



Employee's Field Safety Guide

June 2025

At American Power, We Work Safe

Three Things We Want You to Know About This Guide

1. This guide was written for you as a resource to help you stay safe and incident free.
2. There is nothing in this guide that is unimportant.
3. Nothing in this guide will help you stay injury and incident free unless you choose to work that way.

It's Up to You

As a construction professional your value to the industry is demonstrated by the quality of your work and the manner in which you perform it, no matter what your classification is. American Power is committed to providing our clients a quality product, delivered on time without incident. We will provide you the resources to meet that goal. The rest is up to you.

The American Power Safety, Health and Environmental Mission Statement

American Power demonstrates our commitment to Safety and Health by consistently and effectively evaluating our workplaces for risks; responding with proactive processes and procedures to protect our employees, our clients and the public and to minimize our impact on the environment.

Organization of the American Power Field Safety Guide

For convenience this Field Safety Guide has been developed to allow convenient, portable access to safety rules and safety guidance for workers in the field. A topical index to guide the user can be found on the last page. Occasionally client utilities have safety rules that we are required to follow. Where rules in this guide are more stringent than client rules or OSHA rules, the rules as written in this manual will be followed. This guide is also available in .pdf format.

Key Safety Concepts

Incident – an undesired event that results in damage or injury.

Good Catch – recognition by an employee of a condition or situation that had the potential to cause an incident but did not cause one due to corrective action and/or timely intervention by the employee.

Near-Miss – an event that occurred that could have, or almost resulted in damage or injury.

Safety - The identification and management of hazardous conditions to prevent incidents and injuries.

Accountability

Every employee is responsible for safety in the workplace. The American Power safety program is affected by every employee's actions or inaction regarding safety. This Field Safety Guide and the American Power Corporate Safety and Health program on which it is modeled are the guides employees use to help ensure safety. Safety is not an accident. You must take an active role to ensure your safety and the safety of those around you. Read this manual and keep it handy. Refer to it each day when assessing your tasks. Ask questions and thoroughly examine your workplace for hazards and proactively prevent incidents by taking the steps necessary to prevent them.

Policy

Safety is a core corporate value. An attitude of safety consciousness is expected throughout the organization such that safe work practices take precedence over shortcuts and expediency.

American Power is committed to the safety and health of all individuals working on our projects. Our highest priority is implementing safe work practices and ensuring the well-being of every person on our sites. Every company employee is responsible for adhering to these policies, programs and procedures to maintain the safest possible workplace.

Safety Responsibility and Conduct

Employees

- Maintain personal safety awareness and assist coworkers in maintaining safety awareness by exercising reasonable caution in all activities on or away from the job.
- Know and follow the rules that affect your jobsite.
- Participate in Safety Meetings and T.R.A.C.K./pre-task planning.
- Ask questions when faced with work tasks not familiar to you.
- Do not operate equipment you are not authorized by your supervisor to operate.
- Report incidents, injuries, near-misses, unsafe conditions, and good catches to supervisors immediately.
- Cooperate in accident and incident investigations to determine cause and eliminate incidents.
- Protect yourself, your coworkers and others from risks associated with your work by identifying risks and taking steps to control or eliminate them.

Supervisors

- Ensure that your employees' actions comply with applicable local, state and federal governmental regulations and the American Power safety and health policies and procedures.
- Ensure that your employees have the knowledge and training necessary to perform tasks safely.
- Ensure your equipment operators are competent and properly trained and where required properly licensed.
- Ensure weekly Safety Meetings are conducted, valued by the crew and useful in promoting a safe workplace.
- Take immediate action to eliminate hazards and establish an incident/injury free work environment.
- Ensure T.R.A.C.K. discussions are held, that they are effective and properly documented.
- Know, promote and enforce the rules.
- Immediately report incidents, injuries, near-misses, and good catches.
- Support and participate in incident investigations
- Inspect work areas and equipment regularly for safety issues to identify and correct issues.
- Conduct through regular supervision and inspections, on at least an annual basis, that each employee is complying with the safety-related work practices required by this manual.
- Protect yourself, your employees, co-workers, and others from risks associated with our work by identifying risks and taking steps to control or eliminate them.

Managers

- Regularly review this guide.
- Support safety as an American Power value.
- Provide resources necessary for a safe workplace.
- Mentor supervisors toward better safety leadership.
- Promote a positive safety culture in the workplace.
- Support the American Power Safety Policy and Mission Statement.

Safe Practices and This Guide

All work tasks have some element of risk. This guide has been prepared as basic guidance toward a safe workplace and addresses as many task-related risks as possible. Like all safety manuals, there will be times that your specific question may not be answered in these pages. Seek guidance on those occasions. Discuss the task with your co-workers seeking the safest way possible to work by eliminating or controlling risks. If your team cannot resolve the issue, ask the advice of your supervision. If they can't guide you toward a reasonable procedure, they will call Safety and ask for assistance in working out a safe practice. Safe Practice is the rule. Do not proceed with your work if you are not sure you have the best information and plan available.

Use of Intoxicating Substances

Intoxication as used in safety and protection of employees and the public means being under the influence of any drug, drink or substance that compromises judgment, decision making and motor controls such that it is less safe to work.

Being intoxicated, becoming intoxicated or bringing intoxicating substances onto a jobsite is strictly prohibited.

All employees undergo pre-employment screening for drug use and are subject to random as well as reasonable suspicion drug or alcohol screens as provided in the American Power Drug and Alcohol Testing Program.

General Safety Rules

- Examine every task for hazards regardless of the time it takes.
- Make sure that each job has been adequately planned, hazards identified, understood and controlled.
- Correct unsafe conditions immediately if it is safe to do so. Always report all unsafe conditions to your immediate supervisor.
- Routinely perform housekeeping to eliminate hazards.
- Inspect tools and equipment and use the correct tools and equipment for the job.
- Report all incidents/injuries or near-misses, no matter how minor, to your supervisor immediately.
- Do not operate machines or equipment unless you are properly trained and authorized.
- Wear prescribed PPE and or required protective clothing and keep clothing and equipment in good condition.
- Do not engage in horseplay or allow distractions to create hazardous conditions.
- Know and follow the rules.
- Pre-plan for emergencies; know what procedures to follow for each job site.
- Insist on jobsite safety orientations.
- Be sure employees have the proper safety training.
- Attend and participate in safety meetings.

Training and Qualification

Supervisors and managers shall ensure that employees are properly qualified for the tasks they are to perform. Employees shall provide evidence of competency through a successfully completed registered apprenticeship. New employees shall be observed as necessary to verify task related competencies.

All employees shall demonstrate basic electrical qualification as follows:

- Each employee shall be trained in, and familiar with, the safety-related work practices, safety procedures, and other safety requirements in this section that pertain to his or her job assignments.
- The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment,
- The skills and techniques necessary to determine the nominal voltage of exposed live parts,
- The minimum approach distances specified in this section corresponding to the voltages to which the qualified employee will be exposed and the skills and techniques necessary to maintain those distances,
- The proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electric equipment, and
- The recognition of electrical hazards to which the employee may be exposed and the skills and techniques necessary to control or avoid these hazards.

Additional Training

An employee shall receive additional training (or retraining) under any of the following conditions:

- If the required supervision or annual inspections indicate that the employee is not complying with the safety-related work practices identified in this manual, or
- If new technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different from those which the employee would normally use, or
- If he or she must employ safety-related work practices that are not normally used during his or her regular job duties.

Training of employees shall be documented in the American Power Employee Training Tracking System and updated on a regular basis. Training records shall be maintained as long as the employee is actively employed and for three years following termination of employment. Reports shall be provided monthly to managers.

T.R.A.C.K. (TRACK)

The TRACK program has been developed to effectively organize and standardize pre-job briefings. Conducting the pre-job briefing using the TRACK process ensures that the entire crew participates in a discussion of the job hazards and remediation of the hazards to enhance worker safety and job performance. The acronym TRACK stands for:

Think through; Recognize hazards; Assess the risks; Control the hazards; Keeep safety first

Every job is made up of tasks and every task is to be risk assessed and remediated. Everyone participates, the process is documented on the TRACK form and acknowledged by each worker.

Task Hazard Analysis

Task Hazard Analysis following TRACK and documented on the TRACK form shall be conducted as necessary to identify and control hazards. OSHA has standardized expectations for this process for the utility industry as follows.

1. Define the individual tasks that make up the job.
2. Identify roles & responsibilities for each task.
3. Identify hazards particular to each task.
4. Determine how to control the hazards to prevent incidents.
5. Discuss and document Personal Protective Equipment to be used.
6. Review and document the emergency response plan.
7. Define 'STOP-WORK' conditions and when additional briefings are to be held.

All crew members shall participate in the TRACK discussion and shall sign the job briefing document. Job briefings are to be held:

- at the start of the work shift,
- as work tasks or hazards differ from original briefing, and
- as additional personnel arrive at the job site.

Ask these questions about each task:

- What is it about the task procedures that are hazardous and how do we control it?
- What is it about the tools we will use that are hazardous and how do we control it?
- What is it about the work environment that is hazardous and how do we control it?

Safety of other Workers and the Public

Foreman and Crew leaders shall insure the safety of passersby at each work location across the project. All personnel shall be observant for persons who may approach the work area and assure that they are not endangered by the work activity.

Other workers, client representatives, or members of the public who enter a work area shall be met by a crew representative before they enter into a hazardous area and be made familiar with site related risks and hazards using the day's pre-work safety conversation TRACK form. If a person enters into the area uninvited and uninformed regarding hazards and risks, all work shall cease if it is safe to do so until the individual is properly made aware of and protected from hazards.

Incident Investigations

Employees involved, supervisors and managers shall participate in and fully support incident investigations. If an incident occurs employees at the scene should:

1. Ensure that the immediate hazard is no longer a threat,
2. Notify 911 Emergency authorities, if needed,
3. Care for injured persons,
4. Report the incident to American Power Safety Department,
5. Protect evidence related to the incident as far as practical, and
6. Cooperate with the investigation in accordance with DOT or company guidelines

Reporting to Regulatory Authorities

American Power works on projects that are regulated by different governmental agencies. Dependent upon the project, it could be under the jurisdiction of Federal OSHA, Federal MSHA, or different State Occupational Safety Plan states (State OSHA), and other agencies, such as Bureau of Land Management (BLM), National Forest Service (NFS), Environmental Protection Agency (EPA) and/or the Department of Transportation (DOT). Depending on the jurisdiction, incidents are required to be reported in accordance with the applicable agency's policies. The Health and Safety Site-Specific Plan (HASSP) for the project shall list the agencies and reporting requirements. Refer reporting responsibilities to the Director of Safety for reporting.

Incident Investigation Policies and Practices

All safety related incidents shall be investigated and a Root Cause Analysis will be performed.

All accidents/incidents involving serious injury or a fatality shall be immediately investigated by the Safety Department.

All incident investigations and reports of same shall be reviewed by the immediate Supervisor with his/her Superintendent or Manager/Director and the Safety Department when necessary to determine if a Formal Incident Review is warranted.

Formal Incident Reviews are conducted by the Safety Department. A Formal Incident Review is defined as an investigation conducted by the safety department, that includes the findings of the supervisor's immediate investigation report, and results in a Formal Incident Review report.

Foreman and Supervisors who conduct and or supervise an investigation shall have completed the START program training. Contact the Safety Department for training and/or training updates.

The Safety Department shall provide logistical, technical and equipment support for all investigations including those lower level investigations conducted by safety committees or groups formed for purposes of investigations.

Investigation Reports and Conclusions

The purpose of investigations is to prevent future incidents. All investigation reports shall conclude with a Root Cause Analysis, remediation and corrective action plan. The final report shall be communicated to the workforce with lessons learned and the corrective action plans. Corrective actions plans shall be placed as an ongoing item of business for the managers weekly safety meeting until the corrective action plan has been implemented as defined in the final report.

Levels of Incident Investigation

There are three levels of incident investigation.

1. Incident investigation and report of minor incidents: Conducted by the immediate foreperson, local supervision and management, assisted and reviewed by the Safety Department
2. Formal Incident Review: Conducted by the Safety Department, or their designee, with an investigation team consisting of supervisor and managers from the region/division.
3. Serious Incident Review: Conducted by the Safety Department with an investigation team assembled from the region/division and from outside the region/division.

Formal Incident Review Not Normally Warranted

- Minor injuries sustained in normal work routines (generally not more than first aid)
- Property or equipment damage or loss – \$100.00 or less
- Damage or loss to small tools that are normally expected to occur with use including battery/hydraulic power tools whose individual replacement cost is less than \$3,000.00, where negligence or a willful violation of a safety rule does not appear to be a factor

Formal Incident Review is Warranted

- An incident that involves a recordable injury
- Incidents involving sub-contractors working for Company
- Incidents involving a motorized vehicle where damage is expected to exceed \$500.00
- Incidents that involve an electrical flash or electrical contact
- Incidents that involve an electrical outage
- Incidents that involve willful violation of a safety rule or procedure

Serious Incident Review is Warranted

- Incident involving a fatality or serious injury
- Switching related incidents
- Incidents that involve injury to a member of the public or loss or damage to public or privately owned property of any value
- Equipment loss that is the result of abuse, misuse or purposeful destruction
- The accident/incident, regardless of severity of injury, value of property damage or near miss potential has never been previously encountered before or there appears to be no written safety rule or procedure addressing the apparent cause of the accident/incident

Safety Inspections

Inspections of every worksite and facility should be periodically conducted to ensure a safe workplace for all employees. All employees are expected to perform inspections of their own workplace as well as those workplaces around them, even those not under American Power's control. If you see hazards correct them. If you cannot correct them take steps to prevent exposure to the hazard both to yourself and others. When the risk is controlled report the hazard to your supervisor for permanent correction.

Audit and Assessment of Safety

In order to maximize the value of this Safety Guide frequent auditing or assessment of a project's safety performance is needed. All safety personnel will perform an audit of the worksites they visit. In addition, all levels of management have a duty to perform audits of site safety, formally or informally as the purpose of the visit demands. Every site visit by a manager or superintendent should include an 'informal' audit. In an informal audit the site visit begins with a review of the day's TRACK. The informal audit compares the TRACK (task hazard analysis) to tasks in progress, matching work underway to the safety plan described on the TRACK. Informal audits also include the 'Safety Discussion' question:

"What have you done this week to raise safety awareness and performance on this job?"

Formal audits use the Safety Observation Guide as a tool to prompt an itemized review of site safety as follows:

- The Safety Observation may be conducted with site supervision and in best case with the whole crew
- When the site safety review is complete the observer reviews the Safety Observation Guide with the crew supervisor
- Observations are sent to Safety and the project's Superintendent for review and action.

OSHA and MSHA Inspections

If an inspector from Federal or State OSHA or MSHA arrive at a job site, cooperate with the inspectors as follows:

- Ask to see their credentials, they are required by law to properly identify themselves.
- Ask them to delay the beginning of their inspection process to allow you to contact your supervisor, your union representative and/or the Safety Department
- In compliance with Federal or State rules, ensure that company and employee representatives are present during the inspection.
- Inspectors are there to help ensure your workplace is safe and healthy. Don't do the following:
 - obstruct their inspection,
 - be defensive, or
 - be antagonistic.

Safety Meetings

Every worksite shall conduct at a minimum a weekly safety meeting. The crew supervisor is responsible for ensuring a safety meeting is held and useful as a tool for promoting a safe workplace. Resources for weekly safety meetings are available from the American Power Safety Department. Crew leaders are encouraged to involve the crew in topic conversation, invite outside expertise, include subcontractors and/or client representatives to promote communication and exchange of ideas toward a safer workplace. Safety meetings are documented on American Power forms or client forms as dictated by contract and turned in weekly to the Safety Department.

Planning Emergency Procedures

Ensure that your workplace or worksite has a formal written emergency response plan and that employees are informed of the plan. Know what the plan says and review it daily on the pre-task TRACK plan. Record the essential information on the pre-task TRACK form. Be sure the plan covers the types of emergencies that could occur and the steps that each employee must take in the event of an emergency. Most important, understand what rescue resources are available for the work area and know how to get those resources to the site. In the daily pre-task TRACK review, be sure to identify the job address or directions to the job and enter that information on the TRACK form. Keep that information readily available in case of an emergency.

Emergency Action Plan General Requirements

All locations shall designate and train a key supervisory employee as the Emergency Action Plan (EAP) Coordinator. The EAP Coordinator will work with the Safety Department to determine the site needs and training requirements for the Health and Safety Site-Specific Plan (HASSP). The EAP Coordinator

shall provide for safe and orderly evacuation of employees, including sub-contractor employees, from the site in response to an emergency. If the American Power work areas intersect with other employer areas, the EAP Coordinator shall coordinate with the other employers. The EAP training plan shall include training contingencies for all new personnel, as well as visitors to the site. The EAP Coordinator shall ensure periodic plan review with the Safety department and site managers. The EAP will be reviewed with affected employees under the following conditions:

- 1) When the plan is developed
- 2) When an employee is assigned initially to a job
- 3) When an employee's responsibilities under the plan change
- 4) When the plan is changed

Emergency Plans for Office Locations

- All personnel shall be trained on the emergency plan and shall participate in annual review and practice of emergency fire drills.
- The Safety Department shall review plans annually and make necessary adjustments as needed for effectiveness.
- Changes to the emergency plan requires retraining of all affected personnel.
- Emergency egress plans shall be posted in each office and in the public gathering areas.
- Since there are no critical operations in an office environment, all persons shall exit the facilities in an emergency during serious events, such as fire or earthquake.
- Each office shall develop a facility emergency egress plan and shall practice emergency fire drills once each year.
- Office managers shall make themselves aware of special needs employees that may require help for the timely emergency egress from the building.
- The primary focus in an emergency is orderly egress and assisting others in egress, not rescue. Make note of locations where rescue by professional responders is needed and communicate that information to first responders.
- For multi-floor facilities the building fire alarm is the primary means of notice an emergency has occurred. Exit the building following the site plan if the alarm sounds.

Gas Leaks

If a gas leak occurs in a building, **Call 911** and evacuate the building.

If a gas leak occurs during an excavation:

- **Call 911**
- **Call 811** (the 1-Call underground location authority)
- Shut down vehicles and engines within 100 yards of the leak.
- Evacuate the area to at least 100 yards and warn others within the area.
- Secure the site at 100 yards as much as practicable so that others do not wander into the hazard area.
- Notify your supervisor and the Safety Manager at the corporate office.
- Follow the directions of the arriving Fire Department Incident Commander.

Vehicle Accidents

If you are involved in an accident in a company vehicle, call your supervisor and the police. If there are injuries **Call 911**. If you are able:

- Take steps necessary to preserve life and prevent additional accidents.
- Check for injuries and render aid.
- Complete the Vehicle Incident Report and submit to the Safety Department.

Fires

Every project Health and Safety Site-Specific Plan (HASSP) has fire protection, fire prevention and fire response information according to the conditions of the site. Many criteria for fire action, as well as prevention plans, may be established by a regulating authority such as the Bureau of Land Management (BLM), DOD or National Parks/Forests. Workers will be trained on each site in accordance with the provisions as outlined in the HASSP. The general actions to take in any fire emergency is as follows:

- Raise the alarm. Notify people in the area there is a fire emergency to give everyone time to escape.
- Depending on the type and location of the fire, try to put it out but do not risk your safety trying to put a fire out:
 - If the fire is small use fire extinguishers but if the fire is a brush fire, use shovels to throw dirt on the base of the fire and/or use the water in the ice chests.
 - If the fire is beyond an incipient fire, evacuate the area.
- Help coworkers or others evacuate the area.
- Send a responsible person to meet and direct emergency responders to the incident area.
- Follow the directions of the responding emergency personnel.

Fire Response

The level of fire emergency response shall be determined prior to the start of any project in cooperation with client project managers. The fire emergency response shall be established in the site-specific HASSP. Employees with fire emergency response responsibilities shall be trained in accordance with the level of fire emergency response required in accordance with the HASSP plan.

General Fire Emergency Response Training

All employees shall be trained annually on the principals of the fire triangle, recognizing and controlling fire risks and basic principles and use of common ABC type fire extinguishers.

Each work site shall develop a Fire Prevention and Response plan that shall include:

- Training of personnel for the site-specific fire response protocols
- Location of, inspection of, and maintenance of firefighting equipment
- All fire extinguishers shall be inspected monthly.

Fire Prevention Practices

- Do not smoke while working aloft.
- Smoking areas shall be designated on the worksite. Preferred locations are near the potable water stations at crew trucks.

- Smoking in areas where fuels or flammables are stored, transferred, or used is prohibited. Storage of fuels or flammables or areas where fuels are commonly used or transferred shall be posted 'NO SMOKING within 50 FEET'.
- There shall be no unnecessary engine idling.
- Parking and equipment set-up areas shall be established at work locations over sand or in areas where foliage has been knocked down so that fire hazards have been eliminated.
- Flammable fuels shall be transported and stored in marked DOT-approved safety cans.
- Housekeeping shall be constant and effective.
- Materials shall be segregated and stored in accordance with their combustible or flammable characteristics
- Flammable liquids shall be stored in a properly constructed and ventilated flammable storage cabinet
- Packaging materials and trash, especially solvent soaked rags shall be properly disposed of daily at appropriate covered dumpsters or receptacles away from the right-of-way.
- Grunt-sacks for trash shall be emptied daily and no trash shall be left on trucks on the right-of-way overnight.
- Glass packaged drinks shall not be permitted on the right-of-way. Glass found on the right-of-way while working shall be collected and safely disposed of in an appropriate trash receptacle.
- Every crew vehicle and larger on the right-of-way shall be equipped with at least one 2A:10BC (5 lb.) Fire Extinguisher.
- Shovels shall be made available for every crew member.
- A fire extinguisher shall be placed within 25 feet of any fuel or flammables storage area.
- A fire extinguisher shall be placed on pickup trucks as per client requirements.

Fire Risks from Engine Heat

Exhaust regeneration systems on diesels can create a fire risk. Re-gen systems have internal operating temperatures exceeding 1100 degrees with external temperatures hot enough to ignite grass. Knock down or mow down grass before setting up equipment. The following activities can help prevent and/or contain under vehicle fires:

- Do not rely on wetting down foliage to prevent fires. Temperatures under the truck chassis will dry out grass quickly.
- Do not rely on ABC fire extinguishers for grass fire suppression. The spray time for the typical truck fire extinguisher is 15 seconds and if there is wind, little of the firefighting chemical dust will get on the ground. Water kegs and ice chests can be integrated effectively into the initial fire suppression plan.
- While shovels are the optimum plan for fire suppression on open land adze hoes, fire swatters or other grass fire fighting tools should be considered.
- Check fire extinguishers and shovels daily.

Chemical Spills

Call 911 or the phone number provided per client requirements, and your immediate supervisor.

- If the spilled chemicals are yours, follow the Safety Data Sheet (SDS) emergency plan for the particular chemical.
- If safe to do so, prevent spread of the chemical using absorbent or earthen materials.

- If you do not know what the chemicals are; note the wind direction and walk to the emergency gathering point, preferably into the wind (up-wind) from the chemical spill.

Weather Related Emergencies

In the daily job briefing consult weather reports and make yourself aware of conditions that may pose a threat. If you unexpectedly encounter high wind and lightning, seek cover in a vehicle. In the event of a tornado seek cover in low lying terrain, tornado proof structures, or substantial structures like bridge abutments. If you are caught out in the open lie down and cover your head. Consider entering a substantial vehicle, putting on the safety restraint system and covering your face and head with your arms or heavy clothing.

If you are in a building move to the center of the structure and take a position in doorways, under substantial furniture, or in a bathtub. Cover your head and face with your arms or heavy clothing.

First Aid

All employees shall be certified in first aid and CPR through a Red Cross or other nationally recognized program approved by the Director of Safety. Site supervisors shall ensure that injured employees have prompt access to first aid. Ensure that the Job Briefing addresses medical emergency treatment and first aid and that the site-specific procedures are included in the HASSP and HASSP orientation. Assure that first aid kits are available and that a competent person is on site to render first aid. Verify the presence of the first aid kit daily and check the kit as often as necessary to ensure the contents are tailored to the site-specific hazards, are sufficient for the number of personnel that could be in need of first aid at any one time and in good condition.

Heat Illness

Prevent heat illness by keeping aware of the heat conditions on your jobsite. During hot days or stressful work keep yourself appropriately hydrated by sipping water often. Do not overindulge on 'sport drinks' by maintaining a ratio of 4 parts water to 1-part sport drink to maintain hydration. Alter work schedules or take frequent breaks. Where practical provide shade or canopies or shield workers from direct sun with hard hat shades.

Discuss heat related illness potential in pre-job briefings and watch out for coworkers during the day. Don't be afraid to seek help when you feel the effects of heat stress.

Know the symptoms of heat related illness and emergency actions to take:

Heat Exhaustion: weakness, blurred vision, vomiting, dizziness, headache

ACTION: move the victim to cool environment, loosen clothing, provide fluids, **Call 911**

Heat Stroke: red face or skin, no perspiration when there should be, elevated temperature, mental disorientation, convulsions, or unconsciousness.

ACTION; Call 911: get the injured to a cool place, elevate their feet, apply cold packs to major arterial locations such as the back of the neck, sides of the throat, under arms or inner thigh.

Heat Stress or Heat Stress Related Cramps: soreness or weakness in the muscles especially the arms or legs, thirst, stomachache, rash.

ACTION: remove the victim to a cool environment, drink liquids and rest. Seek medical attention if symptoms don't subside or become worse.

Bloodborne Pathogens

Employees who provide or assist in first aid could become exposed to bloodborne pathogens if they come in contact with blood or other bodily fluids. Employees must be trained to recognize bloodborne pathogen exposures in the workplace

Employees who render first aid should use disposable vinyl or nitrile gloves to protect themselves. If you are exposed to blood outside of protective gloves, wash the affected area with soap and water. Follow First Aid and CPR training guidelines and use barriers to prevent exposure while rendering aid. After an incident, place contaminated materials in a bio-hazard kit bag and dispose of appropriately. If paramedics or fire department personnel are on site due to an incident, they may be able to secure and dispose of contaminated materials. Consult your Safety Department for guidance.

Employees may be exposed to Hepatitis B during administration of first aid or while working in storm flooded locations. Employees exposed are offered a Hepatitis vaccination and medical follow-up within 10 days of the exposure. Employees who decline the vaccination must sign a waiver for their personnel file.

Hazard Communication

Employees have the right to know about the hazards of chemical compounds on the worksite, how to protect themselves from exposure, and what to do if they are exposed.

A written site-specific Hazard Communication program shall include:

- Employee training on the chemical compounds commonly used in the workplace.
- A method and means of determining when a non-routine task might expose workers to chemical compounds other than those routinely found in the workplace.
- Employees whose principal language is other than English shall be accommodated as necessary using reliable interpreters to ensure the employee is properly trained in the Hazard Communication GHS program.
- Employees must be trained on the Globally Harmonized System of the Hazard Communication standard.
- Employees must be provided access to Safety Data Sheets (SDS) for the chemical compounds they may come in contact with.
- The employer must coordinate Hazard Communication with other employers on a worksite.
- Containers must be effectively and clearly labeled as to their contents.
- Contact Safety for assistance with training, compliance issues, or copies of SDS related to your jobsite.

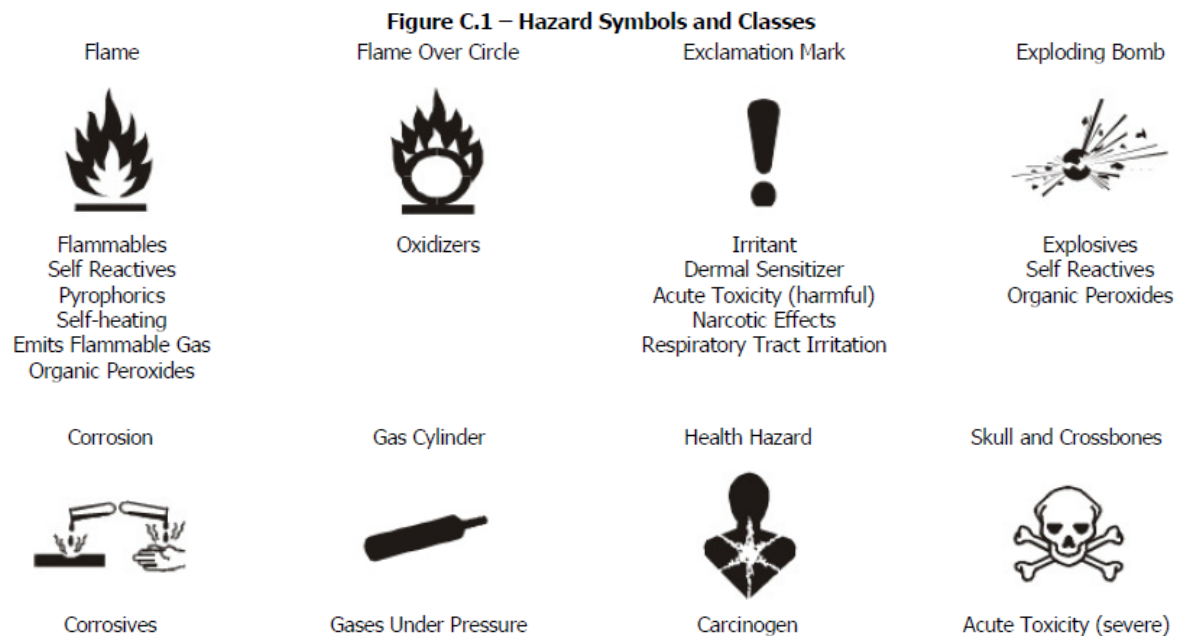
Hazardous Chemical Labels

Chemicals brought into the workplace that are hazards to users must have manufacturer's labels in place. The manufacturer's label includes the name of the product, pictures, symbols, contact information or a combination of those items that at least provides general information that in

conjunction with the SDS will provide specific information for the employee regarding the hazard the chemical represents.

Portable containers that an employee uses to take small quantities from a larger labeled container for immediate use during the employee's shift are not required to be labeled. As a matter of safe work practice, American Power requires at least a minimal identification of contents of containers of chemicals prepared for immediate use.

Labels on containers received in the workplace must be maintained in readable condition and must not be defaced or altered.



T&D Electrical Safety

Qualification (OSHA CFR29 1910.269(a)(2)(ii))

In order to maintain safety, employees must be trained and qualified for the tasks they will perform. To be qualified, the employee must know:

- The skills and techniques necessary to distinguish exposed live parts from other parts of electrical equipment.
- The skills and techniques necessary to determine the nominal voltage of exposed live parts.
- The skills and techniques necessary to determine the minimum approach distances corresponding to the voltages to which they are exposed.
- The proper use of the special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electrical equipment.
- Emergency techniques such as pole top, bucket, and manhole rescue.
- Skills necessary to perform first aid and CPR.

Apprentice Qualification and Energized Work

Apprentice qualification to perform work on or near energized lines or equipment is generally established by the local union agreements. Generally, a 4th step apprentice may perform energized work in accordance with the training they have received when performed under the supervision of a qualified journeyman and with the permission of the crew supervisor.

Personal Protective Equipment

Personal Protective Equipment is provided by American Power at no cost to employees to provide for the employee's protection from hazards in the workplace. When hazards cannot be engineered out of the workplace or procedures cannot remove hazards from the workplace, PPE is used to protect the employee.

American Power's responsibility is to provide PPE, train the employee how to use and maintain the provided PPE, and the limitations of protection provided by the PPE. Supervisors are responsible for assessing the worksite and assuring the proper PPE is provided and correctly used.

The employees' responsibility is to use and maintain the PPE according to its manufacturers' recommendations and within the limits of protection provided by the PPE. The employee should contact their supervisor if they have questions about PPE.

PPE General Rules

All PPE is issued by American Power to employees at no cost to the employee. With the exception of safety glasses and work boots, employees shall only use PPE provided by American Power.

- Each employee shall be provided reliable, serviceable and clean PPE.
- Each employee is expected to maintain their PPE in a reliable, serviceable and clean condition.
- PPE shall be inspected before use and shall be replaced if defective.
- Employees shall also inspect PPE frequently and replace PPE that is defective.
- PPE must be returned to American Power at termination of employment. American Power reserves the right to recover cost for non-returned PPE from the employee.

PPE Training

Employees shall be trained on the hazard evaluation protocols and PPE evaluation of hazards in the workplace. Training shall inform the employee on proper sizing and fit of various articles of PPE associated with tasks the employee will perform.

Employees shall receive annual update training on the American Power PPE program. Throughout the year employees shall receive additional training if the employee is found to be improperly using, inspecting, or improperly maintaining issued PPE. Additional training shall also be provided when new hazards and or PPE is introduced into the workplace.

Hard hats ANSI Z89.1 Type 1, Class E electrically rated 'American Power' approved hard hats shall be worn on jobsites, at facilities maintenance areas and at 'show-ups' while work is in progress.

- Hardhat suspensions should be replaced as need but at least annually.
- Hardhats should be inspected daily and replaced as necessary but should not be in service for more than three years regardless of appearance and condition.
- Hardhats shall not be worn backward or over baseball caps.

- Hardhats may be worn over approved winter liners.
- Hard hats may not be altered, drilled, painted or adorned with stickers such that the protective integrity of the hat is diminished.

Work Gloves are provided to employees appropriate to the hazards of the job.

- The hand protection selected shall be appropriate for the task and hazard.
- Work gloves shall be worn when handling materials.

Safety Glasses shall have an imprint or label indicating they are ANSI Z87.1 approved.

- Safety glasses must have properly fitted side shields.
- Safety glasses provided by employees as a personal preference must be approved by American Power.
- Safety glasses shall be used when employees are required to use face shields.
- Prescription glasses must meet ANSI Z87.1 requirements, including side shields or be covered with goggles.

Work Boots or work shoes suitable for the hazards involved, that provide substantial protection to workers feet, shall be worn while working.

- American Power supervisors are the final arbiter on what type of shoe is considered appropriate for the workplace.
- Site managers with the assistance of safety shall perform a risk analysis to establish the criteria for foot protection.

100% Fall Protection is required while working aloft on poles, structures and in crane baskets or bucket trucks.

- Fall protection requirements while transferring from a mobile platform to transmission structures shall be site-specific planned, communicated and followed.
- 100% fall protection is required at all locations where an employee works more than four feet off the ground or floor level.
- Mechanics walking across equipment performing inspection or repairs or operators traversing equipment to reach the operator station are not required to use fall protection.
- A fall hazard analysis shall be performed by a qualified person as part of the TRACK (Task Hazard Analysis) and a fall protection plan shall be established and communicated to the affected workers.
- Fall protection equipment shall be constructed and approved under the ASTM and ANSI standard for fall protection equipment.
- Fall protection equipment shall have a legible manufacturer's label and shall bear an American Power monthly inspection label.
- Fall risks and protections shall be determined prior to each project and included in the project HASSP.
- The HASSP fall risk evaluation shall include site-specific requirements for rescue in the event of an arrested fall.
- Fall rescue procedures shall be practiced by each competent climber prior to performing work in a fall risk environment.
- Fall incidents shall be reviewed to determine if fall protection means and methods were correctly applied. Fall incident investigations shall determine if additional training or modifications to the American Power Fall Protection program are required.

Fall Protection Training Required

All persons exposed to fall hazards shall be trained in:

- The risks of falls
- The requirements for fall protection
- The methods used for fall protection
- The care, inspection and maintenance of fall protection equipment

Employees who use fall protection equipment shall be evaluated on a continual basis by their respective supervisors for competency in fall protection. Employees shall be retrained or receive additional training in fall protection if:

- They are discovered to be non-compliant where there is a fall risk
- There are changes to the American Power Fall Protection program
- New fall protection equipment is introduced
- New fall hazards are discovered that affect the employee

At MSHA job sites, annual fall protection training may be required by the Client.

Electric Arc Protection is provided to employees according to the risks for the workplace.

- Where clearances do not limit risk of injury from electrical arcs, employees shall wear arc protective clothing and equipment in accordance with the prevailing rules and as directed by American Power supervisors.

Rubber Gloves with protectors, and when required rubber sleeves, shall be worn when working near energized conductors.

- Unless otherwise directed by client rules, rubber gloves may be rated for phase to ground exposure voltage where all other exposures are insulated and exposure to the worker is limited to phase to ground voltage.

Rubber Goods Inspection Schedule

Rubber testing schedules will frequently be shorter than those listed in the schedule below, according to the risk of damage expected dependent upon use, or when required by client requirements. In no case will testing intervals exceed those posted above.

Rubber Goods Testing Intervals	
Stored Gloves, Sleeves, Blankets	Every 12 months
Rubber Gloves	6 Months from stamped Issue Date
Rubber Sleeves	12 Months from stamped Issue Date
Rubber Blankets	12 Months from stamped Issue Date
Rubber Hose	When dielectric integrity is suspect
Rubber Hoods	When dielectric integrity is suspect
Rubber goods shall be tested before storage and shall be issued within 1 year. Gloves, blankets and sleeves shall be stamped with the Issue Date and retested according to the schedule intervals	

Respiratory Protection

The nature of power line construction work occasionally involves exposure to construction created suspended airborne contaminants such as silica, bearing dusts that are harmful to health. American Power employees are prohibited from working in atmospheres where a hazardous vapor or oxygen deficient atmospheres exist.

Respirators are an effective method of protection against airborne contaminants when properly selected and worn. The type of work performed by American Power employees rarely results in an airborne contaminant exposure. If there is concern regarding airborne contaminants the Safety Department as Program Administrator shall conduct a survey.

Employees shall be trained regarding the health risks from airborne contaminants and the protection methods available.

Where environmental air quality is determined to be above the permitted exposure limit for suspended contaminants a hazard assessment shall be conducted by a qualified person and a respiratory protection plan will be written.

- Employees will be trained regarding the hazard and the protection plan.
- Employees shall be retrained annually.
- As in all training, employees shall be retrained if they are found out of compliance with their training, if new procedures are introduced or protective equipment is introduced, or if new respiratory hazards are identified.
- Employees will be fit tested and medically approved to use respirators.
- A qualitative analysis fit testing protocol shall be conducted by a physician competent in the confidentiality of the employee's health information.
- Fit testing, the purpose of fit testing and the protection program information shall be delivered in a means clearly understood by the employee.
- Employees shall be trained on storage of, donning, doffing, inspection of and retirement of particulate respirators of the type they will use in the dusty environment.

Respirators such as a dust mask may be provided to employees for voluntary use when exposures are below the exposure limit to provide an additional level of comfort and protection for workers. Fit testing and medical surveillance are not required for voluntary use of dust masks.

At some client facilities, during temporary work in restricted areas, an employee may need to wear a NIOSH-approved escape-only respirator when notified by the client, or their alarm system, to leave the restricted area. A complete medical evaluation and fit test is not required for the use of an escape-only respirator. Employees shall don an escape-only respirator when so notified and shall leave the restricted area immediately. Training on the client's procedures and use of the escape-only respirator shall be provided by the client.

Hearing Protection

Employee noise exposure must be kept below an average of 85 decibels (dB) over an 8-hour period. Generally, in the type of work our employees perform, they are not exposed to sustained noise above levels that might result in hearing loss.

Hearing Protection General Considerations

If normal level spoken communications from 3 feet cannot be understood, there is a possibility that surrounding noise is over 90 dB. If this level of noise will be sustained, noise testing may be required. Employees may not be exposed to sudden loud noise over 140 dB, similar to the noise of a shotgun blast. In those cases, employees should wear ear plugs with earmuffs.

In facilities and project areas where hearing protection requirements are posted, employees must follow the posted requirements.

Some equipment use inherently produces loud noise during operation. As a general rule, employees operating these types of equipment or working near these types of equipment should use ear plugs or a combination of ear plugs and earmuffs. Such equipment includes, but is not limited to, the equipment identified in the table below.

Chain Saws	Concrete Saws
Pneumatic Impact Drivers	Pavement Breakers
Pneumatic Bushing Guns	Electric Grinders
Bull Dozers	Trenchers
Excavators	Power Augers
Air Compressors	Arc Gouging Torches
Power Tamps	Powder-Actuated Tools
Hammer Drill Motors	Motor Driven Aux. Equipment
Tuggers/Pullers	Vacuum Excavators
Wood Chippers	Jack Hammers

Contact the safety department for guidance on hearing conservation, audiometric testing or risk evaluation.

Site-Specific Hearing Protection Programs

If it is suspected that the noise risk of a specific task exceeds the time weighted average of the 85 decibel limit of exposure established by OSHA, then a survey will be performed by a competent technician to determine if there is a noise risk to employee's hearing. Where noise risks are discovered, the worksite safety manager shall formulate a written program for the protection of employees hearing that includes the following OSHA required elements.

"Employee Notification" - Employees exposed at or above an 8-hour time-weighted average of 85 decibels shall be notified of the results of the audiometric testing

"Observation of Monitoring" - Employees shall be permitted to observe audiometric testing of noise levels that affect the employees in their work areas.

"Employee Audiometric Testing" - The program shall provide for audiometric testing for employees exposed to time-weighted exposures over 85 dB at no cost to the employee.

"Base Line Testing" - The program shall provide for baseline testing of noise exposed employees within 6 months of the first exposure above the time weighted level of 85 dB. Annual

audiometric testing shall be provided for employees in comparison with baseline testing. Baseline testing shall be performed by an audiologist selected by the Safety Department in accordance with the requirements of the OSHA standard.

"Employee Training" - All employees shall participate in initial training on hearing protection and noise risks in the workplace and shall receive annual review of the current program in effect at their work location. Training shall inform the employee of:

- The risk to hearing by noise exposure
- The elements of a hearing conservation program
- A review of noise risks in the workplace
- Familiarity of safety signs regarding noise risks
- A review of noise attenuating hearing protection specific to types of environments and equipment used in the workplace
- The locations of, use of, maintenance of, and inspection of hearing protective equipment.
- Location of and means to access the hearing conservation program records and compliance protocols.

Flotation Devices/Life Preservers (OSHA 1926.106)

- Employees working over or near water or from floating platforms shall wear Coast Guard approved life preservers.
- Employees working from aerial platforms over water who are fall protected are not required to wear life preservers.
- Employees climbing structures while fall protected using 100% fall protection devices are not required to wear life preservers.
- Employees being transported over water by boat or helicopter shall wear life preservers.

Snake Hazards

All workers should wear appropriate PPE when working or walking in venomous snake-prone areas, this should include snake guards or gaiters (and heavy gloves if handling items near the ground) to avoid being bitten. Other things to consider include:

- Wear long pants and boots taller than the ankle (NOTE: This alone may not prevent a snake bite – snakes can strike knee high.).
- Use hiking sticks.
- Avoid tall grasses, brush, and rocky outcrops.
- Step ON logs and rocks, not over them – a snake may be hiding on the other side.
- Snakes do not want confrontation with something or someone that is obviously much bigger than it is, and usually ‘stand-down’ once they determine the ‘danger’ has moved away.
- Rattlesnakes do not always rattle, so be vigilant while walking and look for them.
- Be aware of your surroundings and remain alert. Situational awareness is critical.

Switching and Tagging (OSHA 1910.269(m))

Lock-Out/Tag-Out/Try-Out (LOTOTO) is a commercial and industrial program defined by OSHA and MSHA for the purpose of controlling hazardous energy. These programs have specific requirements for the training of personnel who perform these tasks as well as specific requirement for installation of locks tags and procedures for the implementation of LOTOTO programs. Where clients have requirements for LOTOTO plans for T&D work, contact the Safety Department for information or guidance.

T&D work and the equipment and devices used in T&D work are not designed with the hasps and locking devices common on commercial and industrial equipment, so the T&D industry has specific protocols for similar protections under OSHA and the National Electrical Safety Code.

Control of energy in T&D is regulated under OSHA rules in subpart (m) of 1910.269 and requires the following:

- Switching and tagging of open circuits shall be in accordance with client policy.
- No person is authorized to close any distribution or transmission switch without the express consent of the person in charge.
- No person shall ever ignore or remove a tag on a switch.
- No person shall ever ignore a tag and close a switch.
- Where American Power switching and tagging rules exceed client requirements the policy shall be coordinated with the client by the person in charge.
- Only persons authorized by American Power shall coordinate switching of electrical circuits with clients on client-owned facilities.
- Only persons authorized by American Power shall order or permit the opening or closing of switches on client-owned electrical systems.
- Only qualified persons shall operate switching devices.
- Switches shall only be opened or closed when directed by the person in charge.
- Appropriate tags shall be placed when switches are opened for safety.

Minimum Approach Distances

Minimum approach distances in the table below are established by OSHA and the National Electrical Safety Code, ANSI C2.

The minimum approach distances in the table below may be used provided the worksite is at an elevation of 3,000 feet or less. If the worksite is at elevations greater than 3,000 feet above mean sea level, the minimum approach distances may be determined by multiplying the distances in this table by the correction factor in the table to the right, corresponding with the altitude of the work.

The phase-to-phase minimum approach distances in the table below may be used provided that no insulated tool spans the gap and no large conductive object is in the gap. The clear live-line tool distance must equal or exceed the values for the indicated voltage ranges.

Minimum Approach Distances (MAD) in Feet-Inches (Effective as of July 1, 2017)					
Voltage Range, Phase-to- Phase (kV)	Phase-to-Ground Exposure	Phase-to-Phase Exposure	OSHA Regulations	At elevations over 3000 feet, increase distance by multiplier shown (1910.269 Table R-5)	
	(ft, in)	ft (ft, in)			
0.05 to 1.0	Avoid Contact	Avoid Contact	1910.269 Appendix B Table 6	Altitude	Multiplier
1.1 to 15.0	2 ft, 2 in	2 ft, 3 in		3,000	1.00
15.1 to 36.0	2 ft, 4 in	2 ft, 8 in		3,900	1.02
36.1 to 46.0	2 ft, 8 in	2 ft, 10 in		4,900	1.05
46.1 to 72.5	3 ft, 0 in	3 ft, 6 in		5,900	1.08
72.6 to 121.0	3 ft, 4 in	4 ft, 4 in	OSHA Memorandum 12/22/2016 Table B	6,800	1.11
121.1 to 145.0	3 ft, 10 in	4 ft, 10 in		7,800	1.14
145.1 to 169.0	4 ft, 4 in	5 ft, 5 in		8,800	1.17
169.1 to 242.0	5 ft, 8 in	8 ft, 5 in		9,800	1.20
242.1 to 362.0	9 ft, 2 in	14 ft, 9 in		11,800	1.25
420.1 to 550.0	11 ft, 11 in	20 ft, 4 in		13,700	1.30
550.1 to 800.0	15 ft, 10 in	27 ft, 10 in		15,700	1.35

Two Employees Required

- Two qualified employees are required when workers are exposed to electrical equipment or lines exceeding 600 volts.
- Two employees are required when an employee must climb a structure or enter a confined or enclosed space.
 - The second employee must be capable of initiating rescue or when required performing rescue.

The two-worker rule does not apply to routine switching, working with sticks when there is no other electrical exposure to the lone employee or when performing emergency work to safeguard others in an electrical emergency.

Working on Overhead Lines or Equipment, General Rules

- A Task Hazard Analysis (TRACK) shall be performed before work is started.
- Employees shall not be distracted while working near energized lines
- Protective cover should be installed from a position below the lines or equipment.
- Employees on the ground should keep clear and avoid contact with grounds.
- Employees working within reach of each other shall not work on conductors or equipment at different potentials.
- Hoist or ropes shall be attached to energized lines using an insulating link stick.
- When conductors are moved, all grounded surfaces and the conductor shall be appropriately covered.
- System neutrals shall be handled with insulating gloves.
- Except when isolating, energized conductors and system neutrals being opened shall be jumpered.
- Live-line tools shall be inspected by a qualified person before being used.

- Conductor and electrical equipment is considered energized until tested to be de-energized and grounded.
- Cross-arm braces shall not be used for rigging or support of loads other than cross-arms.
- In darkness or low-light environments auxiliary lighting shall be used.
- Tools and equipment shall not be thrown up to an employee on a structure or pole.
- Tools and equipment shall not be thrown or dropped from structures or poles.
- Powered equipment shall be operated by authorized and qualified persons.
- Task planning shall take into account the presence of back-feed or induction.
- Protective grounding for back-feed and induction shall be planned and installed by a qualified person.
- Testing of conductors or equipment for presence of voltage shall be performed using an approved meter or voltage testing device.

Capacitors

- All capacitors removed from service shall be shorted for safety.
- Capacitors not shorted shall be considered energized.
- Distribution capacitor shorting shall be performed with hot sticks.
- Distribution capacitors shall be de-energized through a rated load-break device.

Current and Potential Transformers

- Only persons trained and experienced shall work on metering instruments.
- Current transformers shall have their secondaries shorted before work is performed on them.
- Potential transformers shall be de-energized and tested to be safe before work is performed.
- Current transformer secondaries shall be connected to a meter or shunted before associated secondary conductors are energized.

Climbing Poles and Structures

- Poles and structures shall be climbed by qualified climbers trained in the task.
- Poles and structures shall be inspected by a qualified person before they are climbed.
- Poles considered structurally unsafe to climb shall be made safe before climbing.
- Climbers shall use 100% fall protection under all circumstances.

Underground Locating

- No excavations shall be performed by digging tools or mechanical equipment until a utility location through the respective local One-Call system **(811)** has been completed.
- Obstructions marked within three feet of excavation path shall be potholed and location verified before digging.

Installing Foundations

- Employees shall stay clear of excavating equipment while in operation.
- Only approach excavating equipment after the operator signals it is safe to do so and the equipment is stopped.
- Rebar cages shall be properly supported and secured from rolling during assembly.
- Employees shall not position themselves behind moving concrete trucks.
- Employees working concrete delivery shall protect their skin from concrete contact.

- A fall protection plan shall be written where excavations will be deeper than 6 feet.
- Open excavations not being filled or worked shall be covered or otherwise protected.
- Employees whose work requires them to approach open foundation excavations over 6 feet deep shall be fall protected.

Explosives

The use of explosive materials by American Power employees shall be limited to implosive sleeves for joining or deadending conductors. The American Power employee in charge of implosive sleeve receiving, storage and installation shall be experienced in the installation of implosive sleeves and shall be a BATFE licensed blaster. The use of implosive devices shall be approved by management and overseen by the safety department.

- Only licensed persons shall handle or transport explosives.
- Employees who assist the licensed blaster shall be BATFE approved handlers.
- Explosives used for excavating or clearing shall be conducted by an experienced third-party professional blaster.
- When explosives are used at a site, a specific safety meeting shall cover the rules for access and use of explosives.
- Explosives shall be stored in a properly inspected and secured magazine.
- Explosives shall be transported in a proper magazine and be properly placarded.
- All persons on a site where implosive devices are used shall be trained to recognize implosive associated hazards, procedures, safety and security.
- Site wide training shall include employees of all contractors and subcontractors that will be on site.
- The Safety Department shall develop a site-specific plan for safety and security of materials and procedures.

Live-Line Tool Procedures (Sticking)

Live-Line Tool Procedures are those procedures that rely on rigging and the use of sticks in order to perform line work. Any condition where a worker comes into glove contact with a live line is not considered a Live-Line Work procedure.

- Only workers properly trained, or workers undergoing on the job training under the direction of a qualified person may use live-line work methods.
- Gloves and sleeves are not required while sticking if minimum approach clearance can be maintained.
- Switching and grounding using insulated sticks is not considered Live-Line work procedures and gloves may be required.
- Live-line tools shall be wiped and inspected by a qualified person before use.
- Live-line rigging shall be inspected before use. Defective tools or rigging shall be tagged out of service.
- Live-line tools shall be stored and transported in protective containers or enclosures.
- Live-line tools shall undergo a thorough inspection and if required an electrical test every two years.
- Live-line tools shall be electrically tested in accordance with ANSI standards.

KWH Meters

- Workers installing meters in hot sockets shall wear rated rubber gloves and arc protection.
- Meters installed in de-energized sockets shall be installed with work gloves.
- Meter sockets shall be tested with direct reading voltmeters by a qualified person.
- Sockets and meters shall be thoroughly inspected by a qualified person before installation.
- Arc rated shirts, hard hats, face shields with safety glasses and rubber gloves are required by employees working in live meter cabinets or meter sockets.
- Instrument rated meters shall be installed with PT's open and CT's shunted unless meter can switches are not provided.
- Sockets shall be covered and sealed when meters are removed, and workers leave the area.
- Direct reading meter sockets shall be checked for load and grounds before a meter is installed.
- Meter by-pass handles shall not be used to make or break loads.
- Loads shall be dropped when setting rated meters.

Handling Poles

- When loading or unloading poles; employees shall not position themselves between poles and stationary equipment or structures.
- Poles shall be rigged as near the balance point as possible.
- Poles shall not be wrapped with a winch line.
- Employees shall not be under or reach under a pole while rigging for lifting.
- Poles shall be rigged using inspected and properly rated slings.
- The number of tie-downs required for a pole on a trailer is determined by the length of the pole. One tie-down is required for each 10-foot increment plus one additional tie-down if the trailer has no bulkhead at the forward end.
- Long poles in transport shall be followed by a vehicle equipped with a yellow strobe light.
- Flags in daytime, steady burn lights at night, shall be used on the end of the load while transporting poles.
- Employees shall not stand on pole piles or trailers while poles are being moved.

Setting and Pulling Poles

- Operators of pole truck booms must be qualified.
- Poles shall not be pulled until they have been completely freed from the ground by digging or using a hydraulic pole puller.
- Poles shall not be side-rocked with a derrick to free them from the ground.
- Poles set in energized distribution shall be covered at the exposed section with rated pole guards.
- Distribution conductors shall be effectively covered when setting poles.
- Pole tops shall be in grabbers or poles shall have a tagline for control while swinging.
- Workers guiding poles at ground level in energized conditions shall be made thoroughly aware of the hazards.
- Pole handlers shall wear insulating gloves and sleeves, and dielectric over shoes or dielectric work shoes during handling in energized conditions.
- Digger derrick trucks and cranes handling poles in energized conditions shall be grounded, matted and/or barricaded.

- Reclosers shall be off when setting poles in energized lines.
- On transmission circuits, poles shall be rigged and controlled so that minimum clearances can be maintained.

Voltage Regulators

- Only trained and qualified persons shall operate voltage regulators.
- Regulators shall not be bypassed until a reliable means has been used to test that the regulator is on the neutral step.
- Regulators shall not be stepped or bypassed without a switch order or authorization from the Client or owner.
- Regulators shall not be manually stepped without authorization of the person in charge.

Distribution Transformers

- Transformers shall be switched with an insulated stick.
- Transformers loaded over 25kV shall be opened using a load break device.
- Transformers should be switched from a position below the transformer.
- The case ground of single bushing transformers must be visually verified before approaching the transformer.
- Transformers shall not be rigged for hanging or removing using pole mounted materials.
- Voltage shall be checked and rotation verified after energizing a transformer or transformer bank.

Use and Care of Tools

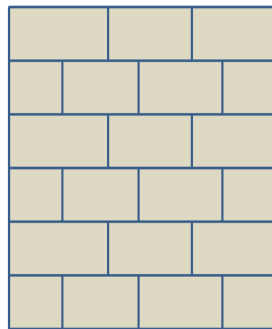
- Conductive measuring tapes or rulers are not permitted.
- Handlines shall be a minimum of ½ inch diameter 3-strand constructed of synthetic material.
- Rescue or safety lines shall be a minimum of 11mm kernmantle technical or ½ inch 3 strand synthetic rope.
- Leather climbing straps without synthetic reinforcing are not permitted.
- Snap-hooks shall be double action safety type.
- Tools and climbing equipment must be inspected before use and shall not be used if found defective.
- Climber gaffs must be at least 1¼ inch measured at the underside.
- Gaffs and fixed blade knives shall be covered when not in use.
- Chainsaws, axes, hatchets and machete blades shall be protected when not in use.

Material Handling

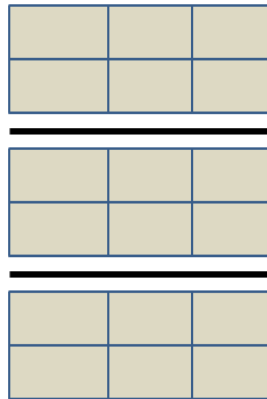
- All stored materials shall be stored or placed for storage, so they do not become a hazard for workers or the public.
- Cases shall be oriented in stacking so that they interlock to produce a more stable stack.
- Where stacked boxes cannot be interlocked a panel or tarp shall be layered between every 2nd or 3rd stack as necessary to form an interlock to stabilize the stacked boxes.

Interlocking for Stability

↓ Interlocked stack for stability ↓



Layers of material or panels inserted between layers to interlock boxes for stability



- Materials being hoisted, other than poles, shall have a tagline attached.
- Employees shall not place any part of their bodies beneath a suspended load.
- Employees shall not ride a suspended load.
- Employees shall stand well clear of any load prior to the initial lift.
- Materials being transported on mobile equipment including forklifts shall be secured from falling from the vehicle prior to being moved.
- All employees whose job tasks include rigging shall be trained to be considered qualified.
- All rigging shall be inspected prior to use by a qualified person.
- Rigging shall be specifically designed for use and shall be rated for the load applied.
- Hooks shall have spring loaded latches in place and shall be checked for proper function each time a sling is engaged in the hook.
- Rigging, including rigging fittings and swivels, not required for immediate use, shall be properly stored to assure it is not inadvertently and unnecessarily damaged
- All rigging shall be inspected each month on every job site. The inspections shall be documented on the Monthly Rigging Inspection form.
- The pass/fail criteria for rigging is established on the rigging inspection form.
- Rigging that fails to pass inspection shall be destroyed so as to make it unusable. Rigging that cannot be made unusable shall be tagged as defective and removed from the site.
- No rigging with defects of any level shall be used.

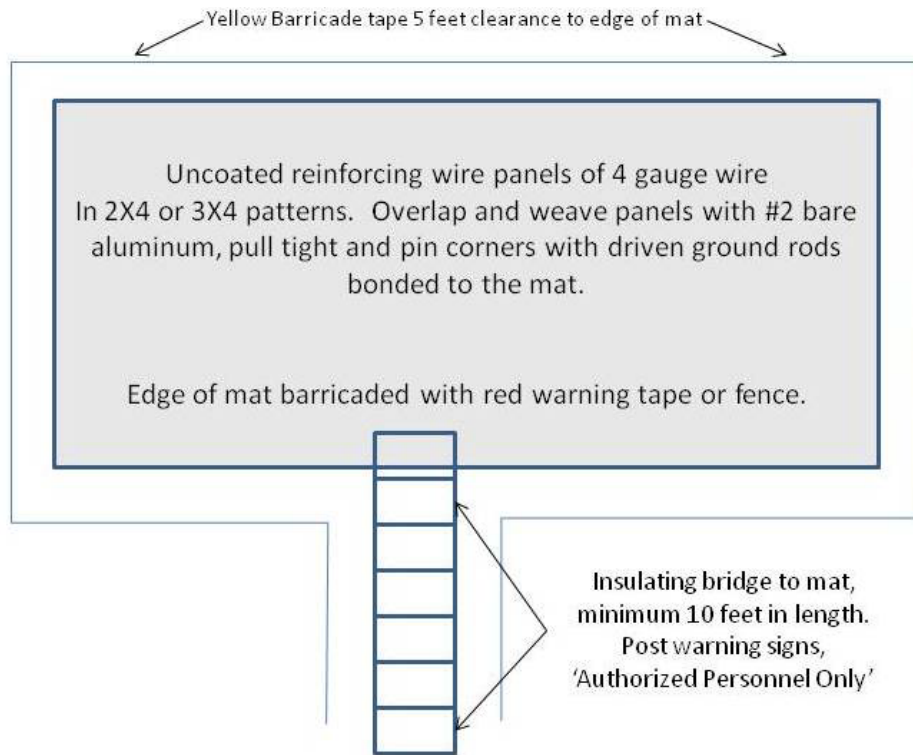
Wire Stringing

- Wire stringing shall not commence until a wire stringing plan has been completed and documented.
- In energized environments stringing machines shall be setup on an equipotential mat designed and installed under the guidance of a qualified person.
- Barricades and signs shall be posted to keep unauthorized persons from entering equipotential mat perimeters.
- Travelers used for grounding conductors during a pull shall be designed and manufactured for the purpose.

- Where manufactured grounded travelers, suitable for specific pulls are not practical, adding ground studs to a standard pulling sheave using fittings manufactured for the purpose is permitted in distribution settings when approved by management and safety.
- Only qualified persons, approved by supervisors, shall operate pulling or tensioning equipment.
- Only the operator shall be on pulling or tensioning equipment during operation.
- Guard structures shall be planned and constructed by a qualified person.
- Guard structures set near a roadway shall be barricaded or sufficiently marked with retroreflective markers.
- Aluminum pulling sheaves shall not be used for stringing steel static conductors.
- When mesh grips are used on pulling ropes they shall be selected by a qualified person and:
 - a) Be specified or approved by the rope manufacturer
 - b) Approved for use on rope by the grip manufacturer, and
 - c) Be newly installed on the rope for each stringing job.
- Wire pulling grips shall be carefully selected using both the wire and grip manufacturer's recommendations.
- No other crews shall be working in the same span or on adjacent structures where conductor is being spliced.
- There shall be a minimum of two structures separating clipping crews and/or clipping and sleeving crews working on the same circuit. Conductor sleeving locations should be planned so that, where practical, one structure stands between the splice and road or to allow safeties to be installed to protect against loss of conductor into a crossing.

Equipotential Mat Construction

- Where used, mats shall be constructed using manufactured equipotential mats or may be constructed on welded wire fence mat for larger operations.
- Chain link fencing should not be used for construction of an equipotential mat.
- Welded wire should be at least #4 wire in 2"X 4" dimension.
- Wire mats shall be overlapped and bonded together by weaving with #2 aluminum stranded wire.
- The conductor or hard line shall be bonded to the vehicle through a traveling ground; the vehicle shall be bonded to the mat and all equipment on the mat shall be bonded together.
- Mat overlaps, weaving and bonding shall be periodically inspected to ensure electrical integrity.
- An Isolating/insulating bridge shall be placed to define the entrance point.
- Barricades shall be installed at the edge of the equipotential mat.
- A second barricade shall be installed 5 feet outside the mat edge barricade.
- Cranes or derricks used to swing wire reels as well as the wire reels shall be setup on the mat with the stringing equipment or insulated links shall be installed between the load line and the reel.



Grounding of Aerial Equipment

A TRACK tailboard shall be held and documented with all crew members to discuss the need for, and method used, to protect crew members from electrical hazards associated with aerial devices.

- If the equipment is required to be grounded the following must also be done:
 - a) The equipment must be grounded to the best available ground to cause immediate operation of a circuit protective device.
 - b) The equipment must be bonded together.
 - c) Equipotential mats or insulated gloves and footwear must be used to protect persons who must be around the truck while in operation.
 - d) Barricades and warning signs must be used to protect other workers and the public from walking into areas of step or touch potential hazards at the equipment.

Equipment that is not grounded shall also have equipotential mats installed to protect employees if there is any possibility that the truck could become energized. The vehicles shall be barricaded to prevent approach to the vehicles by unauthorized persons.

Grounding for Wire Stringing in Energized Environments

- Grounds are required whenever stringing or removing conductor in energized environments. Energized environments include stringing parallel to, over, or under energized lines. Energized environments also include environments where the only possible source of electrical hazard could be induction.
- A traveling ground must be installed and bonded to the tensioning equipment. Grounds shall also be at the first structure away from the tensioner and at each location where stringing crosses an energized circuit and at the last structure before the pulling equipment.

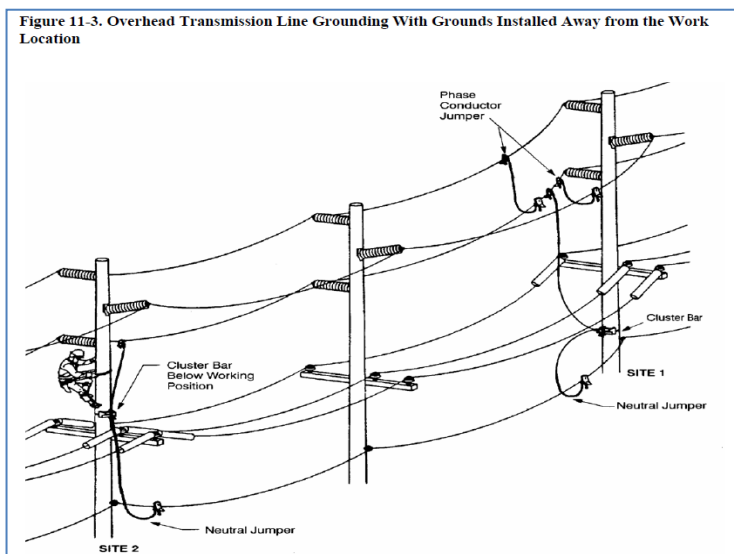
- For long pulls there shall be grounds placed at least every two miles.
- Grounds shall also be installed at each catch-off or splice point in the stringing operation.
- Grounded pulling sheaves, designed for the application, shall be used at structures.
- Grounds shall remain in place during the stringing operation until all phases are clipped in.
- At splicing locations, the open ends of the conductors being spliced shall be bonded together before splicing begins.
- When splicing on the ground or catching off at ground level, an equipotential mat, bonded to the phases shall be installed to protect workers.
- When lifting conductors from grounded pulling sheaves, the conductor should be bonded to the ground system to prevent the workers from getting between the different potentials of the grounded conductor and the grounded sheave.

Personal Protective Grounds

Lines and equipment are not considered de-energized until they are tested for absence of voltage and grounded.

Unless it is impracticable, workers shall be protected using equipotential grounding.

- Three-phase-equipotential grounding consists of bonding the three phases together and using a main bonding jumper attached to the structure below the work area. Statics and neutrals are also bonded into the equipotential scheme.
- Grounds must be thoroughly inspected before use to insure maximum protection.
- Conductors must be brushed as well as the jaws of the ground clamps to insure maximum protection.



- The main bonding jumper from the phases to the pole must be attached to the pole using the best manner available to insure maximum protection.
- Grounding should be installed as close to the work location as possible but no further than a span away.
- When the grounding is installed a span away, a phase or neutral at the work area should be bonded to the pole below the work area to improve protection.

Where bracket grounding is employed such as stringing grounds, workers can install one bonding jumper between the phase being worked and the structure below the work area to establish an equipotential zone.

Ground Gradients at Structures

When grounds are installed, pole bonding becomes more dangerous to workers on the ground. Workers on the ground must understand that induced currents or fault currents will travel down the pole bonding, pole, or structure and into the ground at the base of the pole. Ground workers should keep a protective distance between themselves and the base of the pole of at least 10 feet to avoid the possibility of electrical injury. Amp meters can be used to identify the presence of induced currents on grounded systems.

Equipotential Grounding and Aerial Platforms

When crane mounted baskets are used workers must bond the metal basket to the grounded phase to prevent current from passing through their bodies between the grounded phase and the conductive basket. Workers in an insulated basket receive protection from equipotential grounding at the work location because the potential difference between grounded phases and the structure is bonded preventing the possibility of injuring a worker who gets between phase and structure.

Protective Grounding, Limits of Protection

- The principle reason for grounding is to cause immediate operation of a circuit protective device.
- Grounding of distribution circuits to a system neutral puts them in parallel with the neutral.
- Grounding of transmission circuits to a transmission static exposes the grounded conductors to current that is normally present on the static through induction, lightening or phase to static faults.

Grounding of any open phase to a neutral or static puts the open ends in parallel with the neutral or static and creates an open conductor exposure at the conductor ends. Workers must understand that grounding of a downed phase simply puts the phase in series with the system neutral. If an underground phase is grounded at both ends, the phase conductor is in parallel with the concentric neutral and the ground conductors. Parted conductors on the ground, when grounded to a neutral or static, are just as dangerous as open neutrals. Grounded phases might also be at a different potential than the earth and could also represent an electrocution hazard for unaware employees. Grounding for the protection of employees must be examined well by a qualified person to assure maximum protection, to identify the risks, and put measures in place to **protect all workers** associated with the task.

When planning grounding, workers must identify the hazards and determine when insulating gloves or equipotential mats and bonding might add protection from currents in the grounded conductor or cables. Workers might also consider isolation for protection by grounding to assure the conductor is de-energized and then disconnecting or isolating the conductor from the system to eliminate hazards from ground currents.

Grounded Conductors on the Ground

When conductors are on the ground, even if they are grounded on both sides of the break, they must be bonded together to protect workers who must work between the conductor ends.

Protective Grounding on Underground Systems

If an underground phase is grounded at both ends, a cable burned in two is just as dangerous as open neutrals on the ground in the overhead. Grounding for the protection of employees in the underground must be examined well by a qualified person to assure maximum protection, to identify the risks and put measures in place to **protect all workers** associated with the task.

When planning grounding workers must identify the hazards and determine when insulating gloves or equipotential mats and bonding might add protection from currents in the grounded cables. Workers might also consider grounding to assure the cable is de-energized and then disconnecting the cable and its associated concentric neutral from the system to eliminate ground currents.

If the decision to disconnect the neutral is made, be sure that disconnecting the particular neutral is not also disconnecting a critical system neutral associated with other circuits. An amp meter test of the concentric connection may help to make that determination.

Underground Safety General Rules

- Cables and equipment must be tested and grounded before contacting them for any reason.
- Great care must be employed if moving energized cables, where possible insulated tools should be used for the task.
- Grounding URD equipment may create step potentials around the equipment endangering employees. Precautions such as ground equipotential mats should be considered.
- Dielectric overshoes or dielectric boots around pad mounted equipment may limit ground gradient exposures.
- Employees should avoid kneeling at pad mounted equipment to limit exposure from gradients on unprotected body parts in contact with the earth.
- Employees must not make bare hand contact with concentric or grounds while working unless they are bonded at equal potentials to the conductors.
- Buried or in-service cables shall not be cut until they are effectively identified and spiked to assure they are not energized.
- Unless isolated at each end concentrics must be bonded across while working cut cables.
- If cut cables are grounded at each end work procedures must take into account the possibility of current remaining on the opened phase conductor.
- Where possible bond the cable concentric to the phase to eliminate the possibility of cable capacitance creating an electric hazard for employees.
- When switching remove obstructions from around the equipment to assure clearance and escape if things go wrong.

Helicopter Operations

American Power frequently uses helicopters for access to transmission projects and for stringing of ropes and lines where truck access is not possible. This type of work is designated by the Federal Aviation Administration (FAA) as External Load Operations. The FAA has special licensing requirements, permits and special rules for pilots who fly these external load operations. The pilot is required to write a specific safety plan for each operation and is the final authority on safety, procedures and methods that are used for each project.

Helicopter Operation General Rules

Each worker associated with the operation shall be specifically trained on the rules and procedures to be employed.

- Employees shall follow the rules and directions established by the pilot in charge of the operation.
- Workers shall only approach the helicopter if assigned and directed to do so.
- Workers shall only approach the helicopter from in front of the aircraft after receiving acknowledgement from the pilot.

Handling Materials Suspended Below Helicopters

Material or conductor suspended below a helicopter can build up a static charge sufficient to seriously injure anyone who comes in contact. The electrical charge is created by the air flow below the rotors. Loads suspended on insulating rope are less likely to build up a charge.

- Employees who handle suspended loads shall be trained in the method to be employed to eliminate shock hazard.
- Protection methods include using a grounded discharge wand to bleed-off the electrical charge and wearing insulated gloves and overshoes.
- Stringing and tensioning equipment shall be grounded to prevent electrical exposures from static charges through conductors or lines.

Crane Operations (OSHA 1926.1400)

- Knuckle boom operators are required to be appropriately CCO certified.
- Cranes used in the construction of power line and facilities shall be operated by third-party certified operators in accordance with OSHA Standard 1926.1400.
- Cranes and crane safety devices shall be inspected by a competent person each day. (OSHA 1926.1412(d))
- Cranes shall not be operated if any deficiencies are discovered
- Crane load line shall be inspected each day. (OSHA 1926.1413)
- Monthly inspections are required to be conducted by a competent person and documented
- Annual inspections are required to be conducted by a qualified person and documented.
- Where cranes are assembled, including hanging jib extensions, and attaching man baskets, a competent person, designated as the Assembly Director must be in charge. (OSHA 1926.1404)
- The worker who performs the assembly under the direction of the Assembly Director must be a qualified rigger. The Assembly Director and qualified rigger may be the same person.
- Assembly/Disassembly Directors shall be competent in identifying and controlling predictable conditions associated with the assembly/disassembly of cranes, familiar with the manufacturer's requirements, and shall have the authority to stop operations when unsafe conditions arise.
- Crane assembly must be according to the manufacturer's specifications (OSHA 1926.1417).
- Qualified Riggers shall be used during assembly/disassembly of cranes or whenever workers are within the fall zone and the hooking, unhooking, or guiding the load, or doing the initial connection of a load to a component or structure.
- Qualified Signal Persons shall be used for all lifts.
- Digger Derrick operations are exempt from the requirements of the OSHA Crane standard, unless it is being used to set structural steel in a substation.

- Cranes shall not be operated in wind exceeding 30 miles per hour or at any wind condition that may be determined by a qualified person to represent a hazard.
- Load weights and a lift plan shall be established before a lift takes place.

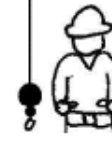
Cranes Working in the Vicinity of Energized Lines

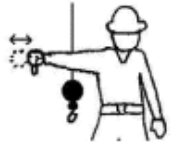
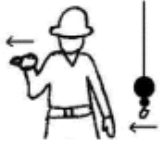
Except where crane operations are conducted under the provisions of 1926 Subpart V, the following procedures shall be followed (OSHA 1926.1408):

- A task hazard analysis (TRACK) shall be conducted with all workers before set-up and operation of a crane.
- Before the crane is set up a qualified person shall determine if any part of the crane, rope or rigging will be within 20 feet of an energized line.
- The swing area for the operation shall be barricaded to prevent persons from inadvertently walking into the hazard area.
- Cranes shall maintain a minimum clearance of 20 feet from lines rated 350kV and below. The minimum clearance for lines in excess of 350kV is 50 feet. Clearances for lines that exceed 1000kV shall be established by the utility owner of the line.
- Where the crane is determined to be working within 20 feet of a line energized at 350kV or less the line shall be de-energized and grounded. Lines that are not grounded are considered as energized.
- Where de-energizing is impractical minimum clearances shall be determined by a competent person. When working near energized lines a watchperson shall be assigned whose sole duty is to observe the crane booms approach to the energized line. In addition, the following shall be performed:
 - Employees working within the vicinity of the crane shall be trained on the hazards of electrical contact, the clearance required between crane and conductor, clearance required between worker and crane, and how to prevent injury and what to do if the crane contacts a power line. (OSHA 1926.1408(g))
 - A warning barricade shall be erected to allow the operator to judge distance to the energized line.
 - An electrically rated voltage isolating link shall be installed between the cranes load line and hook, or between the hook and load. (OSHA 1926.1410(d)(4))
- Operators shall stop load movements anytime conditions are hazardous, or the lift plan is not being followed. Operators have stop lift authority if there are concerns regarding lift or lift plan safety.
- Tag lines used shall be non-conductive.
- The recloser for the circuit shall be turned to off and tagged.

Crane Signals

- The signal charts below are established by OSHA as compliant with the 1926.1400 Crane Standard. Alternate signals may be employed when the operator and signal person have agreed on the signal method to be used prior to the lift.
- Digger Derricks used in utility work, operated under the safety rules of 1926 Subpart V are exempt from the requirements of the Crane Standard, including the requirement for Certified Signal Persons, unless it is being used to set structural steel in a substation.

 STOP – With arm extended horizontally to the side, palm down, arm is swung back and forth.	 EMERGENCY STOP – With both arms extended horizontally to the side, palms down, arms are swung back and forth.	 HOIST – With upper arm extended to the side, forearm and index finger pointing straight up, hand and finger make small circles.
 RAISE BOOM – With arm extended horizontally to the side, thumb points up with other fingers closed.	 SWING – With arm extended horizontally, index finger points in direction that boom is to swing.	 RETRACT TELESCOPING BOOM – With hands to the front at waist level, thumbs point at each other with other fingers closed.
 RAISE THE BOOM AND LOWER THE LOAD – With arm extended horizontally to the side and thumb pointing up, fingers open and close while load movement is desired.	 DOG EVERYTHING – Hands held together at waist level.	 LOWER – With arm and index finger pointing down, hand and finger make small circles.
 LOWER BOOM – With arm extended horizontally to the side, thumb points down with other fingers closed.	 EXTEND TELESCOPING BOOM – With hands to the front at waist level, thumbs point outward with other fingers closed.	 TRAVEL/TOWER TRAVEL – With all fingers pointing up, arm is extended horizontally out and back to make a pushing motion in the direction of travel.

 LOWER THE BOOM AND RAISE THE LOAD – With arm extended horizontally to the side and thumb pointing down, fingers open and close while load movement is desired.	 MOVE SLOWLY – A hand is placed in front of the hand that is giving the action signal.	 USE AUXILIARY HOIST (whipline) – With arm bent at elbow and forearm vertical, elbow is tapped with other hand. Then regular signal is used to indicate desired action.
 CRAWLER CRANE TRAVEL, BOTH TRACKS – Rotate fists around each other in front of body; direction of rotation away from body indicates travel forward; rotation towards body indicates travel backward.	 USE MAIN HOIST – A hand taps on top of the head. Then regular signal is given to indicate desired action.	 CRAWLER CRANE TRAVEL, ONE TRACK – Indicate track to be locked by raising fist on that side. Rotate other fist in front of body in direction that other track is to travel.
 TROLLEY TRAVEL – With palm up, fingers closed and thumb pointing in direction of motion, hand is jerked horizontally in direction trolley is to travel.		

Outrigger and Crane Support

Cranes shall be set up level. Outriggers shall be placed on outrigger pads under all conditions and on all surfaces. A determination shall be made as to the stability of the ground supporting the crane. In right-of-ways, where no single entity governs the site, reasonable attempts shall be made to identify underground obstructions that could destabilize a crane during operation.

Crane Mounted Baskets

- Crane baskets shall be designed and manufactured under the guidance of a registered engineer or by a manufacturer professionally engaged in the construction of crane mounted baskets that meet consensus standards.
- Baskets shall have their load ratings posted.
- Basket load ratings shall not be exceeded.
- Baskets shall be installed on crane booms under the supervision of an A/D Director by a qualified person.

- After each installation of a crane mounted basket a proof test equal to 125% of the basket rating shall be conducted as required under OSHA 1926.1431(j)
- On each shift or when personnel will be lifted at multiple locations during a shift a trial lift shall be conducted in accordance with 1926.1431(h)
- Occupants of a crane basket shall wear fall protection while the basket is aloft and attached by a retractable lanyard.
- Conductive baskets shall be bonded to the conductor being worked before workers contact the conductor.

Aerial Work Platforms and Lifts

- Lifts and platforms shall be operated in accordance with the manufacturer's specifications.
- Aerial lifts including all components associated with lifts such as booms, barriers, accessory equipment and control interfaces shall not be modified without written approval of the manufacturer.
- Operators of aerial lifts and platforms shall be qualified.
- Workers in lifts and platforms shall be fall protected.
- Lifts and platforms shall be inspected by a qualified person before use.
- Aerial lifts shall be test operated through their range of configurations before use.
- Outriggers for aerial equipment shall be placed on pads for all surfaces.
- Trucks near traffic shall be barricaded.
- Side strains shall not be placed against aerial booms.
- Aerial booms shall not be used as guard structures in stringing operations.
- Basket platform loads shall be posted and shall not be exceeded.
- Insulating platforms, baskets and booms shall be periodically cleaned to insure dielectric properties.
- Insulating platform booms shall not be forced through trees or against obstructions that can damage components and risk employee safety.
- Booms, baskets or platforms that are damaged shall be tagged out of service until they are determined to be safe by a qualified equipment specialist.
- Insulated aerial devices shall maintain minimum approach clearances.
- With the exception of Bare-Hand certified devices; when working within the minimum clearances for the purposes of work access, aerial insulated baskets or booms shall not be allowed to come into contact with energized lines.
- Conductive baskets shall not be used near energized circuits
- Conductive baskets shall be bonded to de-energized circuits that are properly grounded.
- Ground personnel shall keep workers and passersby from under aerial devices

Working Near Communication Antennas

- Workers near antennas shall be trained in the hazards of and protection from injury by non-ionizing RF radiation.
- PPE for RF energy protection may include RF energy monitors and protective suits.
- Safety zones shall be established and marked around antennas for the protection of employees.

Ladders

- Employees who use ladders shall be trained.
- Portable and fixed ladders shall be inspected before use for broken or missing rungs or steps, broken or split rails, corroded components, or other faulty or defective components.
- Ladders determined to be unsafe shall be tagged as defective, removed from trucks or the worksite and returned to the regional tool room or local Company yard for repair or destruction.
- Ladders shall not be materially altered to meet a specialized need.
- Repairs to ladders must be made using original manufacturer's materials or approved parts meeting OSHA and ANSI specification for commercial ladders.
- Ladders shall be transported on ladder racks or padded and secured such that the ladder is not damaged in transport.
- Metal spreader or locking device shall be properly set to hold the front and back sections in an open position when the ladder is being used.
- Workers shall not secure themselves or 'buckle-off' to a ladder without securing the ladder from falling first.
- Workers shall not secure themselves to a structure while working from a ladder unless there is someone observing capable of effecting rescue.
- Extension ladders placed against a structure shall be angled 4:1 so that the foot of the ladder is 1 foot from the structure for every 4 feet of ladder length as measured from ground to resting point at the top of the ladder.
- Ladders used against a structure to climb onto a roof or landing shall extend 4 feet above the landing.
- Ladders shall not be used on slippery or unlevel surfaces unless secured or provided with slip-resistant feet to prevent accidental displacement.
- Slip-resistant feet shall not be used as a substitute for care in placing, lashing, or holding a ladder.
- Ladders used in high traffic areas such as in passageways, doorways, or driveways, shall be secured or a barricade shall be used to keep the activities or traffic away from the ladder.
- The area around the top and bottom of ladders shall be kept clear.
- The top of a straight ladder shall be placed with both rails against the resting point unless it is equipped with a properly mating single support attachment designed for the application.
- Ladders shall not be moved, shifted, or extended while occupied.
- The backs of folding ladders shall not be climbed unless the ladder is designed as a two-sided ladder (twin-front) for climbing on both sides.
- When ascending or descending a ladder, the user shall face the ladder.
- Each employee shall use at least one hand to grasp the ladder when progressing up and/or down the ladder.
- Employee shall not carry tools or materials while climbing up or down a ladder.

Welding and Cutting

- Welding and fabrication shall be performed by qualified persons.
- Welding and cutting equipment shall be inspected by the qualified welder prior to using the equipment. Damaged equipment shall not be used, shall be tagged and removed from service.
- Where practicable, fabrication in maintenance facilities should be performed in designated fabrication areas.

- Welding and cutting shall not be performed outside of the designated fabrication areas if safety and fire prevention requirements cannot be met.
- When welding or cutting, including spark producing tasks, on a Client's property or project site, the Client's Hot Work Program shall be followed and such work may only be performed after authorization by Hot Work Permit and shall be in compliance with their requirements.
- Pre-work assessment of the work area shall be conducted to identify the possibility of, and remediation of hazards of welding gasses, exhausts or hazardous byproducts created by the welding or cutting tasks.
- First aid supplies including burn treatment and eye wash shall be readily available where welding and cutting are performed.
- Synthetic clothing or outerwear shall not be worn by persons welding or cutting.
- Welding screens shall be employed to protect nearby workers from injury related to welding.
- Safety glasses shall be worn under welding hoods and face shields.
- A fire extinguisher is required to be at the work area where welding or cutting is in progress.
- A fire-watch person shall be assigned where welding and cutting must be performed in areas where flammable materials cannot be moved or protected.
- A fire-watch shall remain in the work area for a minimum of 1/2 hour after the last weld or cut has been completed.
- A fire-watch shall be assigned when welding or cutting threatens the safety of persons below the work level.
- Only qualified persons trained in the hazards of fuel gas use shall inspect, install, transport or otherwise handle LP gas, Oxygen or acetylene cylinders.
- Pressurized cylinders shall be transported upright and secured with regulators removed and protective caps in place.

Confined and Enclosed Spaces

Confined/Enclosed Space Training

Employees who work in a confined space shall be trained in the hazards and procedures necessary to work safely in confined spaces. This program shall be reviewed annually and updated as necessary.

Definitions:

Attendant means a person with first aid and CPR training who is stationed outside the enclosed space.

Confined Space means a space that:

- (1) Is large enough and so configured that an employee can bodily enter and perform assigned work; and
- (2) Has limited or restricted means for entry or exit (for example, tanks, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry.); and
- (3) Is not designed for continuous employee occupancy.

Enclosed Space means a space that:

- (1) Is a confined space that is designed for periodic employee entry; and
- (2) Under normal operating conditions, does not contain a hazardous atmosphere, but may contain a hazardous atmosphere under abnormal conditions; and
- (3) Has an energized electrical system(s) as the only other physical hazard.

Entry supervisor means the person (such as the employer, foreman, or crew lead) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required by this section.

Hazardous atmosphere means an existing or potential atmosphere consisting of at least one of the following:

- (1) A flammable gas, vapor, or mist in excess of 10 percent of its lower flammable limit.
- (2) An airborne combustible dust at a concentration that meets or exceeds its lower explosive limit.
- (3) An atmospheric oxygen concentration below 19.5 percent (“oxygen deficient”) or above 23.5 percent (“oxygen enriched”).
- (4) An airborne concentration of a substance that exceeds the dose or exposure limit specified by an OSHA requirement.
- (5) An atmosphere that presents an immediate danger to life or health.

Host employer owns or manages the property or project where construction is taking place.

Permit-Required Confined Space (PRCS) is a confined space that has any one of the following characteristics:

- (1) A hazardous atmosphere.
- (2) Inwardly converging, sloping, or tapering surfaces that could trap or asphyxiate an employee. For example, a space between walls that narrows towards the base (including, but not limited to, funnels and hoppers).
- (3) An engulfment hazard or other physical hazard.

Rescue service means a third-party organization such as a fire department technical rescue squad designated to rescue employees from enclosed spaces.

Retrieval system means the equipment (including a retrieval line, chest or full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

Rescue means retrieving, and providing medical assistance to, employees who are in a confined space.

Confined Space Classification

It is the policy of American Power that all spaces are to be considered as ‘Permit Required’ until such time as a qualified entry supervisor has re-classified the space and it is determined to be an Enclosed Space.

An entry supervisor shall be an employee trained in the requirements for classification of a confined space; who is knowledgeable regarding the work and hazards associated with a confined space and who has the authority to stop work in the space if conditions are or become unsafe.

Working in a Permit Required Space Prohibited

No employee of American Power shall work or enter into a space meeting the OSHA definition of a Permit Required Confined Space (PRCS). Contact Safety or see OSHA 1910.146(b) for the full definition

There are occasions where a confined space, under the rules of a host employer may require a 'permit' to enter a space as part of facilities control. These host employer rules are not to be confused with PRCS and entry into such spaces is not prohibited if the space does not meet the definition of PRCS.

Task Hazard Analysis

The entry supervisor shall perform a task hazard analysis of the confined/enclosed space site and the work that will commence in the confined/enclosed space.

Testing and Ventilating Confined/Enclosed Spaces

- With the exception of electrical vaults that have working ventilation systems running, all confined/enclosed spaces shall be tested for hazardous atmospheres.
- After testing, the space shall be constantly ventilated while work is proceeding within the space.
- Testing shall be performed by a person familiar with the test instruments.
- Test instruments shall be designed to simultaneously test for oxygen level, explosive atmosphere, carbon monoxide, and hydrogen sulfide.
- All workers who will be in the space shall have the opportunity to witness the testing of the atmosphere.
- Re-testing shall be performed at any time requested by the entrants.
- If initial testing detects a prohibited condition the space shall be ventilated for an amount of time sufficient to completely exchange the air inside the space.
- Once completely ventilated the ventilation systems shall be turned off and the space shall be tested again.
- If the atmosphere is safe the ventilation systems shall be turned on and workers may enter the space. If the air in the space again shows a prohibited condition contact the Safety Department for guidance.

Enclosed Space Rescue

- A rescue plan shall be developed for each space to be entered.
- A rescue retrieval system shall assure ability to immediately rescue an injured worker without rescuers having to enter the space.
- The rescue plan shall be communicated to all employees on the site and training shall be conducted.
- Workers who enter the space shall wear a well-fitting full body harness with a rescue line attached.
- The end of the rescue line outside the space shall be attached to a rescue winch or an immovable object outside the space to ensure the rope does not fall into the space while workers are moving around.

Attendants and Rescue

- An attendant, trained in first aid and CPR who is capable of initiating and performing a **non-entry** rescue shall be positioned outside the space.
 - a) The attendant for an enclosed space shall not enter the space while performing attendant duties unless relieved by a qualified second attendant.

- b) Where there is only one attendant there must be a device or capstan winch that the attendant can use capable of hoisting an injured worker from the space in a reasonable amount of time.
- If there is more than one worker in the space and a rescue winch is used, the winching device rigging to employees must provide for '**non-entry**' rescue rigging for all workers inside the space.
- Attendants outside the enclosed space are not precluded from performing other duties outside the enclosed space if these duties do not distract the attendant from monitoring employees within the space.

Rescue Service

Standby rescue services, unless they are at the site during entry are not accepted as readily available by American Power. If a host employer requires a rescue service, the rescue service protocols shall be written, and training provided by the rescue service and American Power Safety.

Trenching and Excavation

A competent person trained and capable of identifying existing and predictable hazards associated with excavation safety, and who has the capability and authority to take prompt measures to eliminate hazards shall be in charge of excavation operations.

- Prior to performing any excavation, with the exception of an all pneumatic vacuum excavation, a One-Call for the respective local jurisdiction (**811**) shall be made to identify underground public utilities.
- On private land with Client-owned and operated private utilities, location of underground utilities shall be coordinated with the private owner.
- Employees who work in trenches and excavations shall be trained in the hazards and methods of protection necessary to protect them from injury while working in a trench.
- Training includes hazardous atmospheres and sources of hazardous atmospheres in excavations.
- Analysis of atmosphere hazards in excavations shall be performed by the competent person.
- Soils must be properly classified by the competent person.
- A trained competent person shall inspect excavations to assure they are safe for entry.
- Inspections shall be made at the beginning of the workday. Additional inspections shall be made after rains, when water is discovered in the trench or after any condition arises that may affect the stability of a trench.
- Excavations 4 feet in depth shall have ladder access/egress no more than 25 feet from employees in the excavation.
- Excavations 5 feet in depth shall be benched, shored or sloped to prevent cave-ins.

Slope or Bench Angle Based on Soil Conditions		
Stable Rock	Vertical walls	90°
Type A Soils	3/4 to 1	53°
Type B Soils	1 to 1	45°
Type C Soils	1 1/2 to 1	34°
Slope or benching for excavations deeper than 20' require design by a registered engineer		

- Excavations 6 feet in depth shall be protected on open sides with means to prevent employees from falling into the trench.
- Excavated material shall be kept back at least two feet from trench edges.
- A trained competent person shall determine the requirements for trench wall protections.
- Workers in trenches shall notify the designated competent person whenever conditions are discovered that may result in changes to the stability of trench walls or trench protection systems such as traffic vibration, the appearance of cracks in trench walls, shifting or falling dirt from trench walls, water accumulation, changes in the excavation planned depth or any conditions that may weaken trench walls.
- Excavations left open while workers are away from the site must be substantially barricaded and if necessary covered to protect passersby from the hazards of an open excavation.
- Where trench crossing ramps or bridges are used, they shall be equipped with a standard handrail on both sides of the bridge.
- Structures whose stability might be compromised by nearby excavations must be properly supported to prevent collapse into the trench or structural failure.
- Employees must be protected from loose material, tools or equipment from falling into an excavation.
- Employees shall not approach or place any part of their bodies near or under excavation equipment in operation.
- Operators shall cease operation if any person approaches the digging equipment.
- Employees shall be protected from vehicular traffic by placement of excavated materials, flagging, barriers and cones as necessary to be effective.
- Shoring systems installed in trenches shall be assembled in accordance with the manufacturer's instructions.

Motor Vehicles

- Drivers shall have valid driver licenses rated for the vehicle operated.
- Drivers shall not use hand-held cell phones while driving.
- Seat belts shall be worn by all occupants of a moving vehicle, ROW and parking lots included.
- Vehicles shall be inspected daily before operation.
- Vehicles with inoperative safety devices shall not be operated.
- Before backing the driver shall exit the vehicle and examine the area or shall use a spotter.
- Loads transported on vehicles shall be properly secured.
- Trucks larger than 1½ ton rating shall be chocked when the driver's seat is unoccupied.

- All manual transmission vehicles of any size shall have wheels chocked when the driver's seat is unoccupied.
- Drivers shall clean muddy or otherwise slippery footwear before operating a vehicle.

Construction Equipment and Trailers

- Wheeled construction equipment shall be suitably chocked when the driver's seat is unoccupied.
- Equipment and trailers parked on jobsites shall be suitably barricaded and protected from traffic.
- Construction equipment shall be inspected by a qualified person each day before operation.
- Trailers shall be inspected before they are towed.
- Trailers shall not be overloaded and shall be designed for the type of loads they carry.
- Trailer ramps shall be secured in place when they are raised.
- Operators shall be qualified to operate the equipment they are assigned. Forklift operators shall be certified.
- Raised blades or appurtenances shall be suitably cribbed or blocked before maintenance or service is performed under them.
- Equipment shall have backup alarms detectable above the noise in the work environment.
- Vehicles shall not be operated in reverse without an observer if the view to the rear is obstructed.

All-Terrain Vehicles

UTV (Utility Vehicles) - UTV's, also known as 'side by sides', are those all-terrain vehicles designed to carry two or more workers and equipment to off-road work sites. UTV's such as but not limited to the Polaris Ranger or the John Deer Gator are specifically designed for off-road use for transport but may also be used to pull ropes or for other project related work. UTV's may be wheeled or track driven vehicles powered by combustion engines or electric motors.

ATV (All-Terrain Vehicle) - ATV's, also known as three or four-wheelers are any all-terrain vehicles designed to carry the operator and a limited amount of personal tools or equipment to off-road worksites. ATV's may be wheeled or track driven vehicles powered by combustion engines or electric motors. Snowmobiles are considered ATV's for the purposes of this policy.

Criteria for Use of ATV's or UTV's

- ATV's or UTV's must be approved for use on a project by American Power management and acknowledged by the Safety Department.
- Worksite supervision or safety personnel shall deliver a worksite safety meeting review of the ATV/UTV policy with site personnel and document the policy training on a job briefing or safety meeting form.
- Worksite supervisors shall keep the ATV/UTV policy review acknowledgement page on site with project documents for review by Safety and administrative personnel.
- Worksite supervision must arrange for qualification of assigned operators of ATV/UTV's before operation.

Operators

- Operators must be assigned as an ATV or UTV operator by the Project General Foreman or his designee.
- UTV and ATV operators shall be 'qualified' by a regional safety supervisor or designee.
- ATV riders shall have completed the ATV Safety Institute's Online Adult rider ATV safety course at <http://www.atvsafety.org/> Under certain remote site conditions this requirement may be waived.
- ATV and UTV operators shall not operate an assigned vehicle until they have received the required qualification and read the operators guide for the respective equipment they are assigned to operate.

Operating Requirements for ATV's or UTV's

- Operators, selected by site supervision, shall be familiar with the operating characteristics of the equipment they are to drive and shall have reviewed the operator's manuals for such equipment.
- ATV's or UTV's shall not be operated unless the operator's manuals are on site and readily available to operators.
- ATV's or UTV's shall be trailered to the off-road work areas. (transport of ATV's/UTV's on trucks is permitted when properly loaded and secured)
- Other than right-of-ways to access terrains that can't be navigated by conventional trucks; ATV's or UTV's shall not be operated on dirt roads, improved or paved roads or any roadway where a truck can be driven.
- ATV/UTV's shall be operated at speeds and in a manner reasonable for the prevailing ground and weather conditions.
- All seats on a UTV shall be installed by, or approved for after-market installation by, the manufacturer of the UTV.
- All riders on a UTV shall be seated and seat-belted while the vehicle is in motion.
- Unsecured cargo shall not be transported in compartments with UTV passengers.
- UTV's shall have at least a three-point seatbelt comprised of a lap belt and shoulder strap. Where a three-point belt system is not available and cannot be installed drivers and riders must wear DOT approved helmets with face protection.
- ATV operators shall also wear a proper fitting DOT approved helmet with face protection.
- ATV/UTV use and limits of use shall be discussed in the daily job briefing and task hazard analysis.
- The designated operator of ATV/UTV's shall be noted in the daily job briefing.
- ATV/UTV operators shall wear work boots, long pants, long-sleeved shirts, work gloves, ANSI approved safety glasses and traffic safety vest unless wearing an approved high contrast safety color shirt.
- In high dust areas ATV and UTV operators shall wear goggles.
- ATV/UTV's shall be inspected daily and shall not be operated with safety defects.
- UTV's shall have a first aid kit and fire extinguisher on board during operation.
- ATV/UTV's shall be operated with spark arresting mufflers.
- ATV/UTV's shall not be loaned or taken off-site for personal use.

Work Zone Safety

- Flaggers shall be trained and qualified in accordance with the requirements of the Manual of Uniform Traffic Control Devices (MUTCD) Chapter 6.
- Where required by law, Flaggers shall be 3rd party certified.
- A qualified person shall prepare work zone plans and shall direct the placement of cones, barricades, and signs.
- The site supervisor is responsible for the effectiveness of work zone traffic controls.
- Signage shall be placed well ahead of work location to give drivers sufficient time to prepare for the obstructions created by work zones.

Work Zone Placement of Signs

Recommended Advance Warning Sign Minimum Spacing

Road Type	Distance Between Signs **		
	A	B	C
Urban (Low Speed) *	100 feet	100 feet	100 feet
Urban (High Speed) *	350 feet	350 feet	350 feet
Rural	500 feet	500 feet	500 feet
Expressway, Freeway	1,000 feet	1,500 feet	2,640 feet

* Speed category to be determined by the highway agency

** The column headings A, B, and C are the dimensions shown in Figure 6H-1 through 6H-46 in the *MUTCD*. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the first and second signs. (The “first sign” is the sign in a three-sign series that is closest to the TTC zone. The “third sign” is the sign that is furthest upstream from the TTC zone.)

Hand and Power Tools

- Hand and power tools shall be appropriate for the task.
- Tools shall be inspected before use.
- Defective tools shall be tagged as defective and removed from service.
- Tools shall not be altered outside of their design capacity.
- Tools shall be properly stored and protected from damage.
- Electric tools shall be grounded or double insulated.
- Grounded tools shall not be used with a two-wire extension cord and shall be connected to a grounded supply.
- Tools used outdoors shall be powered through a GFCI supply.
- Hydraulic tools shall be thoroughly inspected before connecting to the pressure system.
- Leaking hydraulic tools, fittings or hoses shall not be used.
- Guards and covers shall be in place or the tools shall not be used.
- When using power tools loose clothing shall be prevented from becoming entangled in the tool.
- Tools shall not be carried up a ladder.
- Follow manufacturer’s recommendations for maintenance and adjustment of tools.

- Extension cords shall be inspected by a qualified person.
- Razor knives shall not be used.
- Folding knives shall be folded when not in use.
- Fixed blade knives shall be sheathed when not in use.
- Sharp edged tools shall not be stored in tool buckets, bins or boxes without covers.
- Drill presses shall be used by persons familiar with the hazards of using a drill press.
- Work shall be secured when drilling.
- When drilling metals, cutting lubricants should be used.
- Portable drill motors to drill metal should be avoided in favor of a drill press or magnetic based drill.
- Users of cut-off saws (also known as concrete or material saws) shall be familiar with the hazards of using such saws.
- Safety glasses and face shields shall be worn while using cut-off saws.
- Gloves shall be used while handling materials being cut or sawed.

Chain Saws

- Chainsaws shall be operated by persons familiar with the hazards of operating a chain saw.
- Chainsaws shall be inspected before use and if found defective shall be tagged as defective and removed from service.
- Chains on chainsaws shall be sharp and tensioned according to the manufacturer's specifications.
- Operators on the ground shall wear chaps and metatarsal guards as well as face shields and hearing protection.
- Operators of a chainsaw shall stand with both feet firmly on the ground in a well-balanced position.
- Workers assisting chainsaw operators shall only approach the operator when in his view.
- Chainsaws shall not be operated with one hand.
- On the ground, chainsaws shall not be 'drop-started'.
- When making side cuts from a bucket, a second worker shall not stand behind the operator on the side of the cut.
- When cutting poles off from the pole; the pole shall be notched toward the preferred fall direction and then back cut to prevent binding and kick-back.

Environmental Guidelines

Controlling Waste

Construction activities generate waste. Prior to the start of construction activities project managers shall coordinate waste controls with the Client/utility owner to establish site-specific protocols for control and disposal of waste. Where local resources allow; waste should be classified and segregated to promote recycling and limit landfill impacts.

Where the Client does not specify waste remediation, project management shall coordinate with local refuse collection to establish classification of waste material.

Site-Specific Environmental Plans

Worksites shall be evaluated for potential environmental issues and a site-specific plan shall be developed. Workers shall be trained to the site-specific plan and periodic audits of performance shall ensure compliance with the site-specific plan. Site-specific rules shall be established for the collection, containment, and appropriate disposition of waste materials.

Site-specific training of the workforce shall include, controls for control of water runoff, minimizing damage to surface areas, dust controls, and proper disposition of waste materials generated during construction activities.

Environment and General Housekeeping

- Shipping containers, boxes and wrapping materials shall be gathered and properly disposed of as soon as practical.
- No discarded packaging material shall be left overnight.
- Trucks and equipment shall be maintained free of debris and unnecessary materials.
- Sufficient water and hand cleansers shall be provided for employees.
- Tools and auxiliary equipment shall be returned to designated storage areas when they are no longer needed.
- Appropriate trash receptacles shall be maintained at all work areas.
- Organic trash collected in truck grunt-sack receptacles shall be dumped into acceptable off-site trash receptacles daily.

Hazardous Materials Spill

All spills and contaminated earth shall be collected and disposed of in accordance with regional environmental regulations and/or Client requirements. In the event of a spill, begin immediate containment and contact the Safety Department for guidance. Be prepared to describe the product spilled, the amount of the spill, and a precise location of the spill.

Contamination of the Environment

Trucks and powered equipment shall be inspected daily for oil or other fluid leaks. Leaks shall be reported and repaired immediately. Leaks or spills that may occur during the day shall be reported to a foreman for immediate action. Trucks bringing materials or equipment delivery into the right-of-way shall be checked for leaking fluids. Trucks with observed leaks shall not be permitted.

Environmental Erosion Control

Everyone should be aware of the impact human activity can have on the environment. Even small disturbances of groundcover should be controlled to minimize environmental impact. States create legislation to comply with Federal mandates to regulate environmental impacts on watersheds by human activity. In most cases, construction projects that will disturb more than five acres of ground cover require thorough studies of the potential impact and a plan to contain runoff and minimize the impact to the environment.

Placement of Controls

Storm water runoff must be controlled. Uncontrolled storm water runoff affects ponds, lakes, creeks, rivers, eventually affecting bays and oceans. Water run-off is regulated under the Clean Water Act

(CWA). Disturbing terrain by construction activity affects water runoff. Silt and contaminants from run-off effects wildlife and drinking water supplies and must be controlled.

Where controls must be placed to regulate or control erosion, the services of an environmental contractor should be considered. Where impacts and controls to be placed are minimal, crew members may be trained in erosion control competencies. Project managers should be aware that each state has differing compliance rules, and some require state-approved certification for workers placing erosion controls.

Erosion Control Basics

Soil displacement is prevented by containing storm water flow. In lower flow conditions placing excelsior logs or ‘waddles’ near the disturbance and downhill from disturbed areas will cause ponding containment of the runoff preventing erosion of sediments into surrounding streams. Excelsior logs may be required at several intervals to filter sediment from water flows. In anticipation of larger flows silt fencing may be required.

In addition to protecting the work areas, travel ways must be protected against soil loss. The need for backfilling of tire ruts and installation of excelsior logs or silt fences shall be anticipated when moving heavy equipment in soft or exposed areas.

Slips, Trips and Falls

Good Housekeeping prevents accidents. Good housekeeping keeps aisles and walking/working surface areas on jobsites and trucks clear, preventing trips and falls. Watch for and correct these common issues to promote safety through good housekeeping:

- Loose objects on walking or working surfaces that are tripping hazards.
- Slippery material on walking or working surfaces that can cause slips and falls.
- Loose objects overhead that can fall on persons below.
- Large objects out of place that might be in the path of pedestrian and vehicular traffic.
- Insecurely piled materials that can fall on workers.
- Improperly placed tools that can cause individuals to come in contact with sharp edges.
- Projecting nails that can puncture or scratch.
- Dirty windows and light reflectors that offer inadequate illumination.
- Disorderly methods and processes that contribute to all hazards.
- Floorboards in trucks littered with scrap, soda cans, candy wrappers, and so on.
- The back of trucks piled high with trash and debris that blow off as the truck travels down the highway.
- Dirt, rocks, sand, and other materials on the back of a dump truck or beds of trailers that bounce off onto vehicles traveling behind them on the highway.
- Collections of rubbish that provide fuel for fires.
- Oil-soaked cloth, shavings, straw, and other items can cause spontaneous ignition.
- Disorderly storage or overcrowding can block access to fire extinguishing equipment.
- Uncontrolled organic dust or lint can cause explosions or “flash” fires.
- Materials and other objects that could pose impalement hazards must be kept out of the area beneath the employees, or they must be properly guarded.

- Climbers must not be worn on the ground unless the employee plans to immediately climb another pole. If there are obstructions such as fences, large rocks, or uneven terrain, climbers need not be removed before walking from one pole to another.
- Climbers must not be worn when walking on rocky, hard, frozen, brushy, or hilly terrain.
- Do not wear climbers while performing work from an aerial lift basket.

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