



## **SECTION 2**

# **GENERAL SAFETY RULES**



1. **RESPONSIBILITY:** The following responsibilities are in addition to those assigned by Maul Electric, Inc Safety Manual.
  - A. **Field Managers:** The Field Manager shall conduct documented safety inspections at each construction site at a minimum frequency of once per month. Reports of the inspection shall be provided to Maul Electric, Inc Safety Director.
  - B. **Project Managers:** Project Managers shall conduct documented safety inspections for each project under their control monthly. The results of the inspection shall be retained in the job files and distributed to the President.
  - C. **Project Superintendents/Foremen:** Project Superintendents/ Foremen shall conduct documented weekly safety inspections of the job site. Results of the inspections shall be retained at the job site.
  - D. **Site Safety Representative:** The Company shall designate a Site Safety Representative. The Site Safety Representative shall be capable of identifying potential sanitary, safety, and health exposures to employees and is empowered to take any action required to eliminate the unsafe condition or action.
  - E. **Employees:** Employees shall be trained in the application of procedures outlined in this manual. Employees shall identify unsafe conditions or actions to their supervisor immediately. All employees shall work in a safe and environmentally sound manner. All accidents, incidents, occupational injuries, or illnesses shall be reported to the company immediately.
  - F. **Subcontractors:**
    1. Subcontractors will provide copies of all required insurance certificates, a current copy of their safety program, drug and alcohol program, hazard communication program, and an indexed set of Material Safety Data Sheets for hazardous materials used or stored



at the work site. These documents will be provided before mobilization and performance of any work at the site.

2. Subcontractors shall designate, in writing, a Site Safety Representative responsible for administration of the safety program and field compliance. The designated person must possess the ability to identify and resolve occupational safety and health issues on the site.
3. Subcontractors shall designate, in writing, any employee assigned to duties of competent person as required by Federal and State Occupational Safety and Health Standards. A copy of the letter of designation shall be provided to the Project Manager and shall be retained as part of the job file. The subcontractor shall assure that the designated individual meets the qualification of competent person as outlined by Federal and State standards and is empowered with the ability to take prompt and immediate action to correct unsafe actions and conditions. The competent person shall be on site at all times during the performance of related work.
4. Subcontractors shall provide trained and qualified employees for the performance of contract work and shall be responsible for employee compliance with the site and subcontractor safety program. All personnel protective equipment and training in the use, care, selection, inspection, and maintenance of personnel protective equipment is the responsibility of the subcontractor.
5. Subcontractors shall provide qualified and trained employees authorized to use tools and equipment required to complete the contract work.
6. Subcontractors will provide documented initial site hazard training to their employees and conduct documented weekly toolbox safety meetings for all employees. Subcontractors will provide documentation of all training to Maul Electric, Inc.
7. Subcontractors will attend all safety meetings called by the company.



**2. INCIDENT REPORTING AND INVESTIGATION:** All company and subcontractor employees will cooperate with any internal, client or regulatory agency accident/incident investigation.

**A. Incident Reporting:** All incidents and accidents resulting in injury or causing illness to employees and events (near-miss accidents) shall be reported in order to:

1. Establish a written record of factors that cause injuries and illnesses and occurrences (near misses) that might have resulted in injury or illness but did not, as well as property and vehicle damage.
2. Maintain a capability to promptly investigate incidents and events in order to initiate and support corrective and/or preventive action.
3. Provide statistical information for use in analyzing all phases of incidents and events.
4. Provide the means for complying with the reporting requirements for occupational injuries and illnesses.

The Incident Reporting System requirements apply to all incidences involving company employees, on-site vendors, contractor employees, and visitors, which result in (or might have resulted in) personal injury, illness, and/or property, and vehicle damage.

**B. Incidents (Occupational Injuries and Illnesses):** Injuries and illnesses that require reporting include those injuries and illnesses occurring on the job which result in any of the following: lost work time, restrictions in performing job duties, requirement for first aid, or outside medical attention, permanent physical bodily damages, or death. Examples of reportable injuries and illnesses include, but are not limited to, heat exhaustion from working in hot environments, strained back muscles from moving equipment, acid burns on fingers, etc.

Other incidents requiring reporting include those incidents occurring on the job which result in any of the following: injury or illness, damage to a vehicle, fire/explosion, property damage of more than \$100, or chemical releases requiring evacuation of at least that immediate spill area.

Examples of "non-reportable" injuries and illnesses include small paper cuts, common colds, and small bruises not resulting in work restrictions or requiring first aid or medical attention.

**C. Events (Near Misses):** Other incidents that, strictly by chance, do not result in actual or observable injury, illness, death, or property damage are required to be reported. The information obtained from such reporting can



be extremely useful in identifying and mitigating problems before they result in actual personal or property damage. Examples of near miss incidences required to be reported include the falling of a compressed gas cylinder, overexposures to chemical, biological, or physical agents (not resulting in an immediately observable manifestation of illness or injury), and slipping and falling on a wet surface without injury.

- D. Incident Reporting Procedures:** The following procedures are to be followed by all employees in order to effectively report occupational injuries and illnesses and other incidents or events.
- E. Incidents (Injuries and Illnesses):** Serious injury or illness posing a life-threatening situation shall be reported immediately to the local emergency response medical services (Call 911).

The injured employee shall report injuries and illnesses, to his or her supervisor in person or by phone as soon after any life-threatening situation has been addressed. If the injured employee is unable to report immediately, then the incident should be reported as soon as possible.

Upon notification of an occupational injury or illness, the supervisor should complete the Incident/Accident Report and forwarded it to the Safety Director.

Required incidents must be verbally reported to applicable regulatory agency(s) within 8 hours of their discovery. Incidents must also be reported to the client as soon as possible, or in a timely manner (within 24 hours of incident).

- F. Events:** Incidents not involving injury or illness, but resulting in property damage, must also be reported within 24 hours of the incident. In cases of a fire or explosion that cannot be controlled by one person, vehicular accident resulting in injury or more than \$500 worth of damage, or a chemical release requiring a building evacuation, the involved party must immediately report the incident to the emergency response services in the area (911 - police, fire, etc.).



All near miss incidences also must be reported on the Incident/Accident Report Form within 24 hours of occurrence. In place of indicating the result of the incident (i.e., actual personal or property damage), the reporting person shall indicate the avoided injury or damage.

Events, hazardous working conditions or situations, and incidents involving contractor personnel must be reported to the Safety Director immediately.

- G. Recordkeeping:** The Safety Director will maintain the required OSHA 300 Log and the OSHA 300a Summary of Work Related Injuries and Illnesses for each calendar year.

A company executive must certify that he or she has examined the OSHA 300 Log and that he or she reasonably believes, based on his or her knowledge of the process by which the information was recorded, that the annual summary is correct and complete.

Within 8 hours after the occurrence of an employment accident which is fatal to one or more employee or which results in hospitalization of three or more employees, Maul Electric, Inc shall report the accident either orally or in writing to the nearest Occupational Safety and Health Administration area office. The report shall relate the circumstances of the accident, the number of fatalities, and the extent of any injuries.

The OSHA 300a Summary of work related injuries and illnesses will be posted annually from February 1<sup>st</sup> thru April 30th for the previous calendar year. The OSHA 300 Log, the privacy case list (if one exists), the annual summary, and the OSHA 301 Incident Report forms must be retained for five (5) years following the end of the calendar year that these records cover.



- 3. ACCIDENT INVESTIGATION:** Accident prevention is the key to eliminating possibility of injury to employees and property loss. Learning from past accidents is one of the key elements in accident prevention. This chapter addresses the procedures to be followed for all accidents resulting in employee injury or property damage. All employees must be trained in their roles and responsibilities. All employees who could be first responders shall be current in first aid and CPR.
- A. Management:** will conduct accident prevention and investigation training for supervisors and ensure that all accidents and injuries are investigated, ensure immediate and long-term corrective actions are taken to prevent re-occurrence. The Safety Director will maintain Accident Reports permanently on file and ensure proper entries are made on the OSHA 300 Log and First Report of Injury. Management will provide all necessary medical care for injured workers
  - B. Safety Committee:** will review all Incident Report/Investigations and management responsible for the department involved ensuring pertinent information is transmitted to all concerned and remedial action taken.
  - C. Employees:** will immediately report all accidents & injuries and near misses to their supervisor and assist as requested in all accident investigations.
  - D. Supervisor Involvement:** Supervisors will conduct the investigation. Direct supervisors are familiar with employee's work environment & assigned tasks. The Supervisor is the person who must take the accident situation under control and immediately eliminate or control hazards to others. The Supervisor will document the investigation on the Incident/Accident Investigation Report. The Supervisor will take the following immediate steps:
    - 1. Provide First Aid for any injured persons.
    - 2. Eliminate or control hazards
    - 3. Document accident scene information to determine the cause.
    - 4. Interview witnesses immediately.
    - 5. Contact Safety Director.
  - E. Investigative Procedures:** The actual procedures used in a particular investigation depend on the nature and results of the accident. The Supervisor will gather evidence from many sources during an investigation. Get information from witnesses and reports as well as by observation. Interview witnesses as soon as possible after an accident. Inspect the accident site before any changes occur. Take photographs and make sketches of the accident scene. Record all pertinent data on maps. Get copies of all reports. Documents containing normal operating procedures, flow diagrams, maintenance charts, or reports of difficulties or abnormalities



are particularly useful. Keep complete and accurate notes. Record pre-accident conditions, the accident sequence, and post-accident conditions. In addition, document the location of victims, witnesses, machinery, energy sources, and hazardous materials. Equipment needed may include some or all of the following items; writing equipment such as paper and pens, measuring equipment, cameras, small tools, audio recorder, PPE, marking devices, etc...

- F. Problem Solving Techniques:** Accidents represent problems that must be solved through investigations. Several formal procedures solve problems of any degree of complexity. This section discusses two of the most common procedures: Change Analysis and Job Safety Analysis.
- G. Change Analysis:** As its name implies, this technique emphasizes change. To solve a problem, an investigator must look for deviations from the norm. Consider all problems to result from some unanticipated change. Make an analysis of the change to determine its causes. The following steps will be utilized:
1. Define the problem (What happened?).
  2. Establish the norm (What should have happened?).
  3. Identify, locate, and describe the change (What, where, when, to what extent).
  4. Specify what was and what was not affected.
  5. Identify the distinctive features of the change.
  6. List the possible causes.
  7. Select the most likely causes.
- H. Job Safety Analysis:** As discussed Section 3.3 a Job Safety Analysis (JSA) breaks a job into basic steps, and identifies the hazards associated with each step. The JSA also prescribes controls **for** each hazard. A JSA is a chart listing these steps, hazards, and controls. Review the JSA during the investigation if a JSA has been **conducted** for the job involved in an accident. Perform a JSA if one is not available. Perform a JSA as a part of the investigation to determine the events and conditions that led to the accident.
- I. Investigation Report:** An accident investigation is not complete until a report is prepared and submitted to proper authorities. An accident report should be clear and concise. The purpose of the investigation is to prevent future accidents. The completed Incident/Accident Investigation Report will be forwarded to the Safety Director.



All accident reports will be maintained on file permanently. Maul Electric, Inc will maintain a log and summary of all recordable occupational injuries and illnesses by calendar year. Each recordable injury and illness will be entered on the log and summary as early as practicable but no later than 6 working days after receiving information that a recordable injury or illness has occurred. They shall receive timely review by upper management to ensure proper corrective actions have been taken.

Written incident reports should be prepared and include an incident report form and a detailed narrative statement concerning the events. The format of the narrative report may include an introduction, methodology, summary of the incident, investigation board member names, narrative of the event, findings and recommendations. Photographs, witness statements, drawings, etc. should be included.

- J. Accident Prevention:** Accidents are usually complex. An accident may have 10 or more events that can be causes. A detailed analysis of an accident will normally reveal three cause levels: basic, indirect, and direct. At the lowest level, an accident results only when a person or object receives an amount of energy or hazardous material that cannot be absorbed safely. This energy or hazardous material is the **DIRECT CAUSE** of the accident. The direct cause is usually the result of one or more unsafe acts, or unsafe conditions, or both. Unsafe acts and conditions are the **INDIRECT CAUSES** or symptoms. In turn, indirect causes are usually traceable to poor management policies and decisions, or to personal or environmental factors. These are the **BASIC CAUSES**.

In spite of their complexity, most accidents are preventable by eliminating one or more causes. Accident investigations determine not only what happened, but also how and why. The information gained from these investigations can prevent recurrence of similar or perhaps more disastrous accidents. Accident investigators are interested in each event as well as in the sequence of events that led to an accident. The accident type is also important to the investigator. The recurrence of accidents of a particular type or those with common causes shows areas needing special accident prevention emphasis. Lessons learned should be reviewed and communicated. Changes to processes must be placed into effect to prevent reoccurrence or similar events.

In an attempt to reduce accidents periodic and regular inspections of jobsite, equipment and material will be conducted. These inspections or audits will identify and unsafe equipment and conditions. All employees will be instructed to avoid unsafe conditions. Should they be presented with unsafe conditions on the works, the employee will inform management.



## Health & Safety Policy and Procedures Manual

---

Only qualified employees shall be permitted to operate equipment. Any machinery, tool, equipment or material that is unsafe or presents an unsafe condition will immediately be removed from the worksite. If the equipment cannot be removed from the worksite it will be tagged and its controls will be locked out until the equipment can be repaired by a qualified individual.



**EMERGENCIES:** Each project will post emergency reporting numbers near telephones and in areas frequented by employees. All subcontractors will post emergency numbers for fire, police, rescue, and medical treatment facilities selected in the same manner. A copy of the subcontractor emergency listing will be provided to the company project superintendent

**A. Emergencies are defined as follows:**

- Occupational Injury and/or Illness
  - Fires
  - Environmental Incidents (spills, leaks, releases)
  - Vehicle Accidents
  - Equipment Accidents
  - Near Miss Incidents
1. Injuries, spills, chemical releases, leaks, and fires rapidly become life-threatening situations. Emergencies must be reported quickly and accurately to obtain the proper assistance. Failure to report emergencies immediately may result in excess property damage, employee exposure to illness and injury, releases to the atmosphere and surrounding communities.
  2. Employees must be aware of our company and client procedures prior to field assignment. The Project Superintendent shall insure that our employees are knowledgeable of client and company procedures. Emergencies shall be reported to the Regional Safety Director immediately.
  3. The following are general guidelines for reporting: **(Be clear and concise. Don't panic)**
    - a) State your name
    - b) Location of the emergency
    - c) Nature of the emergency and materials involved.
    - d) Type of injury
    - e) If possible, remain in the area and provide direction to location to the Emergency Response Teams.
    - f) Do not interfere with Emergency Response Teams.



**SPECIAL NOTE: Injuries, spills, chemical releases, leaks and fires can rapidly evolve to a life-threatening situation. Your primary responsibility is to report the emergency quickly and secure the appropriate assistance. Do not wait to contact your supervisor. Failure to report emergencies immediately may result in well-intentioned individuals being overwhelmed by what was initially thought to be a "small problem."**

- 5. EMERGENCY RESPONSE:** It is imperative that our employees understand that their role in emergency response is limited, primarily, to reporting and securing assistance. In most cases, our client's procedures require you to follow their emergency notification plan, provide direction to the site (if possible) and evacuate to a safe location as specified in their Site Emergency Evacuation Plan. Once at the form up area, remain in place and follow instructions. A head count will be conducted and, if you are missing, Emergency Responders may be placed at unnecessary risk trying to locate you.
- A. OSHA References:** 29CFR 1910.38, 29CFR 1910.119, 29CFR 1910.120, 29 CFR 1926.65
- B. FIRE CONTROL**
1. In the event of fire, follow the site emergency notification plan posted in this section of the manual.
  2. Those individuals assigned to fire watch duties are primarily responsible for spark containment and incipient stage quenching of materials that may have ignited due to hot spark contact. Remember you are not trained or equipped for fire fighting duties; immediate notification of emergency personnel is required.
  3. The area must be evacuated by following the Site Emergency Evacuation Plan. If your assistance is needed by trained Emergency Responders, it will be requested. Your presence, whether well intentioned or out of curiosity, constitutes an additional hazard and concern to Emergency Responders.
  4. Only Halon, Carbon Dioxide or Purple K dry powder extinguishers must be used on or near electrical equipment fires. Special care must be exercised to insure that water does not come in contact with an open electrical bus or circuit.
  5. The use of water in chemical or oil production and storage areas must be carefully evaluated. Many chemicals and hot oils react



violently when in contact with water. Water can rapidly spread oil and gasoline fires. If needed, firewater should be applied in a fog pattern, not a direct steady stream.

6. If hazardous materials are involved in an incident, or may potentially become involved. The Material Safety Data Sheets shall be provided to the Emergency Responders.

### **C. FIRE FIGHTING EQUIPMENT AND CONTROL DEVICES**

1. All electrical equipment and motorized vehicles operated within the confines of a client's property must be equipped with fire extinguishers.
2. Fire fighting equipment must be readily accessible and not blocked by tools, vehicles, debris, or equipment.
3. Use of emergency fire fighting equipment for any purpose other than an emergency situation is prohibited.
4. Client's Safety Procedures must be consulted for instructions on use of fire hydrants, lines, and standpipes.
5. Horseplay, involving firewater and hoses, will not be tolerated.
6. Any person or persons that may need to use a fire extinguisher shall be trained in the general use of fire extinguishers and the hazards of incipient fire fighting. Where the employer has provided portable fire extinguishers for employees use in the workplace, Maul Electric, Inc shall provide training to familiarize employees with the general principles of fire extinguisher use and the hazards involved in incipient stage fire fighting. Employees shall receiving training upon initial assignment and at least annually thereafter
7. Any fire extinguisher that is empty, partially used or commissioned must be returned to the Foreman immediately for recharge and replacement.
8. The client's designated representative must be notified if emergency equipment is partially or fully discharged, or requires relocation, and removal to facilitate equipment installation.
9. Fire alarms, fire detectors, smoke detectors, and other emergency signaling devices may not be disconnected or relocated without the express approval of the client's designated representative.



10. Fire alarms and smoke detectors, installed in Maul Electric, Inc trailers or work locations must be
11. Inspected and tested monthly. Records of these inspections will be kept at the job site and a copy submitted to the main office.
12. Maul Electric, Inc assigned portable fire extinguishers must be visually inspected monthly for charge and condition of cylinder and hose. Corroded and partially discharged equipment must be returned immediately. Maul Electric, Inc assigned portable fire extinguishers must also have an annual maintenance check performed. These inspections will be documented and kept on file at the site office, a copy will be sent to the main office.
13. Fire extinguishers used for fire watch duties must be inspected at least daily, at the beginning and end of each daily job. Defective, damaged, or discharged equipment must be returned to the Foreman and replaced immediately.

**6. FIRST AID:** The purpose of this chapter is to provide general information regarding First Aid. It is not our intent to train, qualify or certify Maul Electric, Inc's employees as First Aid Personnel or Emergency Responders. All Maul Electric, Inc employees are reminded that their primary duty in the event of an injury or illness is to get help from qualified Emergency Responders!

Maul Electric, Inc employees having a valid certificate in first aid / CPR/ AED training, the National Safety Council or equivalent shall be available at work sites to render emergency first aid.

Provisions shall be made prior to commencement of a project for prompt medical attention in case of serious injury. A competent person will be assigned to post the emergency phone numbers for physicians, hospitals and ambulances and directions to medical facilities around the site so that they are accessible to all employees.

Proper equipment for prompt transportation of injured persons to a physician or hospital or a communication system for contacting necessary ambulance service shall be provided.

**At least one First Aid Kit per 25 employees will be on each jobsite. The kit will be in an environmentally controlled location and clearly marked as to its whereabouts at the site. The first aid kit shall be readily accessible at all times.**



All Safety Kits will be checked prior to shipment to jobsite.

All First Aid Kits will be visually inspected on at least a weekly basis by a competent person assigned this duty prior to start of job.

A complete list of all First Aid items, will be provided by the site (**see appendix G**)

First Aid kits shall be stored in a weatherproof container with individual sealed packages of each type of item per ANSI Standard Z308.1-1998 or Appendix A of CFR 1910.151(Aug98).

In addition one employee on site will be currently certified in Standard First Aid / CPR / AED.

Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for flushing of eyes or body shall be provided within the work area.

**Maul Electric, Inc** will provide appropriate PPE in accordance with the 1910.1030(d) (3) "occupational exposure to Blood Borne Pathogens" to employees that may be exposed to blood or other potentially infectious materials. For more information on Blood Borne Pathogens please refer to 29 CFR 1910.1030.

**A.** OSHA References: 29 CFR 1926.21, 29 CFR 1910.1030

**B.** Artificial Resuscitation

1. Check for consciousness.
2. Call 9-1-1
3. Check for breathing.
  - a) Position victim on back on hard surface.
  - b) Provide 30 chest compressions
  - c) Open airway using head tilt and chin lift.
  - d) Pinch nose shut.
  - e) Seal your lips tightly around person's mouth.
  - f) Give 2 slow breaths.
4. Check for severe bleeding, "head to toe".
5. Find hand position.
  - a) Place palm of hand between nipples.
  - b) Place free hand onto of other hand and interlock fingers
  - c) Keep fingers off chest.
  - d) Give 30 compressions and 2 breaths.
  - e) Compress down and ups smoothly, keeping hand contact with chest at all times.



- f) Watch chest to see that your breaths go in.
  6. Repeat compression / breathing cycles.
  7. Continue compressing / Breathing Cycles until:
    - a) Victim begins to move
    - b) An AED is brought to the scene and is ready to use
    - c) Professional help arrives and takes over
    - d) You are too exhausted to continue
- C. Burns:** The rapid stabilization and transport of burn victims is extremely important.
1. **Care for burns:** Three basic steps:
    - a) Stop the burning.
    - b) Cool the burn.
    - c) Cover the burn.
  2. **Do's:**
    - a) Do cool a burn by flushing with water.
    - b) Do cover the burn with a dry clean covering, such as a sterile dressing.
    - c) Do keep the victim comfortable and from being chilled or over heated.
  3. **Don'ts:**
    - a) Don't apply ice directly to any burn, unless it is very minor.
    - b) Don't touch a burn with anything except a clean covering.
    - c) Don't remove pieces of cloth that stick to the burned area.
    - d) Don't try to clean a severe burn.
    - e) Don't break blisters.
    - f) Don't use any kind of ointment (or butter) on a severe burn.
- D. Chemical Burns – Splash, to Skin or Eyes.**
1. Flush the burn with large amounts of cool running water until the ambulance arrives.
  2. Have victim take off any clothes with the chemical on them, if possible.
  3. If only one eye has been exposed to the chemical, flush the affected eye from the nose outward to prevent washing the chemical into the unaffected eye.



4. Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities shall be provided within the work area and shall be inspected on a weekly basis.

### **E. Electrical Burns:**

1. Sources of electricity include: power lines, lighting, defective electrical household equipment, and unprotected electrical outlets.
2. The burns are often deep and have **two** wounds, one where the current entered the body and one where it left.
3. Never go near a victim you think has been injured by electricity until you're sure the power has been turned off.
4. With an electrical burn, the burn itself will not be the major problem; check breathing and pulse if victim is unconscious. Check for other injuries such as possible fractures, or spinal injury. **DO NOT MOVE THEM.**
5. Cover an electrical burn with a dry, sterile dressing but do not cool the burn. Keep the victim from getting chilled.

### **7. HOUSEKEEPING:** Many injuries and incidents, at work or in the home, have been caused by poor housekeeping. Housekeeping is the responsibility of all MAUL ELECTRIC, INC employees.

- A.** OSHA Reference 29CFR 1926.25
- B.** Job sites and work locations must be kept clean of all debris.
- C.** Hoses and electrical lines must be laid out to minimize tripping hazards in walkways or other traffic areas. Lines shall not interfere with pedestrian or vehicular traffic.
- D.** All job sites must be cleaned at the end of each day, at any time-accumulated debris, or equipment constitutes a safety or health problem, or at the completion of the job assignment, whichever comes first.
- E.** Oil or chemical spills must be cleaned and reported immediately. If spills cannot be promptly cleaned, they must be barricaded or warning taped off to prevent access. Clients must be notified.
- F.** Oily rags and debris must be disposed of in proper metal covered containers.
- G.** Water and/or ice shall be cleared from the work area. Ice accumulation overhead, on scaffolding, ladders, steel under erection, and walking



surfaces is extremely hazardous and shall be cleared before beginning work in the affected areas.

- H.** Electrical cords and hoses must be coiled and stored out of the traffic area at the completion of the job or workday whichever comes first.
- I.** Exposed nails must be bent over or pulled and all lumber stacked neatly.
- J.** Oils, solvents, chemicals, etc., will not be dumped on the ground or in sewer.
- K.** The client's procedures for disposing of recyclables, trash, oils, solvents, chemicals, or contaminated trash and equipment must be followed.



- 8. BARRICADES AND WARNING DEVICES:** Barricades provide a substantial barrier that obstructs the normal passage of equipment and personnel. It cannot be disturbed or moved by natural elements. Warning tape and barrels and drums, etc., do not constitute a barricade, they are considered warning devices. Subcontractors supplying non-English speaking employees are responsible to post multi-lingual signage. Failure to heed or circumventing a barricade and warning devices will result in disciplinary action.
- A.** OSHA Reference 29 CFR 1926.202, 29 CFR 1926.203
  - B.** Unattended excavations or floor openings must be barricaded or covered with planks, steel plates or other suitable material to prevent accidental entry.
  - C.** Night warning lights must be placed at all excavation sites.
  - D.** Handrails, guardrails, hatch covers, or floor opening covers, temporarily removed to facilitate work, must be replaced promptly at the end of the work period or as soon as the need for the opening has ended.
  - E.** If guardrails, handrails, or floor opening covers have been removed, fall protection is required while working in the area.
  - F.** Ladder access to platforms must be guarded with chains or bars and securely fastened when working on platforms. Floor openings must also be closed and secured.
  - G.** Equipment and vehicles left on access roads or alleyways over night must be identified to the client's designated representative and marked with flashing lights over night.
  - H.** Barricades and or warning devices must be used whenever work is performed above a road, walkway, or machinery.
  - I.** Yellow warning tape must be used to restrict access to areas immediately beneath overhead work.
  - J.** Barricades or warning devices must be used to protect workers from contact with the swing or rotation of construction equipment, i.e. cranes.
  - K.** Oil spills and overhead ice and iced walking areas must be marked with warning tape to restrict access.
  - L.** Radiography work must be isolated with the client specified warning device and approved warning signs.



- 9. SMOKING:** Many of our client's locations restrict smoking to designated areas or ban smoking entirely. Compliance with our client's policy on smoking is mandatory. Failure to comply shall result in termination.
- A. Smoking in vehicles, operating within the confines of our client's property is also prohibited.
  - B. Open top butane type lighters and "strike anywhere" type matches are prohibited in most refineries and chemical production and storage areas. Check client's policy for further restrictions.
  - C. "Smokeless" tobacco, snuff, etc. may not be allowed while working in facilities packaging or producing products under FDA regulation.
  - D. Where smoking is permitted, sand filled buckets shall be provided for disposal.
- 10. VEHICLE INSPECTION AND OPERATION:** All Maul Electric, Inc vehicles are expected to be operated in a safe manner and in full compliance with traffic regulations and laws. A valid driver's license is required to operate motor vehicles in the community or work site.
- A. OSHA Reference: 29 CFR 1926.601
  - B. The following items are also required:
    - 1. All vehicles will be inspected daily, prior to use (see attached form). Discrepancies will be noted and vehicles will not be operated until repairs are made.
    - 2. Vehicles will be operated within the posted speed limits on or off site.
    - 3. Drivers will yield to pedestrians.
    - 4. Vehicle access to the operating areas of our clients is generally restricted. Special permits may be required for vehicle entry. Consult the client's Safety Policy and Procedures Manual for further information.
    - 5. Vehicles may not be parked or spotted in a manner that would restrict access by Emergency Response Personnel or without prior approval of the client's designated representative.



6. Vehicles will not be parked or spotted in a manner that would restrict access to emergency equipment, i.e. fire hydrants, extinguishers, safety showers, and eyewash.
7. Vehicles will not be left running and unattended.
8. Seat belts and harnesses will be worn in all company vehicles.
9. Personnel will not be transported in cranes, forklifts or other construction equipment not specifically designed for the transportation of personnel.
10. Accidents involving company vehicles must be reported immediately.



**VEHICLE SAFETY INSPECTION CHECKLIST**

**YES   NO**

1. HEAD LAMPS FUNCTIONING
2. DIRECTIONAL SIGNALS OK (FRONT)
3. DIRECTIONAL SIGNALS OK (REAR)
4. PARKING BREAK WORKING
5. BREAK LIGHTS WORKING
6. TIRES INFLATED WITH ADEQUATE TREAD
7. WINDSHIELD CLEAN
8. WIPERS FUNCTIONAL
9. FIRE EXTINGUISHER CHARGED AND AVAILABLE
10. SEAT BELTS AND HARNESS OPERATIONAL
11. INSPECTION STICKER CURRENT
12. MIRRORS FUNCTIONAL
13. BACK UP ALARMS ARE FUNCTIONING

\_\_\_\_\_  
(name and employee number)

This form must be returned to the Foreman.



- 11. WORKING ON OR NEAR RAILROAD EQUIPMENT** When working near railroad tracks, railroad cars, or on railroad equipment, the following special precautions are required.
- A. Tools, scaffolding, equipment, vehicles, etc. must not be placed closer than 8 feet, 6 inches from the center line of the track or 22 feet 8 inches vertically from the tie of the track. (EXCEPTION: If the track is certified out of service by the client's designated representatives, an exception may be made providing the restrictions outlined in Paragraph E of this section are complied with).
  - B. Tools and equipment must not be laid across tracks, under, over, or between rail cars.
  - C. Climbing over, under, or between rail cars is strictly prohibited. Rail cars move without warning.
  - D. Railroad tracks and cars must never be used as anchors for tying down equipment or grounding of welding equipment.
  - E. If work must be performed on tracks, permission must be obtained from the client's designated representative and Maul Electric, Inc Site Supervisor. Red flags must be placed on the tracks 200 feet in front and behind the work area and de-rails installed at the flag locations.
  - F. Stationary rail cars must be chocked and the brakes set.
  - G. Work shall not be performed between connected rail cars.
- 12. Working Near Traffic Areas:** When working near streets, roadways, or other traffic areas, coordination with local law enforcement agencies or facility security is required.
- A. Signs will be placed advising motorists of contraction.
  - B. All employees working near vehicular traffic shall be clearly identified with traffic vests.
  - C. Flagmen and traffic warning devices shall be provided as required.
- 13. General Electric Rules:** The following are provided as general rules regarding electrical work and electrically powered equipment. They are not all inclusive and more specific rules can be found in the referenced OSHA standards, the National Electrical Code, and our clients' Safety, Health and Environmental Procedures Manuals.



A. OSHA References: OSHA 29 CFR Subpart S, OSHA 29CFR 1910.147, OSHA 29CFR 1926 Subpart K, The National Electrical Code

B. GENERAL SAFETY CONDUCT

1. Only authorized and qualified personnel are permitted to energize and de-energize electrical circuits and the standards governing this activity must be strictly followed.
2. All wires must be regarded as live and dangerous.
3. All electrical substations, motor control centers, rooms, and vaults as well as work areas around exposed energized electrical parts must be kept clean and free from debris and water accumulation.
4. Electrical substations, vaults, rooms, and motor control centers shall not be used for storage of tools and/or equipment.
5. Only approved non-conductive ladders may be used in or near electrical transmission devices, exposed energized circuits, substations, motor control centers, rooms, and vaults.
6. Only non-conductive plastic headwear is approved for use during electrical work. **Conductive jewelry must not be worn.**
7. Extreme care must be exercised to prevent objects from coming in contact with electrical transmission equipment.

C. GUARDING OF LIVE PARTS

1. Live parts operating at 50 volts or more shall be guarded against accidental contact by approved cabinets or other forms of approved enclosures.
2. Access to motor control centers, vaults, rooms, substations etc., housing live parts operating at 50 volts or more is restricted to qualified persons **only**.
3. Motor control centers, substations, vaults, and rooms housing live parts operating at 50 volts or more must be kept locked or attended to prevent entry by other than qualified persons.
4. Sufficient headroom and front working space shall be provided if there are live parts exposed on the front of switchboards or motor control centers. (Consult 29CFR1926.403, Tables K-1, K-2 and K-3 for voltage and clearance data)



5. Warning signs of high voltage must be posted where other than qualified persons might come in contact with exposed live parts in excess of 600 volts.

### **D. GROUNDING (Consult Section 19 and 20 of this manual)**

1. Stationary or portable electrical equipment must be properly grounded.
2. Grounding connector pins must not be removed from equipment plugs.
3. Lamps used for illumination must be protected from breakage and metal shell sockets must be grounded
4. All tools, portable lighting, and electrical equipment used by Maul Electric, Inc employees on construction sites will be protected by GFCIs.
5. Temporary electrical power at all company locations will be equipped with a GFCI. GFCIs must receive a documented inspection monthly by a competent person. Power connections on sites not equipped with GFCI circuit breakers or outlets must be connected to a temporary GFCI outlet cords. **THERE ARE NO EXCEPTIONS.**

### **E. ELECTRICAL EXTENSION CORDS AND TEMPORARY WIRING**

1. Electrical extension cords must be inspected prior to each use. Worn or frayed cords will be removed and discarded immediately.
2. Extreme care must be taken to insure that extension cords or other temporary wiring is not draped or laid across hot surfaces in pipe racks (i.e. steam tracing).
3. Extension cords must not be fastened with staples, hung from nails, suspended by wires, installed above drop ceilings or below carpeting.
4. Extension cords must not be run across roadways or other traffic areas without suitable protection from damage.
5. Extension cords and temporary wiring must be removed as soon as possible.



6. Extension cords and temporary wiring will not be laid out so that it creates a tripping hazard in high traffic areas.
7. Extension cords and power source cords for tools will not be used to lift, hoist or carry equipment.
8. Extension cords must be of the three-wire type and designed for hard or extra hard usage (i.e. types S, ST and SO).
9. Temporary lights must not be suspended by their cords unless they are so designed.
10. Temporary Lighting shall be installed in accordance with the National Electric Code. Two conductor wiring, BX, or Romex cable are not acceptable.
11. Separate branch circuits shall be used for lighting and power. Power cannot be taken from temporary lighting circuits or fixtures.

### **F. SPECIAL REQUIREMENTS FOR ELECTRICAL EQUIPMENT:**

1. Only approved, intrinsically safe electrical equipment may be used in areas when the potential for explosive or flammable mixtures may exist. Many of Maul Electric, Inc clients allow the use of electrical equipment in restricted areas by use of gas testing and permitting for hot work procedures. Refer to the client's Safety, Health, and Environmental Policies for more information.
2. Tape recorders, players, disc players, portable radios, hand held TV's, pocket calculators, and flash devices for cameras etc. are prohibited in the work place without prior approval of the client's designated representative and Maul Electric, Inc Site Supervisor or Foreman.
3. All electrical conduits must be supported and sealed per client specifications.
4. All explosion proof boxes must be fully sealed and bolted per client and manufacturer's specifications.
5. All electrical circuit housings must be tightly sealed per client and manufacturer's specifications.
6. Opening or exposing electrical circuits may be considered as "Hot Work" by our clients and require gas testing and permits. Consult



the client's Safety, Health, and Environmental Policy prior to opening or exposing any electrical circuit.

**B. LOCKOUT AND TAG OUT. (Refer to Section 5, Control of Hazardous Energy Policy, for detailed information.)**

1. Equipment circuits that are de-energized must be locked out in accordance with the client and Maul Electric, Inc Control of Hazardous Energy Policy.
2. Circuits that cannot be locked out must be tagged with an approved tag.
3. Specific approval is required by Maul Electric, Inc Site Supervisor and the Control of Hazardous Energy Policy must be consulted.

**C. VEHICLES AND MECHANICAL EQUIPMENT:** Vehicles and mechanical equipment which may come in contact with energized lines must maintain a 10 foot minimum clearance **PLUS** 4 inches for each 10kV over 50kV. In transit, equipment must maintain 4 feet of clearance plus 4 inches for every 10kV over 50 kV.

**D. APPROACH DISTANCES:**

1. When unqualified persons are working in an elevated position or at grade, in the vicinity of energized overhead lines, they may not bring any conductive tool or equipment closer than:
  - a) Voltages to ground of 50kV or below - 10 feet.
  - b) Over 50kV - 10 feet plus 4 inches for every 10kV over 50kV
2. When qualified persons are working in the vicinity of overhead lines, whether elevated or at grade, they may not approach a conductive item without an approved insulating handle closer than:

<b>Electrical Voltage</b>	<b>Distance</b>
400V and less	Avoid Contact
Over 300 V, less than 750V	1 foot
Over 750V, less than 2kV	1 foot 6 inches
Over 2kV, less than 15kV	2 feet
Over 15kV, less than 37kV	3 feet
Over 37kV, less than 87.5kV	3 feet 6 inches
Over 87.5kV, less than 121kV	4 feet
Over 121kV, less than 140kV	4 feet 6 inches



- G. **ILLUMINATION:** Illumination in electrical equipment rooms must be no less than 10-foot candles, while any work is in progress. For Demolition and General construction work illumination must be no less than 5-foot candles

**14. MATERIAL SUBSTITUTION:** Design specifications for materials used in construction and repair of equipment are subjected to industry standards, engineering standards, hazard analysis, and compatibility with the process material.

Substitutions for materials required in client's specifications, i.e. gasket material; pressure rating of valves and flanges; material composition; stud or bolt size and rating etc., are specifically prohibited without the express written approval of the client's designated representative and a Maul Electric, Inc Site Supervisor.

- A. OSHA Reference 29CFR-1910.119

**15. RADIOGRAPHIC WORK AND RADIOACTIVE MATERIAL:** Radioactive materials are used in several of our client's facilities. In petrochemical facilities, they are primarily used in vessel level devices, and radiography work. Ionizing radiation emitted by radioactive materials and x-ray equipment is capable of causing damage to the body if not properly used and controlled. The following general rules have been established.

- A. OSHA reference: 29 CFR 1926.53
- B. All client's applicable rules and regulations regarding the use of radioactive materials and devices must be strictly adhered to.
- C. Only those properly licensed and registered with the State and Federal Regulatory Agency.
- D. Government will be permitted to use radiographic or x-ray equipment.
- E. Radioactive source containers must be properly identified with a sign, type of source, source strength, date of measurement, etc. All x-ray equipment must be provided with the proper warning signs, shielding, and interlocks and must be operated within the design parameters to minimize leakage and potential overexposure to ionizing radiation.
- F. Radioactive sources must never be left exposed or unattended.



- G. Areas of radiography work must be barricaded or warning taped, with appropriate warning signs, and cleared of personnel prior to exposing the source.
  - H. Regardless of reason, all Maul Electric, Inc employees are prohibited from entering areas barricaded or restricted for ongoing radiography work.
  - I. Individuals who have been potentially exposed to ionizing radiation must immediately report the incident to their Foreman and/or Site Supervisor.
  - J. Subcontractors of Maul Electric, Inc must be competent, licensed, registered, and familiar with Maul Electric, Inc Safety Procedures and client mandated Safety Procedures before being allowed to perform radiographic work.
  - K. All accidents or incidents involving radioactive material and or equipment must be immediately reported to the client's Radiation Protection Officer and Maul Electric, Inc Safety Director.
- 16. COMPRESSED AIR USE:** Compressed air supplied for instrumentation or utilities shall not be used as a supply for breathing air. Chemicals, liquids, inert gases, or other contaminants have been known to enter into these systems. In some cases, a plant compressed air system may be backed up by nitrogen or other inert gases in the event of compressed air system failure.
- A. Compressed air, oxygen, or gas will not be used to clean clothes, work surfaces, or skin.
  - B. Compressed air supplied for plant utilities must not be used as a source for air-operated tools used in confined spaces.
  - C. Compressed air used for pneumatic tools, exhaust fans, air movers, etc., and must be provided by a compressor with a proper filtration system.
  - D. Extreme care must be utilized when locating a compressor and filtration system for use in confined spaces to insure that exhaust fumes from vehicles or vapors and mists from chemicals will not enter the system.
  - E. Compressed air used in spray operations must be reduced to 30 PSI.



## 17. MATERIAL HANDLING AND STORAGE:

### A. General Requirements:

- a. Maximum safe load limits in pounds per square feet must be posted in all storage areas within buildings and structures except floors or slabs.
- b. Aisle and passageways must be kept clear for free and safe movement of material handling equipment and employees.
- c. Materials must not be placed within six feet of hoist way or floor opening or within 10 feet of exterior wall, which do not extend above the top of the material stored.
- d. Non – compatible materials must be separated in storage.
- e. Bagged materials must be stacked by stepping back the layers and cross laying the bags at least ten bags high.
- f. Materials must not be stored on scaffolds or runways in excess of supplies needed for immediate operations.
- g. Brick stacks must be a maximum of seven feet high. When loose brick stacks reach a height of four feet, they will be tapered back two inches in every foot above the four-foot level.
- h. When masonry blocks are stacked higher than six feet, the stack shall be tapered back one-half block per tier above the six-foot level.
- i. Structural steel, poles, pipe, and other cylindrical materials, unless racked, will be stacked and blocked.
- j. Lumber piles must not exceed 20 feet in height or 16 feet when lumber is to be handled manually.