees benefit from the educational programs described above. Since the hearing conservation program described in this plan protects employees' hearing from potentially-harmful environments and could possibly alert them to potentially-harmful physical disorders, the program is considered an additional benefit program for employees.
- 4.5 The Educational Phase begins when employees are hired and continues annually thereafter.

5.0 PERSONAL

5.1 HEARING PROTECTION

- a. Until such time as engineering and/or administrative controls reduce the amount of noise exposure to or below the allowed limits, appropriate personal hearing protective devices are made available and issued to noise-exposed employees. It is recognized that the use of these devices is considered a temporary solution to the problem of overexposure until feasible controls are provided.
- b. As with all safety equipment, the wearing of hearing protection in required areas is mandatory. All supervisors properly enforce hearing protection requirements. Continuing failure of an employee to properly wear the protection provided could result in the termination of employment with the company.
- c. The individual responsible for issuing and fitting hearing protection has been trained by and is under the supervision of an audiologist or physician.
- d. Fitting and issuing of hearing protective devices begins when employees are hired.

6.0 AUDIOMETRIC TESTING PROGRAM

- 6.1 The objective of the hearing conservation program developed by Great Lakes Mechanical is the preservation of the hearing of its employees. In order to achieve this goal, an effective audiometric testing program has been implemented. This program includes yearly audiograms to provide a survey of the work force whose exposures equal or exceed a TWA of 85 dBA in order to establish baselines and threshold shifts. Prior to the base line testing, the employee is not to be exposed to workplace noise for at least 14 hours. All employees exposed to levels equal to or exceeding a TWA of 85 dBA receive an annual audiometric

SECTION 6.13 – SAFETY PROGRAM: HEARING PROTECTION

- test. If the findings of the annual audiometric test indicate a standard threshold shift, the employee is to be notified within 21 days of the determination.
- 6.2 If a threshold shift does occur, the safety manager will immediately investigate the potential cause and determine if the employee needs to be retrained on the use of the provided PPE, reevaluate the selected PPE or if the employee requires a retrofit. With the assistance of the audiologist, he will also make the determination if the employee requires medical assistance.
- 6.3 The success of the hearing conservation program with regard to each individual employee is evaluated by comparing annual audiograms to the baseline audiogram. Audiogram review is performed by an audiologist or physician, and recommendations regarding the audiometric results are followed. This procedure, among others, helps to determine the effectiveness of the hearing protection program, and, as a result, ensures the protection of employees' hearing.
- 6.4 Annual testing is conducted for all employees whose 8-hour TWA exposure level is 85 dBA or higher.

7.0 ENGINEERING AND ADMINISTRATIVE NOISE CONTROLS

- 7.1 Great Lakes Mechanical recognizes the desirability of controlling the existing noise levels by engineering and/or administrative controls. Therefore the feasibility of such controls is carefully considered. Due to the complexity of some machinery used by the company and in view of economic limitations, some noise levels cannot currently be reduced to below acceptable limits. In those cases, suppliers of machinery purchased which produces noise levels exceeding the accepted guidelines have been notified of the high noise levels directly by the company or indirectly through the appropriate association(s) of which this company is a member. The supplier has been requested to redesign machinery where possible to meet the defined regulations. As an interim solution, the company has considered possible redesign of existing machinery, the building of partial or total enclosures, and other engineering noise control procedures for reducing the existing noise levels, where such procedures are deemed technologically and economically feasible.
- 7.2 Within the limitation of work schedules and employee skills and training background, administrative controls have been considered. Where feasible, over-exposed employees are moved to other areas having noise levels below the required levels. In addition, operational procedures are modified as necessary so that during any one twenty-four hour period the allowed exposure times will not be exceeded.
- 7.3 Engineering and administrative controls are being considered and implemented where feasible on a continuing basis.

SECTION 6.13 – SAFETY PROGRAM: HEARING PROTECTION

8.0 MANAGEMENT COMMITMENT

- 8.1 As indicated by the program described above, it is the full intent of the company to protect and preserve the hearing of its employees. This company routinely reviews the program developed and outlined in this compliance plan and attempts within the company's financial and technical capability to improve the program where feasible.
- 8.2 The company will keep records of all testing (personnel and jobsite) and make it available to any employee or customer at their request.
- 8.3 If and when the work area noise levels are reduced below the accepted guidelines, the company reserves the right to terminate any or all of the phases of the program described herein.

SECTION 6.14 – SAFETY PROGRAM: HEAT STRESS

1.0 GENERAL REQUIREMENTS

- 1.1 Many operations that employees perform involve the potential of heat related injury. We work in locations that include high air temperatures, high humidity, close proximity to high radiant heat sources and direct contact with hot objects. Also, at times, the nature of our work requires workers to wear heavy heat, fire and chemical resistant clothing. All of these conditions alone or in combination are likely to cause heat stress.
- 1.2 Age, weight, degree of physical fitness, degree of acclimatization, metabolism, use of alcohol or drugs, medical conditions, and prior heat injury, in addition to, ambient air temperatures, radiant heat, air movement, conduction and relative humidity all affect an individual's response to heat.
- 1.3 Ventilation, air cooling, fans, shielding, and insulation are the major types of engineering controls used to reduce heat stress in hot environments.
 - a. General ventilation is used to dilute hot air with cooler air
 - b. Air conditioning which removes the heat and sometimes the humidity is a preferred method, but many times is not feasible. However, local air cooling, such as a cool room, has been used with success as a recovery area for hot jobs, or an air chiller can be used in the affected work area.
 - c. Increasing the airflow with fans is a method of reducing heat stress as long as the air temperature is less than the worker's skin temperature. (Remember when the air being moved is 90° or above, and the relative humidity is close to 100% air movement will make the worker hotter.) In other words, hot air passing over the skin can actually cause the core temperature of the individual to rise.
 - d. Insulating or Shielding can be used to reduce the heat exposure on workers and should be used where there is work performed in proximity to hot objects thereby interrupting the path of the heat flow from the worker.
 - e. Work/rest cycles need to be established so workers have the ability to recover from high heat loads and replace fluids on a periodic basis. The Safety Manager will determine the duration of the work/rest cycle.
- 1.4 Whenever the ambient temperature is 90° or the nature of the work will cause workers to be potentially overexposed to heat, the Safety Manager must be called to determine what methods or plan of action will be taken to safeguard our workers.
- 1.5 Heat Stroke occurs when the body's system of temperature regulation fails and body temperature rises to critical levels. This condition is caused by a combination of highly variable factors, and its occurrence is difficult to predict. Heat stroke is a medical emergency. The primary signs and symptoms of heat stroke are confusion; irrational behavior; loss of consciousness, convulsions; a lack of sweating (usually); hot, dry skin; and

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an abnormally high body temperature, e.g., a rectal temperature of 105.8°F. If body temperature is too high, it causes death.

- 1.6 If a worker shows signs of possible heat stroke, professional medical treatment should be obtained immediately. The worker should be placed in a shady area and the outer clothing should be removed. The worker's skin should be wetted and air movement around the worker should be increased to improve evaporative cooling until professional methods of cooling are initiated and the seriousness of the condition can be assessed. Fluids should be replaced as soon as possible. The medical outcome of an episode of heat stroke depends on the victim's physical fitness and the timing and effectiveness of first aid treatment.
- 1.7 Regardless of the worker's protests, no employee suspected of being ill from heat stroke should be sent home or left unattended unless a physician has specifically approved such an order.
- 1.8 Heat Exhaustion. The signs and symptoms of heat exhaustion are headache, nausea, vertigo, weakness, thirst, and giddiness. Fortunately, this condition responds readily to prompt treatment. Heat exhaustion should not be dismissed lightly, however, for several reasons. One is that the fainting associated with heat exhaustion can be dangerous because the victim may be operating machinery or controlling an operation that should not be left unattended; moreover, the victim may be injured when he or she faints. Also, the signs and symptoms seen in heat exhaustion are similar to those of heat stroke, a medical emergency.
- 1.9 Workers suffering from heat exhaustion should be removed from the hot environment and given fluid replacement. They should also be encouraged to get adequate rest.
- 1.10 Heat cramps are usually caused by performing hard physical labor in a hot environment. Cramps appear to be caused by lack of water replenishment. Thirst cannot be relied on as a guide to the need for water; instead, water must be taken every 15 to 20 minutes in hot environments.
- 1.11 Under extreme conditions, such as working for 6 to 8 hours in heavy protective gear, a loss of sodium may occur. Recent studies have shown that drinking commercially available carbohydrate-electrolyte replacement liquids is effective in minimizing the effects of sodium loss.
- 1.12 In heat collapse "Fainting", the brain does not receive enough oxygen because blood pools in the extremities. As a result, the exposed individual may lose consciousness. This reaction is similar to that of heat exhaustion and does not affect the body's heat balance.

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However, the onset of heat collapse is rapid and unpredictable. To prevent heat collapse, the worker should gradually become acclimatized to the hot environment.

- 1.13 Heat Rashes are the most common problem in hot work environments. Prickly heat is manifested as red papules and usually appears in areas where the clothing is restrictive. As sweating increases, these papules give rise to a prickling sensation. Prickly heat occurs in skin that is persistently wetted by unevaporated sweat, and heat rash papules may become infected if they are not treated. In most cases, heat rashes will disappear when the affected individual returns to a cool environment.
- 1.14 Heat Fatigue is primarily caused by lack of acclimatization. The use of the program of acclimatization and training for work in hot environments is advisable. The signs and symptoms of heat fatigue include impaired performance of skilled sensor motor, mental, or vigilance jobs. There is no treatment for heat fatigue except to remove the heat stress before a more serious heat-related condition develops.

SECTION 6.15 – SAFETY PROGRAM: LEAD EXPOSURE CONTROL

1.0 GENERAL REQUIREMENTS

- 1.1 The Company has developed a program to ensure that our employees are informed of the cause and effect of lead intoxication that may be present at one of our jobsites. It is the responsibility of our Company management and Job Superintendents to ensure that if necessary, the proper information for lead exposures will be available at the jobsite. It is the employees' responsibility to follow all safe practices.

2.0 PROGRAM

- 2.1 Lead exposure is considered negligible in the Company operations. The possibility that above normal levels of lead will be encountered is therefore considered remote.
- 2.2 If there is a possibility that an above normal exposure to lead may be encountered at a job location, contact the Safety Manager who will arrange for a jobsite survey. If in the event that the project is to proceed within the parameters established by the consultant, no work is to proceed until a site specific plan (including separate showers, lunchroom and bathrooms) has been developed and implemented to reduce exposures to or below the established limits. The work area is to be identified with appropriate signage identifying the lead.
- 2.3 Employees shall be trained in specifically working in this environment and annually thereafter.
- 2.4 No employee is to be exposed to a PEL of 50 micro grams/cubic meter of air.
- 2.5 The company will provide approved respirators and subscribed PPE at no cost where engineering and work practice controls are insufficient and in emergencies.
- 2.6 The company is to provide a medical surveillance for any employee that has been exposed above the action level for more than 30 days, to include blood sampling, monitoring, medical benefits and employee notification.
- 2.7 If monitoring is necessary, the Company will obtain the services of an independent testing and sampling firm to provide monitoring and documentation of exposure areas for 6 months until 2 consecutive results are below the action level. Employees will be made of aware of the monitoring results and the corrective actions taken.
- 2.8 General training will be provided for all employees on the hazards of lead through the Tool Box Talk program.

SECTION 6.16 – SAFETY PROGRAM: LOCK OUT TAG OUT

1.0 INTRODUCTION

- 1.1 This program is established to ensure the safety of employees engaged in the repair, maintenance or servicing of machines and equipment in which the unexpected energization or start up of the equipment or release of stored energy could cause serious injury to the employees.
- 1.2 As used in the program, an energy source is defined as any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.
- 1.3 Our Customer's Lock Out/Tag Out Program may be used in lieu of this program if it meets or exceeds the requirement herein

2.0 GENERAL

- 2.1 Before beginning any repairs, servicing, or maintenance of machines and equipment, it is necessary to affix the appropriate lock out and/or Tagout devices to energy isolating locations and to disable the machine or equipment to prevent unexpected energization, start up, or release of stored energy in order to prevent injury to employees.

3.0 RESPONSIBILITIES

- 3.1 This program will be implemented on the jobsite when necessary and employees who will be involved in the work will be trained.

4.0 INVOLVED PERSONNEL

- 4.1 Basically, the personnel involved in this program are as follows. These persons may be employees of the Company, Customer, or other Contractors involved in the work:
 - a. Authorized Employee – A person who locks/tags and implements the lockout/Tagout procedure on equipment prior to working on the equipment.
 - b. Affected Employee – A person who is not an authorized employee but whose job requires him to work in the area where authorized employees perform repair, servicing or maintenance on equipment.

5.0 LOCKOUT

- 5.1 Lockout is the use of a locking device as a positive means to isolate equipment from energy sources. Lockout is the preferred method of isolating machines and equipment from energy sources. Lockout shall be used unless it is not feasible to install a lock on an energy device.
- 5.2 Authorized employees shall locate and identify all switches, valves, blinds, or other energy isolating devices that apply to the equipment to be locked out and list them on the Lockout/Tagout Log. Where possible contact the person responsible for operation of the equipment for assistance.

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- 5.3 The authorized employees shall notify all affected employees about work in progress or work to begin under lockout. This can be communicated verbally by the authorized employees.
- 5.4 If the equipment is operating, the authorized employees will contact the person who has responsibility for the equipment and request that he completely shut it down.
- 5.5 Each authorized employee shall be assigned his own locks and tags. Subsequently, each authorized employee shall lockout and tag energy isolation devices with his lock and danger tags. On a piping system, an installed blind shall be considered acceptable as a lock.
- 5.6 Prior to starting work on equipment that has been locked out, all authorized employees shall collectively verify that it is isolated and deenergized. This can be accomplished, after ensuring that no personnel are exposed, by testing all start/stop controls and visually inspecting energy isolation devices such as blinds.
- 5.7 If it is determined that there is the potential for stored energy and/or the possibility of reaccumulation, regularly verify during service and maintenance that reaccumulation has not risen to hazardous levels.

6.0 TAGOUT

- 6.1 Tagout is the use of a danger tag to warn that the equipment cannot be operated until the tag is removed.
- 6.2 Tagout may be used only when it is not feasible to install a lock on an energy isolation device.
- 6.3 A danger tag has the same importance and purpose as a lock.
- 6.4 Additional means of energy control must be taken in a Tagout situation: for example – removal of a fuse, removal of a valve handle, isolating work area with banner tape, etc.
- 6.5 All other requirements of the lockout procedure (Section 5.0) shall be followed.

7.0 GROUP LOCKOUT OR TAGOUT

- 7.1 The use of this procedure may be permitted by the Job Superintendent or his designee when it is impractical for each employee to lockout or Tagout.

SECTION 6.16 – SAFETY PROGRAM: LOCK OUT TAG OUT

7.2 In group lockout or tagout, only one designated authorized employee shall install his lock and/or tag on the lockout device.

7.3 Where Customer or other contractor employees are involved in the group lockout or tagout, one authorized employee from each organization shall install his lock and/or tag on the lockout device.

7.4 All other requirements of the lockout procedure or the tagout procedure shall be followed.

8.0 RELEASE FROM LOCKOUT OR TAGOUT

8.1 Before lockout or tagout devices are removed and energy is restored to the machine or equipment, the following steps shall be performed by the authorized employee(s):

- a. Check to ensure that all employees have left the equipment area
- b. Remove tools, materials, and other nonessential items from the equipment.
- c. Inspect the equipment to ensure that components are operationally intact.
- d. Reinstall all guards
- e. Notify affected employees that lockout or tagout devices are being removed.
- f. Complete the Lockout/Tagout log.

8.2 Each authorized employee shall remove his lock and/or tag from each energy isolation device.

8.3 When the authorized employee who applied a lockout or tagout device is not available to remove it, that device may be removed under the direction of the Job Superintendent provided that the following steps are taken:

- a. Verify that the authorized employee who applied the device is not onsite.
- b. Make all reasonable efforts to notify the authorized employee that his lockout or tagout device is being removed
- c. Ensure that authorized employee knows that his tag has been removed before he resumes work on site.

8.4 The equipment operator shall put the equipment back in service by operating the energy source using the appropriate equipment operating procedures.

SECTION 6.16 – SAFETY PROGRAM: LOCK OUT TAG OUT

9.0 EQUIPMENT TESTING DURING LOCKOUT & TAGOUT

9.1 When lockout or tagout devices must be temporarily removed from the energy isolation device and the equipment energized for testing, the following sequence of actions shall be taken.

- a. Clear equipment of tools, material and non-essential items.
- b. Have employees leave the area.
- c. Remove lockout or tagout devices
- d. Energize and proceed with testing
- e. When testing is completed, reimplement the lockout or tagout procedure
- f. Resume maintenance work

10.0 SHIFT OR PERSONNEL CHANGES

10.1 There will be an orderly transfer of lockout or tagout devices between off going and oncoming employees during shift or personnel changes.

10.2 During shift changes, the shift supervisor will be informed of any equipment lockouts or tagouts which are in progress, using the Lockout/Tagout Log. Continuity of lockout or tagout protection between shifts will be accomplished by the following methods:

- a. If no work will be performed on the locked out equipment during the shift, no further action is necessary.
- b. If work is to be performed on the equipment during the shift, the in-place lockout or tagout devices will be reassigned to authorized employees on that shift.

11.0 LOCKOUT AND TAGOUT DEVICES

11.1 A lockout device utilized a positive means such a lock to hold an energy isolation device in the safe position and prevent the energizing of a machine or equipment.

11.2 Locks shall be keyed and may be used in conjunction with chains, cables lock-out loops, etc. Locks shall always be identified with danger tags. Locks used as lockout devices shall not be used for other than lockout purposes.

11.3 “Danger – Do Not Operate” tags shall be used for tagout. Tags shall have space for the employee’s name, company, position, etc. Tags shall be capable of withstanding the elements and expected atmosphere for as long as the tag shall remain there.

11.4 Danger tags shall be attached with an environment tolerant, self locking non-reusable device, with a minimum unlocking strength of 50 pounds; for example, nylon cable ties. A wire is not acceptable.

SECTION 6.16 – SAFETY PROGRAM: LOCK OUT TAG OUT

12.0 TRAINING

12.1 All employees shall be instructed on the contents of this standard. The training shall include the following:

- a. Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the work place, and the method and means necessary for energy isolation and control.
- b. Each affected employee shall be instructed in the purpose and use of energy control procedure.
- c. All other employees whose work operations are or may be in an area where energy control procedures may be utilized shall be instructed about the procedure and about the prohibitions relating to attempts to restart of reenergize equipment which is locked out or tagged out.

12.2 Retraining shall be provided for all authorized and affected employees when there is a change in the energy control procedures or when an audit determines that retraining is required.

12.3 All training should be documented

13.0 AUDITS

13.1 Periodic audits of this Lockout/Tagout Program shall be performed at least annually to ensure that the requirements of this program are being followed and to indicate any inadequacies in the program and necessary changes.

13.2 Audits shall be performed on jobsites where the Lockout/Tagout Program is in use and shall include a review of employee responsibilities.

13.3 All audits shall be documented and this documentation shall identify the equipment on which the program was implemented, the date of the audit, the employee included in the audit process, and the signature of the person conducting the audit.

SECTION 6.17 – SAFETY PROGRAM: MATERIAL HANDLING SAFETY

1.0 GENERAL

- 1.1 Poor lifting techniques, improper handling and storage of material, unorganized tool boxes, and not using proper personal protective equipment can all lead to injuries on the jobsite. By adhering to the material handling and back safety guidelines in this Section, we can eliminate most of the injuries associated with these unsafe acts.

2.0 RESPONSIBILITIES

- 2.1 All employees will be properly trained in proper materials handling and back safety procedures.
- 2.2 Employees will closely follow the procedures and guidelines listed here.

3.0 LIFTING BASICS

- 3.1 The object of safe lifting is to protect your back by letting your legs, not your back, do the work. The following rules shall be followed when lifting any load:
- a. Stand close to the load with both feet firmly on the floor, about shoulder width apart. Point your toes out.
 - b. Squat down close to the load with your back straight, knees bent, and stomach muscles tight.
 - c. Place your hands on diagonally opposite corners of the load so one hand pulls the load toward you and one lifts.
 - d. Grip the load firmly with both entire hands, not just the fingers.
 - e. Bring the load as close as possible to your body. Keep your weight centered over your feet. Tuck your arms and elbows into your side and your chin into your neck.
 - f. Stand up slowly, keeping your back straight and letting your legs do the lifting.
 - g. Make sure you have a good grip and can see where you're going
 - h. Take small steps, keeping the load close to your body and no more than waist high.
- 3.2 If you have to change direction while you're carrying a load, don't twist. Twisting is a major cause of back injuries. To change direction, move your feet.
- 3.3 When you get to where you're going, you also have to unload carefully. The following rules shall be followed when setting down any load.
- a. Lower the load slowly, bending your knees so your legs do the work.
 - b. Position your hands so the fingers don't get caught under the load.

SECTION 6.17 – SAFETY PROGRAM: MATERIAL HANDLING SAFETY

4.0 NONSTANDARD LIFTING SITUATIONS

- 4.1 Objects with Awkward Shapes – Squat next to the object with your feet spread, grip the top outside corner and bottom inside corner. Then follow proper lifting procedures, keeping your back straight and knees bent.
- 4.2 Objects in Hard-To-Get-At-Locations – Get as close as possible to the object. With back straight and stomach muscles tight, bend slightly forward at the hips and bend your knees. Grip the object, then let your leg, stomach, and buttock muscles do the heavy lifting.
- 4.3 Objects in High Places – If you must reach for a load above shoulder height use a ladder. Make certain you can handle the weight of the object before you lift it. With lighter weight items, slide them to the end of the shelf and then keep the objects as close to your body as possible.
- 4.4 Two Person Lifts – When you're going to lift with someone try to find a person who's about your height. Begin by deciding which of you will say where and when to move. At the signal, lift and rise together, following proper procedure. When you're ready to move, keep the load at the same level. Then move and unload together.
- 4.5 Carrying Pipe – When carrying a long piece of pipe, balance it on your shoulder, keeping the front end higher than the back. If the load is too long or too heavy for one person, ask for help. When there are two people, each should shoulder the load on the same side and keep it level. Stay in step while walking. Be aware of tripping hazards in your way.
- 4.6 Reaching in to Bins and Boxes – If you must reach into a bin to get something, it is going to become increasingly more difficult to lift properly the further down into the bin you reach. Stand with your feet at shoulder distance apart and bend slightly at the knees. If you can squat, do so. Bend at the hip joint, not at the waist. Slide the load as close to your body as possible. Raise yourself using your leg and hip muscles as you lift, and if it is possible, rest your knees against the container side. If you are reaching into some type of box, it may make sense to cut down one side of the box so that proper lifting techniques may be used.

SECTION 6.17 – SAFETY PROGRAM: MATERIAL HANDLING SAFETY

5.0 OTHER BACK PROTECTION TECHNIQUES

5.1 While lifting correctly is a major factor in protecting your back, it's not the only one. You can also help prevent strain and pain, and strengthen your back by sitting, standing, and moving in ways that don't put your back out of whack.

5.2 Sit up straight. When you sit hunched over, your ligaments end up doing the work and muscles are supposed to do. The result is pressure on the vertebrae, especially in the lower back.

The best posture for your back is to sit up straight, close to the desk or table, with your back against the chair back. If your chair doesn't offer support for your lower back, consider using a cushion or rolled up towel. Your knees should be bent, feet on the floor.

You can also protect your back by moving correctly while you're seated. If, for instance, you want to reach something off to the side, do it by turning your whole body. Don't twist just part of your body; it's an invitation to back strain.

When you read, hold the pages up so you keep your good sitting posture. When you talk on the phone, lean your elbow on the desk or table to support your arm. Don't cradle the phone in your neck.

And be sure not to sit for too long at a time. Get up every so often and stretch and walk around. If possible, shift occasionally to another seating position.

5.3 Stand tall and straight, but not stiff. When you stand, your shoulders should be even and back. Keep your head up and your pelvis forward. If you have to stand in one place for a while, try to keep one foot raised on a step or other elevation. Shift legs every so often.

5.4 Drive with your back straight, knees bent.

5.5 When working on your back, work in a position that keeps your back flat and knees bent. Don't stay in one position too long; get up and stretch.

5.6 Shovel so your legs do the lifting, not your back. The best position is to have your hands far apart, legs bent at the knees, and back straight.

5.7 Working low to the ground, it's best to bend your knees and keep your back as straight as possible. Avoid bending from the waist.

SECTION 6.17 – SAFETY PROGRAM: MATERIAL HANDLING SAFETY

5.8 Catch falling objects when you're standing with your back straight, knees bent, and feet firmly on the ground. As you catch, let your legs absorb the impact.

5.9 Don't jump! Even a jump from a short height like a loading dock can cause a back injury. Use a ladder steps.

5.10 Push don't pull. Pulling an object places considerably more strain on the back than does pushing.

6.0 MATERIAL HANDLING

6.1 Employees are required to wear the proper personal protective equipment while handling materials.

- a. Safety shoes are an important part of your protection while handling material.
- b. Wear appropriate gloves for the task.

6.2 There are many hazards associated with handling materials. Employees are required to adhere to the following methods of avoiding hazards when handling material:

- a. Untidy tool boxes are a major source of cuts and bruises – as people reach in without looking.
- b. Wires protruding from concrete and the rough finish of the material can cause injury.
- c. The unexpected shifting or movement of pipe can be a dangerous hand trap.
- d. Wearing rings, even a wedding band, is dangerous as the ring can get caught in something and amputate your fingers.
- e. Watch out for sharp edges, burrs and splinters
- f. Be careful when handling things that are hot, cold, greasy, or slippery.
- g. Never store tools so that sharp edges are exposed. The next person to use the tool could be the person who suffers the injury so watch to for your partners.
- h. Be cautious of pinch points when you are lifting something
- i. Materials racked improperly can catch a finger or hand or cause even greater injury
- j. When you are stacking materials keep your fingers on the sides, not the top or bottom of the spacers.
- k. Tools should not be thrown. It might seem the quicker way to get a tool to somebody, but you are risking injury.
- l. Don't sweep up metal and wood scrapes with your hands. Find a broom and use it.

SECTION 6.18 – SAFETY PROGRAM: OFFICE SAFETY

1.0 GENERAL

1.1 Safety hazards in our office? Yes! Accidents can and do happen, even in an office setting. Your awareness of the hazards can influence your personal safety and the safety of your coworkers. Although all of your daily office activities may be second nature to you they can be more dangerous than you may think, especially because you and your co-workers don't expect problems. Learn to look for and avoid the following common safety hazards in your office.

2.0 FALLS

2.1 Falls are the most common office accident and often result in disabling injuries

2.2 Learn to recognize and correct slip, trip and fall hazards. Telephone, computer, and electrical cords, open drawers, loose carpeting, slippery floors, spills, and packages left in aisles can all cause a serious fall.

2.3 Avoid bending; twisting and leaning backward while seated, your chair can become unstable causing you to fall.

2.4 Be sure your pathway is clear before you walk. Never carry anything that obscures your vision. Wear stable shoes with non-slip soles.

2.5 Always use a stepladder for overhead reaching. Don't ever stand on your desk, a chair, or a pile of boxes to get something up high.

3.0 FILE CABINETS

3.1 File cabinets are a primary source of office injuries

3.2 Full file cabinet drawers are heavy and can cause serious injury if they fall on you. Pulling out one overloaded top drawer can cause the whole cabinet to tumble over on you. The same can happen if you pull out two drawers at once. Prevent toppling cabinets by keeping all heavy materials in the bottom drawer. Always use only one drawer at a time. Open file drawers carefully, and only as far as you deem safe.

3.3 Drawers can pinch fingers if slammed shut. Close drawers slowly and carefully.

3.4 Sharp corners of metal file cabinets can cause injuries. Be careful you don't bump into them or cut yourself.

3.5 Close drawers completely after every use to avoid tripping hazards.

SECTION 6.18 – SAFETY PROGRAM: OFFICE SAFETY

4.0 OFFICE AVALANCHES

- 4.1 Office avalanches occur when too many boxes, papers or other materials are stacked too high for safety.
- 4.2 When stacks are allowed to develop into small mountains on top of file cabinets or other high places, they invite disaster in the form of an office avalanche. Someone who needs a folder that's halfway down a stack might pull it out without removing what's on top, and send the stack toppling down. Even a pile that's nearly stacked may be sent tumbling down by opening and closing file drawers.
- 4.3 To keep stacks, and personnel safe, keep piles low and easy to reach. Or, better yet, store materials in cabinets or files.

5.0 ELECTRICAL SHOCK

- 5.1 Electrical shock can result from frayed wiring, improper grounding, or malfunctioning equipment. Check equipment and plugs regularly. Immediately notify your supervisor regarding any obvious problems such as sparking, shocking, foul smelling, overheating or smoking machinery. Also, report corroded outlets, switches or junction boxes, frayed or exposed wiring, broken plugs or outlets, and missing box covers or faceplates.
- 5.2 Use electrical equipment only when your hands are dry. If an electrical appliance falls into or gets splashed with water, unplug it before touching it.
- 5.3 Keep electrical equipment clean and free from oil, dust and foreign items, such as paper clips and staples. Unplug electrical equipment before cleaning or servicing.
- 5.4 Don't overload circuits or extension cords. In fact, avoid extension cords if possible, but if you use them, make sure they are of sufficient size.

6.0 FIRE SAFETY

- 6.1 Knowing how to react in a fire emergency can literally mean the difference between life and death.
- 6.2 The best time to think about fire safety is before a fire starts. Learn the location of fire escape routes, how to activate the fire alarm, where fire extinguishers are located and what ratings they carry.

SECTION 6.18 – SAFETY PROGRAM: OFFICE SAFETY

6.3 If you are certain that a small or self-contained fire does not pose an immediate threat to you, your co-workers or the surrounding area, you may be able to put it out with the appropriate fire extinguisher. For your safety during a fire, use an extinguisher only if the fire is small, you have an escape route, you know how to use the extinguisher and you are certain that the extinguisher is the right size and type for the fire. If you are in doubt about any of these factors, sound the alarm and evacuate the premises.

7.0 LIFTING LOADS

7.1 Lifting loads improperly can lead to strains and other back injuries. See Section 6.17, Material Handling/Back Safety, for details on safe lifting techniques.

8.0 ERGONOMICS

8.1 Ergonomics is designing the job, equipment and tools to fit the worker, and fitting the worker to the job. Ergonomics “stressors” (factors that can lead to disorder) include repetitive motions, excessive force, vibrations, glare, poor air quality in an office and awkward, prolonged posture.

8.2 The main way to prevent ergonomic injuries is to modify work habits to avoid undesirable motions and improve your posture. Learn to adjust chairs, keyboards, lighting and other controllable factors for your maximum comfort and health.

8.3 If you sit most of the day, sit up straight and shift positions frequently to take pressure off the back. Get up and walk around the office at regular intervals to provide a break from prolonged sitting. Don’t support your telephone with your shoulder for long periods of time.

9.0 FIRST AID

9.1 Sudden injuries and illnesses happen all the time. If you know first aid, you can help save the life or health of a coworker or a family member. Take the first aid and CPR training offered by the Company. Remember, the first step is always to call 911.

9.2 Know where your office’s first aid kit is what’s in it and how to use what’s in it.

10.0 EMERGENCY ACTION PLAN

10.1 Each office must have an emergency action plan. It is the responsibility of the office manager or branch manager at each location to prepare the Emergency Action Plan and assure that all employees understand, know how to initiate and follow the emergency action plan when it is put into effect.

SECTION 6.19 – SAFETY PROGRAM: PERSONAL PROTECTIVE EQUIPMENT

1.0 GENERAL

- 1.1 The purpose of this section is to establish a uniform procedure to cover the use of personal protective equipment (PPE) utilized in daily operations.
- 1.2 As a minimum, the following PPE shall be worn at all times on every Company project.
 - a. Safety glasses with side shields – provided by employer
 - b. Hard hat with brim forward – provided by employer
 - c. Safety shoes
 - d. Gloves suitable for the task – provided by employer
 - e. Suitable work clothes
 - f. Other personal safety equipment as required by other Sections of this manual – provided by employer

2.0 RESPONSIBILITIES

- 2.1 The proper PPE required for the specific tasks involved will be determined.
- 2.2 PPE is to be used and maintained in a sanitary reliable condition.
- 2.3 PPE assessment will be addressed in the Daily Safe Work plan at the beginning of each shift. Selected PPE (respirators, etc.) need to be fitted to a specific employee.
- 2.4 Defective or damaged PPE is to be removed from service and not used.
- 2.5 Employee provided PPE (safety shoes and work clothes) will be inspected by the employer to verify adequacy maintenance and sanitation.
- 2.6 All employees will annually receive documented training in the operation and limitations of all PPE provided. Periodic retraining may be needed when workplace changes make previous training obsolete, or if employee does not demonstrate proficiency in the proper use of PPE.
- 2.7 All employees will wear the proper PPE and comply with all the requirements of this section.

3.0 HEAD PROTECTION

- 3.1 Hard hats shall be worn at all times on every project and shall be worn properly with the brim in front.
- 3.2 All hard hats must meet the requirements of ANSI standard Z89.1.

SECTION 6.19 – SAFETY PROGRAM: PERSONAL PROTECTIVE EQUIPMENT

4.0 EYE AND FACE PROTECTION

- 4.1 In prejob planning, verify location of eye wash stations and/or showers for appropriately flushing the eyes or body in the event of contact with injurious or corrosive materials.
- 4.2 Safety glasses with side shields shall be worn at all times on the jobsite – **no exception.**
- 4.3 Other eye and face protection shall be appropriate for the task. All eye and face protection shall meet the requirements of ANSI standard Z98.1.
- 4.4 Goggles, face shields, and welding hoods are required when welding, cutting, hammering, chipping, grinding, or where flying particles or flashes are produced.
- 4.5 Face shields and helmets are not really protective eye wear and must be used with other eye protection – either safety glasses or goggles.
- 4.6 Cutting and heating operations require the use of approved burning goggles with at least a #4 filter lens to protect against eye injury from radiant light and molten slag.
- 4.7 Protective full face welding hoods with the appropriate filter shade for the type welding being done shall be provided and used by all welders. Filter shade shall be #10 or greater. Clear lens shall be worn on both sides of the filter plate.

5.0 HAND PROTECTION

- 5.1 Gloves shall be worn by all employees when handling rough, sharp edged, or abrasive material, or where work subjects hands to laceration, punctures, burns or bruises.
- 5.2 The choice of an appropriate glove for the job is based on what specific task is being performed. Special gloves are required when working with solvents, chemicals, or chemically treated materials. Make sure you get the right type of gloves for the task you are performing.
- 5.3 Gloves should be clean and rip-free. Make sure they fit properly, not too tight or too loose.

6.0 FOOT PROTECTION

- 6.1 Employees are required to wear sturdy leather work boots with a substantial sole. Heel must be of such a style so that they will stop when slid horizontally over a vertical ladder rung.
- 6.2 Tennis shoes, sandals, or sneakers are strictly prohibited.

SECTION 6.19 – SAFETY PROGRAM: PERSONAL PROTECTIVE EQUIPMENT

6.3 Steel-toes safety shoes are required on some projects and are encouraged on all jobsites.

6.4 Keep your feet dry. If your job requires you to work where your feet will be in water or mud, or may be exposed to chemicals or wet cement, wear rubber boots. Always wear the proper boot for the task.

7.0 CLOTHING

7.1 All employees will wear sleeved shirts and long pants on all jobsites.

7.2 Clothing must be clean – not oil or grease soaked – and not overly loose.

7.3 No dangling jewelry is permitted. Also, beware of watches, rings, etc. which might get caught.

7.4 Fire retardant clothing is required on some projects. When coveralls are being worn, they must be zipped and buttoned up at all times.

8.0 FALL PROTECTION

8.1 Fall protection requirements are covered in Section 6.9 of this manual

9.0 HEARING PROTECTION

9.1 Hearing protection is covered in Section 6.13 of this manual

10.0 RESPIRATORY PROTECTION

10.1 Respiratory protection requirements are covered in Section 6.20 of this manual.

SECTION 6.20 – SAFETY PROGRAM: RESPIRATORY PROTECTION

1.0 INTRODUCTION

- 1.1 This Respiratory Protection procedure provides standards for the selection, use and care of respiratory protection equipment necessary for the protection of the life and health of employees when working in oxygen deficient or contaminated atmospheres.
- 1.2 The Respiratory Protection program is to be administered and evaluated by the company Safety Director.
- 1.3 It is the Company Policy to not work in IDHL atmospheres.
- 1.4 All respirators are to be NIOSH certified and selected based on the hazards the worker is exposed to.
- 1.5 An oxygen deficient atmosphere contains less than 19.5% oxygen. In work areas where this hazard may occur, forced air ventilation should be provided and the oxygen content re-measured. If the oxygen level remains below 19.5%, respiratory protection is required.
- 1.6 Harmful contaminants in the atmosphere may be gaseous or particulate. Gas and vapor contaminants can be asphyxiants, anesthetics, irritants or poisons. Particulate matter, which is a suspension of fine solid or liquid particles in the air, can be an irritant or can be toxic.
- 1.7 Atmospheric testing by a qualified person, using approved, calibrated instrumentation is required to evaluate respiratory hazards and should be conducted before personnel enter any confined location or area where contaminants can be expected to be present. Warning signs such as dizziness, headache, coughing, sneezing, nausea, eye or skin irritation or loss of feeling may be observed in a work area. If testing confirms the presence of respiratory hazards, ventilation must be provided and personnel instructed to leave the area until respiratory protection is in place.

2.0 RESPIRATORY PROTECTIVE DEVICES – provided by the company at no expense to the employee

- 2.1 Respiratory protective devices consist of air purifying, supplied air, and self-contained breathing (SCBA) apparatus. Air purifying respirators are mechanical filter respirators, chemical cartridge respirators, and combination chemical cartridge and mechanical filter respirators. An air line with face mask is a supplied air respirator. A self contained breathing apparatus is an air pack.
- 2.2 Mechanical filter respirators offer respiratory protection against airborne particulate matter including dusts, mists, metal fumes and smoke. Mechanical filter respirators do not protect against gases, vapors or oxygen deficiency.

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- 2.3 Chemical cartridge respirators are non-emergency respiratory protective devices which provide protection against light concentrations (.1% by volume) of certain acid gases, alkaline gases, organic vapors and mercury vapors. Do not use chemical cartridge respirators for protection against highly toxic gases, gases which cannot be easily detected by odor before hazardous concentration is reached, gases which irritate the eyes, or on gases which are not stopped by the respirator elements.
- 2.4 Combination chemical cartridge and mechanical filter respirators utilize filters to trap dust, mist or fumes, and a chemical cartridge to remove gases or vapors from the atmosphere. These combination devices are not to be used for oxygen deficiency or for protection against highly toxic gases.
- 2.5 Air line respirators are approved for use only in atmospheres not immediately harmful to life. The user is fully dependent upon an air supply not carried by the user; the air supply hose limits distance and confines the use to one path for entry and exit. An air line respirator is connected to a suitable compressed air source equipped with pressure regulators, pressure relief valves, and air filters to insure proper pressure and air quality. Pressure should be 10-15 psig, with relief valves set at 16psig. Air quality must meet Compressed Gas Association Specification G7.1 for Type 1, Class D gaseous air. Air line connectors must be Schraeder Quick Connects to avoid hook up with improper air supply. Air Line Respirators may be equipped with a full face mask, with or without a welder's adapter, a half mask designed for use under a welding helmet, or an air supplied hood.
- 2.6 Air packs, a self contained breathing apparatus (SCB A) are approved for use in oxygen deficient atmospheres and hazardous concentrations of toxic gases. These units provide a high rate of flow to meet breathing demands even during extreme exertion. Normal capacity is a 30 minute supply but, depending on breathing demand, air supply may only last 15 or 20 minutes. An audible alarm signals low air supply.

3.0 MEDICAL EXAMINATIONS

- 3.1 Medical examinations shall be required of any employee prior to assignment to any job which requires use of an air pack or air line respirator. No employee with respiratory disease or other medical limitations will be allowed to perform work in areas requiring the use of respiratory equipment.
- 3.2 All medical evaluations will be confidential, during normal work hours, convenient, understandable and the employee will be given the opportunity to discuss the results with the examining physician or PLHCP.

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4.0 RESPIRATORY PROTECTION TRAINING

4.1 Training and education in respiratory protection selection, use and maintenance shall be provided by a competent instructor initially and annually to supervisors and workers prior to use of the equipment. Minimum instruction requirements are:

- a. Instruction in the nature of the hazards, whether acute or chronic, or both, and an appraisal of the consequences of not using a respirator.
- b. Explanation of why a respirator is being used in place of engineering controls.
- c. A discussion of why the chosen respirator is proper for the exposure.
- d. A discussion of the respirator's capabilities and limitations.
- e. Instruction and hands on training in actual use of the respirator, including fit tests.
- f. Classroom and field training to recognize and cope with emergencies.
- g. Any training needed for special use, including review of Material Safety Data Sheets, where applicable
- h. Must be stored in its prescribed case.

5.0 RESPIRATOR USE

5.1 Face piece fit tests and procedures by qualitative or quantitative methods shall be included in the training for each user. Respirators shall not be worn when conditions present a good face seal. Such conditions may be a growth of beard, sideburns, or temple pieces of eyeglasses. The absence of dentures can also affect the fit of a face piece. To assure proper protection, the face piece fit shall be checked by the wearer prior to each use. This may be done as follows:

- a. Positive Pressure Test – Close the exhalation valve and gently exhale into the face piece. For most respirators, the user must first remove the exhalation valve cover and then carefully replace it after the test. The face fit is considered satisfactory if a slight positive pressure can be built up inside the mask, without any evidence of outward leakage of air at the seal.
- b. Negative Pressure Test – Close off the inlet opening of the canister or cartridge(s) by covering with the palm of the hand(s) or by replacing the seal(s), inhale gently so the face piece collapses slightly, and hold the breath for 10 seconds. If the face piece remains in its slightly collapsed condition and no inward leakage of air is detected, the face piece seal is considered satisfactory.
- c. If there is failure, puncture or resistance is noticed, the employee must leave the work area to wash or change cartridges.

6.0 SPECIAL PROBLEMS ASSOCIATED WITH RESPIRATOR USE

- a. Corrective lenses may be worn with a half mask if they do not affect the fit of the face piece.
- b. Corrective lenses with a full mask prohibit a proper seal if the temple bars of the glasses extend through the sealing edge of the mask. As a temporary measure,

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glasses with short temple bars or without temple bars may be taped to the wearer's head. Contact lenses are prohibited because they may dislodge and block the discharge valve or regulator.

- c. Respirator use in low temperatures can cause poor visibility and freezing of exhalation valves in full face pieces. Anti-fog compounds can be used on the inside of the lens to prevent fogging at room temperature down to about 32° F. Full face pieces with nose cups that direct warm, moist exhaled air through the exhalation valve should provide adequate defogging to -30° F. Dry respirable air shall be used with SCBA and air line respirators with dew point appropriate to the ambient temperature. High pressure connections on SCBA may leak due to metal contraction at low temperature. Do not over tighten or the connections may break when temperatures rise to normal.
- d. Respirator use in high temperatures increase stress experienced by the wearer of a respirator. Cooled breathing air is recommended.
- e. Communication by speech is restricted and distorted by conventional respirators. Talking can induce face piece or component leakage and should be limited. Some respirators are equipped with speaking diaphragms which also act as a barrier to the ambient atmosphere. A puncture in this diaphragm destroys its protective ability; therefore, it should be protected by a cover.

7.0 RESPIRATOR INSPECTIONS

7.1 Respirator inspections shall include a check of sanitation and cleanliness, the tightness of connections and the condition of the face piece, headbands, valves, connecting tubes and canisters. Rubber or elastomeric parts shall be inspected for pliability and signs of deterioration. Stretching and massaging the rubber or elastomeric parts will keep them pliable. All respirators shall be inspected by the user before and after each use. Self contained breathing apparatus shall also be inspected monthly. Cylinders shall be fully charged according to the manufacturer's specifications. Regulators and warning devices must function properly. Respirators stored for emergency use shall be inspected after each use, and at least once a month, to insure their reliability. The Job Superintendent shall notify the Safety Manager when an emergency respirator has been used.

SECTION 6.21 – SAFETY PROGRAM: RIGGING AND HOISTS

1.0 GENERAL REQUIREMENTS

- 1.1 All rigging equipment including chain hoists, slings, chokes, jacks, and similar items shall be inspected upon arrival and before any use onsite. Additional inspections shall be performed prior to use on each shift and as needed during use to ensure that the equipment is in safe operating condition.
- 1.2 Defective rigging equipment shall immediately be tagged and removed from service.
- 1.3 Rigging equipment shall not be loaded in excess of its recommended safe working load as marked on the equipment or determined by the Job Superintendent if not marked.
- 1.4 Rigging equipment when not in use shall be removed from the work area so as not to present a danger to employees.
- 1.5 Custom designed rigging equipment such as spreader bars or pad eyes shall be certified by a registered engineer, be marked as to maximum load and tested to 125 percent of maximum load prior to use.
- 1.6 Job or shop made fasteners, hooks, or links formed from bolts, rods, etc. shall never be used.

2.0 CHAIN HOISTS (COME-A-LONGS & CHAINFALLS)

- 2.1 Choose a hoist with the capacity for the job. Know the capacities of your hoists and the weight of your loads. Then match them. Make sure the overhead object where you attached the hoist will support the lift weight.
- 2.2 All hoists shall be visually inspected before use. Deficiencies should be noted and brought to the attention of supervisors. Be sure defective hoists are tagged and taken out of service until repairs are made.
- 2.3 Be sure that the hoist is solidly held in the uppermost part of the support hook arc and that hoist and load are in a straight line. Avoid making angle lifts with chain hoists.
- 2.4 Be sure that the load is hooked securely. Do not tip load the hook. Do not load hook latch. Apply the load gently.
- 2.5 Hoists shall be attached at each end by chokers, pad eyes and/or shackles. The load chain shall not be wrapped around loads. The hooks of hoists shall not be attached by hooking onto the flange of a beam or into the end of a pipe.

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2.6 Do not leave a load hanging and unattended. Never stand or work under a suspended load.

3.0 SLING SAFE WORK PRACTICES

3.1 Employees shall follow these safe work practices when rigging.

- a. Slings that are damaged or defective shall not be used.
- b. Determine the center of gravity and balance the load before moving it.
- c. Initially lift the load only a few inches to test the rigging and balance
- d. Slings shall not be shortened with knots, bolts, or other makeshift devices.
- e. Slings shall not be loaded in excess of their rated capacities.
- f. Slings shall be securely attached to their loads.
- g. Suspended loads shall be kept clear of all obstructions.
- h. Hands or fingers shall not be placed between the sling and its load while the sling is being tightened around the load.
- i. A sling shall not be pulled from under a load when the load is resting on the sling.
- j. Slings shall be padded or protected from the sharp edges of their loads.

4.0 WIRE ROPE

4.1 Wire rope is very reliable when used properly, but it does wear out and can be severely damaged by misuse. Before use, inspect wire rope for wear, corrosion and physical damage like kinks.

4.2 Wire rope shall be taken out of service when any of the following conditions exist:

- a. One or more broken wires are found in running ropes.
- b. Wear of one-third (1/3) the original diameter of outside individual wires.
- c. Kinking, crushing, bird caging or any other damage resulting in distortions of the rope structure.
- d. Evidence of heat damage from any cause.

4.3 Wire rope shall not be secured by knots

4.4 Any eye splice made in any wire rope shall not have less than three full tucks.

4.5 Wire rope clips shall not be used to form eyes on wire rope slings used for lifting or pulling

4.6 When wire rope is used for holding suspended loads, thimbles shall be used to make eyes at both ends of the wire rope and the proper number of clips shall be used.

4.7 The correct method of attaching clips is with the base of the clip, (saddle) bearing against the live end of the wire rope. The “U” of the clip bears against the dead end. Remember “Never saddle a dead horse”.

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4.8 Refer to OSHA standard 20 CFR 1926.251 for additional information regarding wire rope including rated capacities and number and spacing of clips.

5.0 SYNTHETIC WEBBING SLINGS

5.1 Each synthetic webbing sling shall display the following:

- a. Name or trademark of manufacturer with serial number.
- b. Rated capacities for type of hitch
- c. Type of material

5.2 Synthetic webbing slings shall be immediately removed from service if any of the following conditions are present:

- a. Acid or caustic burns
- b. Melting or charring of any part of the sling service
- c. Snags, punctures, tears or cuts
- d. Broken or worn stitches
- e. Distortion of fittings
- f. Any other evidence of fabric deterioration
- g. Manufacturer's expiration date has passed.

5.3 Nylon slings shall not be exposed to fumes, vapors, mists or liquid of acids.

5.4 Polyester and polypropylene slings must not be exposed to fumes, vapors, mists or liquid of caustics.

SECTION 6.22 – SAFETY PROGRAM: SUBCONTRACTOR SAFETY REQUIREMENTS

1.0 GENERAL REQUIREMENTS

- 1.1 Project Managers shall notify the Safety Manager of proposed subcontractors necessary to complete the scope of work on a particular project.
- 1.2 The Safety Manager shall evaluate the subcontractor's safety program by reviewing their safety training documents, EMR, TRIR, DART and fatality rate.
- 1.3 Upon completion of the review, the Safety Manager will make a recommendation on the subcontractor's safety program. The Project Manager will utilize this recommendation when awarding subcontracts. Subcontractors found to be unacceptable will not be awarded the work.
- 1.4 In no case shall a subcontractor begin work before an approved Certificate of Insurance has been received, reviewed, and accepted by the Company.

2.0 REPORTING REQUIREMENT

- 2.1 Subcontractors shall immediately report all employee injuries, near misses, damage to property and/or production interruptions to the Company Job Superintendent and follow up with a written report within 24 hours.
- 2.2 Subcontractors shall also report all safety related actions by local, state, or federal government agencies and safety related complaints to government agencies by employees, unions, or third parties.
- 2.3 Subcontractors shall have available an OSHA 300 Form at the jobsite or have this information readily available for Company inspection.

3.0 EMPLOYEE ORIENTATION

- 3.1 Subcontractors shall provide a safety orientation to all their employees working on the jobsite. This orientation should include all newly hired employees and those employees who have transferred from other jobsites.
- 3.2 The safety orientation shall include the following topics:
 - a. A review of the Subcontractor's, the Company's and the Customer's safety rules and regulations.
 - b. Review accident reporting procedures and first aid locations
 - c. Review personal protective equipment requirements.
 - d. Instruct employees to immediately report any unsafe act or condition to their project supervisor.

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- e. Instruction employees to report all injuries, near misses and accidents without delay.
- f. Review requirements for daily Safe Work Plans with employees.

4.0 TOOL BOX SAFETY TALKS

- 4.1 Subcontractors shall conduct toolbox safety talks on a weekly basis. Talks shall be conducted by the Foreman or Superintendent and shall meet the following criteria:
 - a. Talks shall be 5 to 10 minutes in duration
 - b. All craft employees must attend and attendance shall be recorded. Attendance records are to be maintained on file at the jobsite for review by the Company.
 - c. Topics for the toolbox safety talks should be based on the specific safety concerns of the work in process.
 - d. Talks shall be conducted in a manner to encourage employee participation.
 - e. Use visual aids such as defective tools or equipment, protective clothing, safety equipment, or demonstrations of procedures.

5.0 SAFE WORK PLANS

- 5.1 Subcontractors shall utilize a “Safe Work Plan” similar to the Company’s Safe Work Plan procedure as a means of recognizing work place hazards and preventing these hazards from causing accidents.
- 5.2 Subcontractor Superintendents and/or Foreman shall, as part of making the daily work assignments, discuss with their crew members the various potential safety hazards that might be encountered and how to recognize, avoid, or prevent them from causing accidents.
- 5.3 It is important when conducting pre-task planning that the necessary time is taken to identify possible hazards. The amount of time will depend on the work environment, the potential hazards involved, crew size, and type of work being performed.
- 5.4 Besides devoting the necessary time to pre-task planning the Subcontractor Superintendent and/or Foreman shall involve their crew members in the activity. It is a known fact that involving people in the solution of a problem will motivate them to solve it and involve them in consideration of the safety aspects of the task. Everyone in the crew has a stake in the safety of their fellow workers, and, of course, themselves. Each crew member has some level of awareness concerning the safety hazards of the work they are performing, the tools and equipment they are using, and the environment in which work is being performed. Any one crew member, however, may not be aware of all the possible hazards, whereas others are. For these reasons it is critical that every one of the crew members participate in the pre-task safety analysis.

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5.5 Subcontractors shall utilize a form equivalent to the Safe Work Plan form to prepare their pre-task safety analyses.

5.6 The Subcontractor Superintendent or Foreman shall sign the Safe Work Plan after the pre-task safety analysis is completed and again after the task has been completed and the area cleaned up.

5.7 Keep in mind that when relocating to a new work site, the pre-task safety analysis described above must be repeated.

5.8 Completed Safe Work Plans shall be kept on file in the jobsite for review by the Company.

6.0 WEEKLY SAFETY AUDITS

6.1 Subcontractors Superintendents and/or Foreman shall conduct weekly safety audits in all work areas.

6.2 These audits shall be recorded on a form similar to the Company Safety Audit Form

6.3 Copies of the completed audits shall be maintained on file at the jobsite for review by the Company.

7.0 SAFETY COMPLIANCE AUDITS

7.1 Safety Compliance Audits of all Subcontractors on all jobsites shall be conducted on a non-scheduled, irregular, unannounced basis and at the end of the project by the Safety Manager or his designee.

7.2 Frequency of the Subcontractor Safety Compliance Audits will depend on the size of the work force, the nature of the work, and the job hazards.

7.3 The audit shall involve policy and procedure compliance, plus jobsite safety and health hazard recognition and corrective action.

7.4 These Subcontractor Safety Compliance Audits shall be recorded on the GLM compliance audit form.

7.5 Subcontractors with numerous adverse audit findings and/or ineffective corrective actions are subject to possible expulsion from the site.

SECTION 6.23 – SAFETY PROGRAM: SUBSTANCE ABUSE POLICY

1.0 GENERAL REQUIREMENTS

- 1.1 The Substance Abuse Policy insures that all employees are fit to perform assigned duties in compliance with contract requirements and company policy. This policy shall apply to all employees on Company property, in vehicles, on jobsites, and elsewhere off premises while on Company business. Jobsites shall include parking lots. If our Customer has imposed a substance abuse policy on the jobsite, the Customer's policy will apply to all Company employees.
- 1.2 An employee working under the influence of alcoholic beverages or drugs endangers his own safety and the safety of others, and also increases the danger of damage to property. Management and supervisory personnel shall be responsible for enforcement of this policy and or ensuring compliance with all applicable Federal, State, and Local laws and regulations.
- 1.3 All employees shall conform to this policy which prohibits the use, sale, purchase, distribution or possession of alcoholic beverages, illegal drugs, narcotics, controlled substances, or drug paraphernalia on Company property, jobsites or in vehicles.
- 1.4 The term drug, as used in this policy, includes, but is not limited to marijuana, heroin, cocaine, hashish, hallucinogens, and controlled substances such as stimulants and depressants.
- 1.5 Employees are permitted to use prescription drugs while under the care of a physician. Employees undergoing medical treatment with a prescribed controlled substance should report this treatment to their Supervisor, and assist in the evaluation of any safety hazards presented by the medication. If there are no increase hazards, the employee will be permitted to perform regular duties, if job hazards are created and medical restrictions are applied, the employee will be assigned suitable restricted duties if possible. All prescription drugs must be kept in the original container and are subject to verification, including chemical analysis, at Company expense.
- 1.6 Employees shall not report for work unless physically and mentally fit. Any employee who appears to be under the influence of alcohol or drugs shall be denied access to the jobsite. The customer may require the removal of employees from their premises where cause exists for suspected alcohol and/or drug use.

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2.0 PRE-HIRE TESTING

- 2.1 Employees who will be working for the company for more than 10 days out of the year, may be required, as a condition of employment, to be tested or and found free of any detectable amount of the substances named above within six month period prior to their employment.
- 2.2 If the employee comes to work on short notice, the employee will, if pre-hire testing is required, have a seven day grace period from the first day of work to be drug/alcohol tested. If the test results are confirmed to be positive, the employee may be terminated immediately.
- 2.3 The need for pre-hire testing will be determined by the Safety Manager on a project by project basis.

3.0 REASONABLE CAUSE TESTING

- 3.1 If supervisory personnel suspect that an employee is under the influence of alcohol or drugs, appropriate action is to be taken. An individual can be determined to be impaired and unfit for duty by observation of unusual behavior. The Supervisor shall question the individual. If the use of alcohol or drugs is denied, and the employee fails to satisfactorily explain the cause of the observed erratic behavior, the Job Superintendent will arrange for a blood or urine test as described below.

4.0 POST ACCIDENT TESTING

- 4.1 Any employee who is involved in a work-related accident requiring off site medical treatment or evaluation may be required to submit to a blood and urine test. In addition, any employee who contributed to the accident as a direct or indirect cause may be required to submit to a blood and urine test.

5.0 RANDOM TESTING

- 5.1 Employees are required, as a condition of continuing employment to submit to random testing as may be required by the Customer or at the discretion of the Company.

6.0 TESTING METHODS

- 6.1 The Substance Abuse Testing Profile Panel 5 or other level of testing detection required by the Customer shall be performed on employees when being drug tested. Alcohol and drug testing will be accomplished in accordance with applicable laws and is the sole responsibility of the Company. Alcohol testing shall be included in any drug testing performed. Any breath alcohol level over .08 is considered positive.

SECTION 6.23 – SAFETY PROGRAM: SUBSTANCE ABUSE POLICY

7.0 SEARCH

7.1 Searches and inspections may be conducted in cases of known or suspected violations of this policy, or the Customer's corresponding policy. The Supervisor shall instruct the subject employee to make any Company property in their use or possession available for search or inspection. If the employee is not present or available, the Supervisor shall take the necessary action to permit the inspection. All employees, as a condition of employment, consent to have their vehicles, toolboxes, parcels, bags and other personal effects that are brought on Company property or jobsites, searched and inspected. Company property and jobsite, may be inspected at random or for probable cause. Areas subject to search and inspection include desks and work areas, lockers, lunch and toolboxes, storage bins and vehicles. The searches may be conducted with the aid of mechanical or electrical devices or with the use of dogs especially trained to detect drugs.

8.0 PENALTIES

8.1 Any employee who refuses to comply with the intent and provisions of this policy as it relates to searches and/or inspections shall be subject to disciplinary action up to and including termination of employment. Employees who use, purchase, sell, possess or distribute alcohol or drugs while on duty shall be terminated. Refusal to provide consent for testing shall also be grounds for dismissal. In the event that tests should reveal any detectable amount of any drug, intoxicants, narcotic, or other substance as outlined in this policy, the individual will be subject to disciplinary action up to and including discharge.

9.0 NON-WORK RELATED VIOLATIONS

9.1 Off the job alcohol or drug abuse can adversely affect an employee's job performance and cause undue safety hazards and is considered a violation of this policy. Employees who are arrested for off the job drug activity may be subjected to immediate and through investigation by the Company, which may establish violations of this policy. In deciding the action to be taken, management will consider the nature of the charges, the employee's job assignment and job record and other factors relative to the impact of the arrest upon future job performance.

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10.0 REINSTATEMENT

10.1 An employee involved in alcohol or drug abuse that is admitted to, and completes and approved rehabilitation program will be given full consideration for reemployment. Employees who request reinstatement must provide verification to the Company of their drug-free condition. Employees are not eligible to be reinstated unless the above provision is met, and that they re off of the work-site a minimum of 30 days from their date of suspension. If reinstated at the minimum of 30 days, 60 days of surveillance testing is required. Frequency of testing is to be determined on a case basis, but shall be at least 4 times within the 60-day period. Employees, who test positive for a second time, will not be eligible to work.

11.0 DOCUMENTATION

11.1 Reports of compliance to Company and Customer standards will be recorded and maintained by the Company. These records will include information pertaining to pre-hire, reasonable cause, post accident, and random testing.

SECTION 6.24 – SAFETY PROGRAM: EXCAVATION & TRENCHING SAFETY

1.0 GENERAL REQUIREMENTS

- 1.1 This section delineates the procedure and guidelines to be followed for the protection of employees working in and around excavations and trenches.
- 1.2 All excavations and trenches in which our employees and/or our subcontractors work shall meet the requirements of the OSHA Standards described in Subpart P for the construction industry (CFR 1926.650).
- 1.3 The sections in this manual on Confined Space Entry (Section 6.5), Hazard Communication (Section 6.12), Lock Out/Tag Out (Section 6.16), Respiratory Protection (Section 6.20) and any other safety programs or procedures deemed essential for employee protection, are to be used in conjunction with this program.

2.0 RESPONSIBILITIES

- 2.1 All applicable safety procedures and requirements of this section will be followed when working in and around excavations and trenches.

3.0 DEFINITIONS

- 3.1 *Benching* – A method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near vertical surfaces between levels.
- 3.2 *Cave-in* – The separation of a mass of soil or rock material from the side of an excavation ,or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity or that is could entrap, bury, or otherwise injure and immobilize a person.
- 3.3 *Competent Person* – 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.
- 3.4 *Duration of Exposure* – The longer an excavation is open, the longer the other factors have to work on causing it to collapse.
- 3.5 *Excavation* – Any man-made cut, trench, or depression in an earth surface, formed by earth removal.

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- 3.6 *Hazardous Atmosphere* – An atmosphere which by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, oxygen deficient, toxic, or otherwise harmful, may cause death, illness, or injury.
- 3.7 *Protective System* – A method of protecting employees from cave-ins, form material that could fall or roll from an excavation, or from the collapse of adjacent structures. Protective systems include support systems, sloping and benching systems, shield systems, and other systems that provide necessary protection.
- 3.8 *Shield* – A structure that is capable of withstanding the forces imposed on it by a cave-in and there by protects employees within the structure. Shields can be permanent structures or can be designed to be portable and moved along a work progresses.
- 3.9 *Sloping* – A method of protecting workers from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation to prevent cave-ins. The angle of incline required to prevent a cave-in varies with differences such as soil type, length of exposure, and application of surcharge loads.
- 3.10 *Surcharge Loads* – Generated by the weight of anything in proximity to the excavation, push starts for a cave-in (anything up top pushing down). Common surcharge loads:
- a. Weight of spoil pile
 - b. Weight of nearby buildings, poles, pavement, or other structural objects.
 - c. Weight of material and equipment.
- 3.11 *Trench* – A narrow excavation below the surface of the ground, less than 15 feet wide, with a depth no greater than the width.
- 3.12 *Undermining* – Undermining can be caused by such things as leaking, leaching, caving, or over-digging. Undermined wall can be very dangerous.
- 3.13 *Vibration* – A force that is present on construction sites and must be considered. The vibrations caused by backhoes, dump trucks, compactors and traffic on jobsites can be substantial.

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4.0 SPECIFIC EXCAVATION REQUIREMENTS

4.1 Before any work is performed and before any employees enter the excavation, a number of items must be checked and insured:

- a. Prior to opening an excavation, underground installations must be determined. This can be accomplished by either contacting the local utility companies or the local “one-call” center for the area. All underground utility locations must be documented on the proper forms. All overhead hazards (surface encumbrances) that create a hazard to employees must be removed or supported to eliminate the hazard.
- b. If the excavation is to be over 20 feet deep, it must be designed by a registered professional engineer who is registered in the state where work will be performed.
- c. Adequate protective systems will be utilized to protect employees. This can be accomplished through sloping, shoring, or shielding. The worksite must be analyzed in order to design adequate protection systems and prevent cave-ins. There must also be an excavation safety plan developed to protect employees.
- d. Workers must be supplied with and wear any personal protective equipment deemed necessary to assure their protection.
- e. All spoil piles will be stored a minimum of four (4) feet from the sides of the excavation. The spoil pile must not block the safe means of egress.
- f. If a trench or excavation is 4 feet or deeper, stairways, ramps, or ladders will be used as a safe means of access and egress. For trenches, the employee must not have to travel any more than 25 feet of lateral travel to reach the stairway, ramp, or ladder.
- g. No employee will work in an excavation where water is accumulating unless adequate measures are used to protect the employees.
- h. A competent person will inspect all excavations and trenches daily, prior to employee exposure or entry, and after any rainfall, soil change, or any other time needed during the shift. The competent person must take prompt measures to eliminate any and all hazards.
- i. Excavations and trenches 4 feet or deeper that have the potential for toxic substances or hazardous atmospheres will be tested at least daily. If the atmosphere is inadequate, protective systems will be utilized.
- j. If work is in or around traffic, employees must be supplied with and wear orange reflective vests. Signs and barricades must be utilized to ensure the safety of employees, vehicular traffic, and pedestrians.

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5.0 COMPETENT PERSON RESPONSIBILITIES

5.1 The competent person must be capable of identifying existing and predictable hazards in the surroundings, or working conditions which are unsanitary, hazardous, or dangerous to employees, and have authorization to take prompt corrective measures to eliminate them and, if necessary, to stop the work.

5.2 A competent person is required to:

- a. Have a complete understanding of the applicable safety standards and any other data provided.
- b. Ensure that the employees are not exposed to potential falling loads and are not permitted to work under loads of digging equipment or where loads may fall.
- c. Assure the proper locations of underground installations or utilities, and that the proper utility companies have been contacted.
- d. Conduct soil classification tests and reclassify soil after any condition changes.
- e. Determine adequate protective systems (sloping, shoring, or shielding systems) for employee protection.
- f. Conduct all air monitoring for potential hazardous atmospheres.
- g. Conduct daily and periodic inspections of excavations and trenches.
- h. Approve design of structural ramps, if used.

6.0 EXCAVATION SAFETY PLAN

6.1 An excavation safety plan is required in written form. This plan is to be developed to the level necessary to insure complete compliance with the OSHA Excavation Safety Standard and state and local safety standards.

6.2 Excavation safety plan factors:

- a. Utilization of local one-call system.
- b. If a trench is bridged, OSHA approved guard rails will be installed to protect against falls.
- c. Determination of locations of all underground utilities
- d. Consideration of confined space atmosphere potential
- e. Proper soil protection systems and personal protective equipment and clothing.
- f. Determination of soil composition and classification.
- g. Determination of surface and subsurface water.
- h. Depth of excavation and length of time it will remain open.
- i. Proper adherence to all OSHA Standards, this excavation and trenching safety program, and any other coinciding safety programs.

SECTION 6.24 – SAFETY PROGRAM: EXCAVATION & TRENCHING SAFETY

7.0 SOIL CLASSIFICATION AND IDENTIFICATION

7.1 The OSHA Standards define soil classifications within the Simplified Soil Classification Systems, which consist of four categories: Stable rock, Type A, Type B, and Type C. Stability is greatest in stable rock and decreases through Type A and B to Type C, which is the least stable. Appendix A of the Standard provides soil mechanics terms and types of field tests used to determine soil classifications.

7.2 Stable rock is defined as natural solid mineral matter that can be excavated with vertical sides and remain intact while exposed.

7.3 Type A soil is defined as:

- a. Cohesive soils with an unconfined compressive strength of 1.5 tons per square foot (TSF) or greater.
- b. Cemented soils like caliches and hardpan are considered Type A.

7.4 Soil is NOT Type A if:

- a. It is fissured.
- b. The soils are subjected to vibration from heavy traffic, pile driving or similar effects.
- c. The soil has been previously disturbed.
- d. The material is subject to other factors that would require it to be classified as a less stable material.
- e. The exclusions for Type A most generally eliminate it from most construction situations.

7.5 Type B soil is defined as:

- a. Cohesive soil with an unconfined compressive strength greater than .5 TSF, but less than 1.5 TSF.
- b. Granular cohesion less soil including angular gravel, silt, silt loam, and sandy loam.
- c. The soil has been previously disturbed except that soil classified as Type C soil.
- d. Soil that meets the unconfined compressive strength requirements of Type A soil, but is fissured or subject to vibration.
- e. Dry rock that is unstable.

7.6 Type C soil is defined as:

- a. Cohesive soil with an unconfined compressive strength of .5 TSF or less.
- b. Granular soils including gravel, sand and loamy sand.
- c. Submerged soil or soil from which water is freely seeping.
- d. Submerged rock that is not stable.

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8.0 SOIL TEST & IDENTIFICATION

- 8.1 The competent person will classify the soil type in accordance with the definitions in Appendix A of the OSHA standard on the basis of at least one visual and one manual analysis. These tests should be run on freshly excavated samples from the excavation and are designed to determine stability based on a number of criteria: the cohesiveness, the presence of fissures, the presence and amount of water, the unconfined compressive strength, and the duration of exposure, undermining, and the presence of layering, prior excavation and vibration.

- 8.2 The cohesion tests are based on methods to determine the presence of clay. Clay, silt, and sand are size classifications, with clay being the smallest sized particles, silt intermediate and sand the largest. Clay minerals exhibit good cohesion and plasticity (can be molded). Sand exhibits no elasticity and virtually no cohesion unless surface wetting is present. The degree of cohesiveness and plasticity depend on the amount of all three types and water.

- 8.3 When examining the soil, three questions must be asked: Is the sample granular or cohesive? Fissured or non-fissured? What is the unconfined compressive strength measured in Tons per Square Foot (TSF)?

- 8.4 Methods of testing soils:
 - a. Visual test: If the excavated soil is in clumps, it is cohesive. If it breaks up easily, not staying in clumps, it is granular.
 - b. Wet manual test: Wet your fingers and work the soil between them. Clay is a slick paste when wet, meaning it is cohesive. If the clump falls apart in grains, it is granular.
 - c. Dry strength test: Try to crumble the sample in your hands with your fingers. If it crumbles into grains, it is granular. Clay will not crumble into grains, only into smaller chunks.
 - d. Pocket penetrometer test: This instrument is most accurate when soil is nearly saturated. This instrument will give unconfined compressive strength in tongs per square foot. The spring-operated device uses a piston that is pushed into a coil up to a calibration groove. An indicator sleeve marks and retains the reading until it is read. The reading is calibrated in tons per square foot (TSF) or kilograms per cubic centimeter.
 - e. Thumb penetration test: The competent person attempts to penetrate a fresh sample with thumb pressure. If the sample can be dented, but penetrated only with great effort, it is Type A. If it can be penetrated several inches and molded by light pressure, it is Type C. Type B can be penetrated with effort and molded.

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- f. Shear vane: Measures the approximate shear strength of saturated cohesive soils. The blades of the vane are pressed into a flat section of undisturbed soil, and the knob is turned slowly until soil failure. The dial is read directly when using the standard vane. The results will be in tons per square foot or kilograms per cubic centimeter.

8.5 The competent person will perform several tests of the excavation to obtain consistent, supporting data along its depth and length. The soil is subject to change several times within the scope of an excavation and the moisture content will vary with weather and job conditions. The competent person must also determine the level of protection based on what conditions exist at the time of the test, and allow for changing conditions.

9.0 EXCAVATION PROTECTION SYSTEMS

9.1 The three basic protective systems for excavations and trenches are sloping and benching systems, shoring, and shields.

9.2 The protective systems shall have the capacity to resist without failure all loads that are intended or could reasonably be expected to be applied to or transmitted to the system. Every employee in an excavation shall be protected from cave-ins by an adequate protective system.

9.3 Exceptions to using protective system:

- a. Excavations are made entirely in stable rock.
- b. Excavations are less than 5 feet deep and declared safe by a competent person.

10.0 SLOPING AND BENCHING SYSTEMS

10.1 There are four options for sloping:

- a. Slope to the angle required by the Standard for Type C, which is the most unstable soil type.
- b. The table provided in Appendix B of the Standard may be used to determine the maximum allowable angle (after determining the soil type).
- c. Tabulated data prepared by a registered professional engineer can be utilized.
- d. A registered professional engineer can design a sloping plan for a specific job.

10.2 Sloping and benching systems for excavations five (5) to twenty (20) feet in depth must be constructed under the instruction of a designated competent person.

10.3 Sloping and benching systems for excavations greater than twenty (20) feet must be designed and stamped by a registered professional engineer.

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- 10.4 Sloping and benching specifications can be found in Appendix B of the OSHA Standard (Subpart P).
- 11.0 SHORING SYSTEMS
- 11.1 Shoring is another protective system or support system. Shoring utilizes a framework of vertical members (uprights), horizontal members (whales), and cross braces to support the sides of the excavation to prevent a cave-in. Metal hydraulic, mechanical or timber shoring are common examples.
- 11.2 The different examples of shoring are found in the OSHA Standard under these appendices:
- a. APPENDIX C – Timber Shoring for Trenches
 - b. APPENDIX D – Aluminum Hydraulic Shoring for Trenches
 - c. APPENDIX E – Alternatives to Timber Shoring
- 12.0 SHIELD SYSTEMS (TRENCH BOXES)
- 12.1 Shielding is the third method of providing a safe workplace. Unlike sloping and shoring, shielding does not prevent a cave-in. Shields are designed to withstand the soil forces caused by a cave-in and protect the employees inside the structure. Most shields consist of two flat, parallel metal walls that are held apart by metal cross braces.
- 12.2 Shielding design and construction is not covered in the OSHA Standards. Shields must be certified in design by a registered professional engineer and must have either a registration plate on the shield or registration papers from the manufacturer on file at the jobsite office. **Any repairs or modifications must be approved by the manufacturer.**
- 12.3 Safety Precautions for Shield System
- a. Shields must not have any lateral movement when installed. Employees will be protected from cave-ins when entering and exiting the shield (examples – ladder within the shield or a properly sloped ramp at the end).
 - b. Employees are not allowed in the shield during installation, removal, or during any vertical movement.
 - c. Shields can be 2 feet above the bottom of an excavation if they are designed to resist loads at the full depth and if there are not indications of caving under or behind the shield.
 - d. The shield must extend at least 18 inches above the point where proper sloping begins (the height of the shield must be greater than the depth of the excavation).
 - e. The open end of the shield must be protected from the exposed excavation wall. The wall must be sloped, shored, or shielded. Engineer designed end plates can be mounted on the ends of the shield to prevent cave-ins.

SECTION 6.24 – SAFETY PROGRAM: EXCAVATION & TRENCHING SAFETY

13.0 PERSONAL PROTECTIVE EQUIPMENT

13.1 It is Company policy to wear a hard hat, safety glasses, and work boots on the jobsite. Because of the hazards involved with excavations, other personal protective equipment may be necessary, depending on the potential hazards present (examples: goggles, gloves, and respiratory equipment).

14.0 INSPECTIONS

14.1 Daily inspection of excavations, and adjacent areas and protective systems shall be made by the competent person for evidence of a situation that could result in a cave-in, indication of failure of protective systems, hazardous atmospheres or other hazardous conditions.

- a. All inspections shall be conducted by the competent person prior to the start of work and as needed throughout the shift.
- b. Inspections will be made after every rainstorm or and other increasing hazard.
- c. All documented inspections will be kept on file in the jobsite safety files.

15.0 TRAINING

15.1 The competent person(s) must be trained in accordance with the OSHA Excavation Standard, and all other programs that may apply (examples Hazard Communication, Confined Space, and Respiratory Protection), and must demonstrate a thorough understanding and knowledge of the programs and the hazards associated.

15.2 All other employees working in and around the excavation must be trained in the recognition of hazards associated with trenching and excavating.

SECTION 6.25 – SAFETY PROGRAM: VEHICLE SAFETY

1.0 GENERAL REQUIREMENTS

- 1.1 Company vehicles whether onsite or offsite shall be driven only by Company employees who possess a valid driver's license classified properly for the vehicle they are driving. The driver's license of all employees allowed to drive Company vehicles will be checked periodically.
- 1.2 Keep vehicles well maintained and in good repair. All cab glass must be clear and in good condition to assure maximum visibility. Brakes, horns, lights and other safety equipment must be periodically inspected and repaired if necessary.
- 1.3 While driving off-site on public streets, do not permit anyone to ride in the bed of a truck.
- 1.4 While on jobsite, employees may ride in the truck bed, provided they are seated on the floor inside the bed or on benches specifically installed for that purpose. Employees shall not ride on the side boards or tailgates of trucks.
- 1.5 When transporting a load in a vehicle, the driver shall have the load secured to prevent damage to the vehicle and possible accidents.

2.0 DRIVING REGULATIONS

- 2.1 The following regulations shall be strictly followed by all employees while driving Company vehicles:
 - a. Make certain that everyone in the cab or passenger compartment of the vehicle is wearing a seatbelt. Seatbelts must be worn at all times whether onsite or offsite.
 - b. Driving Company vehicles under the influence of alcohol or any non-prescription or prescription drug which impairs driving ability is strictly prohibited.
 - c. Company vehicles shall not be parked at taverns or bars.
 - d. Alcoholic beverages shall not be transported in a Company vehicle.
 - e. All state and local traffic laws shall be obeyed.
 - f. Report any accident, theft, damage, or traffic violations to the office immediately.
 - g. Always remove keys and lock vehicle when vehicle is not in use.
 - h. Only Company employees are permitted to drive Company vehicles.
 - i. No hitchhikers or unauthorized passengers are permitted in Company vehicles.
 - j. Violation of these regulations could result in loss of your Company driving privileges or termination.

SECTION 6.25 – SAFETY PROGRAM: VEHICLE SAFETY

3.0 DEFENSIVE DRIVING TECHNIQUES

3.1 The following defensive driving techniques can help you to recognize hazards, understand defenses, and act in time:

- a. Maintain a safe speed and keep a safe following distance.
- b. Follow the (4) second rule to maintain a safe interval (when the vehicle ahead passes on object, begin to count one-thousand one, etc. up to four. If you reach the object before (4) you are following too close.)
- c. Be extra careful after a short rainfall as the oil and grease on the pavement make it extra slippery.
- d. Allow space between your vehicle and the one ahead in stopped situations. You should be able to see the rear tires of the vehicle ahead of you. This way, if you are hit from behind, you may not start a chain reaction with the vehicle ahead.
- e. Don't be overly confident behind the wheel of a 4-wheel drive vehicle during bad weather. It takes just as long to stop with 4-wheel drive as it does with 2-wheel drive.
- f. Pay attention to traffic signals, speed limits and warning signs. Pay extra attention in areas of highway construction.
- g. Slow down in construction zones and obey signs and flag persons. Watch out for workers and equipment.
- h. Pay attention to weather reports. Drive with extra caution in fog, rain, snow or ice. Increase the distance between yourself and other vehicles. Check your window washer fluid on a regular basis.
- i. When an emergency vehicle is approaching, carefully move to the right side of the road and stop. Approach any accident or fire scene with caution. Reduce your speed and watch for emergency vehicles and personnel.
- j. Be cautious when driving around large trucks. Never pull out in front of a truck or cut a truck off in traffic. Never drive in a truck's "No-Zone". If you can't see the driver in the truck's side-view mirror, you're driving in the "No-Zone". Ease off the accelerator until you can see the driver's face.
- k. Driving while using a cellular phone can be a danger to you and to those in other vehicles. If you have to make a call, use the hand-free feature on your cellular phone or, preferably, pull over. Don't take notes from a telephone conversation while you drive.
- l. Driving safely is your number one responsibility. Keep distractions to an absolute minimum.

SECTION 6.26 – SAFETY PROGRAM: WELDING AND CUTTING SAFETY

1.0 General

- 1.1 All “hot work” is to be monitored by fire watch for 30 minutes after the last cut or weld.
- 1.2 A “hot work” permit shall be executed prior to the work to be done.
- 1.3 All fire watch personnel are to have training in the use of fire protection equipment.
- 1.4 All Supervisors and welders are to be trained in the appropriate safety measures for welding and cutting safety.
- 1.5 If the object to be welded or cut cannot be removed, all moveable fire hazards shall be removed from the area.
- 1.6 If welding or cutting cannot be done safely, the welding or cutting shall not be performed.

2.0 ARC WELDING

- 2.1 Only electrode holders which are specifically designed for arc welding and are of a capacity capable of safely handling the maximum rated current required by the electrode shall be used.
- 2.2 When the electrode holders are to be left unattended, the electrode shall be removed and the holder hung in a safe location.
- 2.3 All arc welding cables shall be of the completely insulated, flexible, type, capable of handling the maximum current requirements of the work in progress.
- 2.4 Only cable free from repair or splices for a minimum distance of 10 feet from the cable end to which the electrode holder is connected shall be used.
- 2.5 Substantial insulated connectors of a capacity at least equivalent to that of the cable shall be used to connect or splice lengths of cable. If cable lugs are used they shall be securely fastened together to give good electrical contact and the exposed metal parts shall be completely insulated.
- 2.6 Cables in need of repair shall not be used. Do not use cables with frayed, cracked, or bare spots in the insulation when a cable, other than the cable lead of this section, becomes worn to the extent of exposing bare conductors, the portion thus exposed shall be protected by means of rubber and friction tape or other equivalent insulation.
- 2.7 Cables shall be kept at least 7' above work floor or walkways whenever possible. All cables at walkway elevation shall be kept to one side in an orderly fashion.

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- 2.8 Make sure that all work has a separate and adequate ground pulled from the welding machine to the work location. Attach the ground connection as close to the work location as possible.
- 2.9 Ground return cables shall have a safe current carrying capacity equal to, or exceeding, the specified maximum output capacity of the unit it services.
- 2.10 The frames of all welding machines shall be grounded either through a third wire in the cable containing the circuit conductor, or through a separate wire which is grounded at the source of the current.
- 2.11 All grounding connections shall be inspected to ensure that they are mechanically strong and electrically adequate for the required current.

3.0 ARC WELDING SAFETY PRECAUTIONS

- 3.1 A suitable fire extinguisher shall immediately available in the work area. A fire watch shall be provided when there are flammable materials nearby.
- 3.2 Whenever practicable, all arc welding operations shall be shielded by noncombustible or flame-proof screens which will protect employees and other persons working in the vicinity from the direct rays of the arc.
- 3.3 Before welding in elevated areas, always check the floor below for personnel, machinery, flammable or combustible items.
- 3.4 Dispose of electrode stubs in proper containers since rod stubs on the floor are safety hazards.
- 3.5 When the arc welder has occasion to leave his work or to stop work from any appreciable length of time, or when the machine is to be moved, the power supply switch shall be opened.
- 3.6 Any faulty or defective equipment shall be reported to the supervisor.
- 3.7 Welder and welder helpers shall wear proper protective clothing, head and eye protection while welding. Welding hoods attached to hard hats are required in all fieldwork areas. Safety glasses shall be worn beneath welding hoods.
- 3.8 Cable connections to welding machines shall be enclosed with protective covers.

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3.9 Drums, containers, or hollow structures which have contained toxic or flammable substances shall, before welding, cutting or heating is undertaken on them, either be filled with water or thoroughly cleaned of such substances, ventilated and tested.

3.10 Before heat is applied to a drum, container, or hollow structure, a vent or opening shall be provided for the release of any built-up pressure.

4.0 INERT GAS METAL ARC WELDING

4.1 The inert gas metal arc welding process involves the production of ultra-violet radiation with intensities of 5 to 30 times that produced by shielded arc welding. If chlorinated solvents are present, this welding process can cause the decomposition of these solvents liberating toxic fumes and gases. Employees shall not be permitted to engage in, or be exposed to this welding process until the following special precaution has been taken:

- a. The use of chlorinated solvents shall be kept at least 200 feet, unless shielded, from the exposed arc, and surfaces prepared with chlorinated solvents shall be thoroughly dry before welding is permitted on such surfaces.

4.2 Employees in the area not protected from the arc by screening shall be protected by approved lenses.

4.3 Welders and other employees who are exposed to the radiation shall be suitably protected so that skin is covered completely to prevent burns and other damage by ultraviolet rays.

4.4 Welding hoods and shields shall be free of leaks and openings and free of highly reflective surfaces.

4.5 When inert gas metal arc welding is being performed on stainless steel, ventilation shall be provided in accordance with Article 6.0 of this Section. Adequate ventilation is required to protect employees from dangerous concentrations of nitrogen dioxide.

5.0 FLAME CUTTING

5.1 Compressed gas cylinders shall be moved, stored, and used in accordance with Section 6.4 of this manual.

5.2 Before a regulator is connected to a cylinder valve, the valve shall be opened slightly and closed immediately. This action is generally termed "cracking" and is intended to clear the valve of any duct or dirt that might otherwise enter the regulator. The person cracking the valve shall stand to one side of the outlet, not in front of it. The valve of a fuel gas cylinder shall not be cracked where the gas would reach welding work, sparks, flames, or other possible sources of ignition.

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- 5.3 The cylinder valve shall always be opened slowly to prevent damage to the regulator. For quick closing, valves on fuel cylinders shall not be opened more than 1-1/2 turns. When a special wrench is required it shall be left in position on the stem of the valve while the cylinder is in use so that fuel gas flow can be shut off quickly in the case of an emergency.
- 5.4 Oxygen and fuel gas pressure regulators, including their related gauges, shall be in good condition and proper working order while in use. Defective regulators shall not be used.
- 5.5 Before a regulator is removed from a cylinder valve, the cylinder valve shall always be closed and the gas released from the regulator.
- 5.6 All fuel gas and oxygen hoses in use shall be inspected at the beginning of each working shift. Defective hose, or hose in doubtful condition, shall be removed from service.
- 5.7 Flash back arrestors at the torch and a check valve at the fuel gas regulator are required to prevent dangerous flames from traveling back into the equipment.
- 5.8 Torches in use shall be inspected at the beginning of each working shift for leaking valves, hose couplings or tip connections. Defective torches, or torches in doubtful condition, shall not be used.
- 5.9 Torches shall be lighted by friction lighters or other approved devices, and not by matches or from hot work.

6.0 FLAME CUTTING SAFETY PRECAUTIONS

- 6.1 Always wear protective clothing suitable for the cutting operation.
- 6.2 Always wear approved cutting goggles with flame cutting. Use at least a number 3 filter with safety lenses on both sides of the filter. Infrared radiation from the flame or hot metal can injure eyes.
- 6.3 When flame cutting, sparks can travel 30 or 40 feet. Keep work areas clean and free from hazardous materials. Do not allow sparks to hit hoses, regulators or cylinders.
- 6.4 A suitable fire extinguisher shall be available in the immediate area when flame cutting.
- 6.5 If you must flame cut with combustible or volatile materials present, take extra precautions and provide for a fire watch.

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6.6 When using acetylene, never exceed 15 PSI on the torch side of the gauge. Higher pressure can cause an explosion.

6.7 Keep oil and grease away from oxygen regulators, hoses, and fittings. Oil and grease in contact with oxygen may cause spontaneous combustion.

7.0 VENTILATION AND PROTECTION IN WELDING AND CUTTING

7.1 Adequate ventilation, either natural or mechanical, shall be provided to clear fumes and smoke from the employees breathing zone.

7.2 Mechanical ventilation shall consist of either general mechanical ventilation systems or local exhaust system.

7.3 General mechanical ventilation shall be of sufficient capacity and so arranged as to produce the number of air changes necessary to maintain fumes and smoke within safe limits.

7.4 Local exhaust ventilation shall consist of freely movable hoods intended to be placed by the welder or cutter as close as practicable to work. This system shall be of sufficient capacity and so arranged as to remove fumes and smoke at the source and keep the concentration of them in the breathing zone within safe limits.

7.5 Contaminated air exhausted from a working space shall be discharged into the open air or otherwise clear of the source of intake air.

7.6 All air replacing that withdrawn shall be clean and respirable.

7.7 Oxygen shall not be used for ventilation purposes, comfort cooling, blowing dust from clothing, or for cleaning the work area.

8.0 WELDING, CUTTING, AND HEATING IN CONFINED SPACES

8.1 All work in confined spaces shall be performed in accordance with Section 6.5 of this manual.

8.2 Either general mechanical or local exhaust ventilation shall be provided whenever welding, cutting, or heating is performed in a confined space.

8.3 When sufficient ventilation cannot be obtained without blocking the means of access, employees in the confined space shall be protected by air line respirators in accordance with Section 6.20 of this manual.

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9.0 WELDING, CUTTING, OR HEATING METALS OF TOXIC SIGNIFICANCE

9.1 Welding, cutting, or heating in any enclosed spaces involving metals listed below shall be performed with either general mechanical or local exhaust ventilation.

- a. Zinc bearing base or filler metals or metals coated with zinc bearing materials.
- b. Lead base metals
- c. Cadmium bearing filler materials
- d. Chromium bearing metals or metals coated with chromium bearing materials

9.2 Welding, cutting or heating in any enclosed spaces involving the metals specified below shall be performed with local exhaust ventilation or employees shall be protected by air line respirators in accordance with Section 6.20 of this manual. Employees performing such operations in the open air shall be protected by filter type respirators except employees performing such operations on beryllium containing base or filler metals shall be protected by air line respirators. Other employees exposed to the same atmosphere as the welders or cutters shall be protected in the same manner.

- a. Metals containing lead, other than as in impurity, or metals coated with lead bearing materials.
- b. Cadmium bearing or cadmium coated base metals.
- c. Metals coated with mercury bearing metals.
- d. Beryllium containing base or filler metals. Because of its high toxicity, work in an enclosed space involving beryllium shall be done with both local exhaust and air line respirators.