(12) Electrical

(12.1) Electrical Safety Training

At [Company Name], we prioritize the safety of our team and adhere to the Occupational Safety and Health Administration (OSHA) standards for electrical safety. Our comprehensive approach ensures that all employees work in a secure environment and are aware of the potential risks and safety measures related to electrical equipment.

- **Electrical Safety Training:**

  Every employee who works directly or indirectly with electricity shall undergo a comprehensive electrical safety training program. The training will cover, but is not limited to, identifying electrical hazards, understanding the effects of electric shock, and learning safe work practices.

- **Electrical Safety Procedures:**

  At [Company Name], we maintain strict safety procedures when it comes to handling electrical equipment and machinery. All electrical installations and repairs are only performed by qualified personnel. Equipment should be de-energized before maintenance or repair unless de-energizing presents additional hazards.

- **Personal Protective Equipment (PPE):**

  The right PPE is crucial for anyone working with electrical systems. This may include rubber insulating gloves, hoods, sleeves, matting, blankets, line hose, and industrial protective helmets. Each employee will be provided with appropriate PPE, and the correct use of these items will be included in our training program.

- **Lockout/Tagout (LOTO) Procedures:**

  To ensure that machinery is not unexpectedly started up during maintenance or repair, our company follows stringent LOTO procedures. Only authorized employees can perform LOTO, and they are responsible for ensuring all energy sources are de-energized, locked, and tagged out.

- **Emergency Procedures:**

  In the unfortunate event of an electrical accident, it's essential to know how to respond. This section of the training will cover immediate actions, such as shutting off electrical power, calling for medical help, and basic first aid/CPR training.

- **Regular Inspection and Maintenance:**

  Regular inspection of all electrical equipment and machinery is an integral part of our safety measures. Qualified personnel will perform inspections and necessary maintenance to ensure that our work environment remains safe and hazard-free.

(12.1.1) Electrical Safety Training Program

Welcome to [Company Name] Electrical Safety Training Program. This program is designed to educate all team members on the hazards related to electricity, and how to prevent accidents, injuries, and fatalities.

- **Introduction to Electrical Hazards:**

This section of the training will cover understanding the types of electrical hazards, such as electric shock, electrocution, burns, falls, and explosions. Participants will learn about the risk factors, including working with electricity directly or indirectly, and methods to identify these hazards.

Electrical hazards are present in nearly every workplace. From the simple act of charging a cell phone to operating high-voltage industrial machinery, electrical equipment forms an integral part of our professional lives. Understanding the potential hazards associated with electricity is essential to ensuring the safety of all employees.

Types of Electrical Hazards

Electrical hazards can be categorized into four main types:

1. **Electrical Shock:** Electrical shock is the most common electrical hazard, occurring when a person contacts an electrical energy source. Shocks can result in a wide range of adverse health effects, from minor discomfort to heart failure.
2. **Electrical Burns:** These can occur because of contact with electrical sources or arc flashes. Electrical burns are often severe and can damage internal tissues and organs.
3. **Fire and Explosion:** Electrical equipment can generate sparks, which can ignite flammable substances or cause an explosion. Inadequately maintained equipment, overloaded circuits, or damaged electrical wires are common causes of electrical fires and explosions.
4. **Electromagnetic Radiation:** Certain types of electrical equipment can emit electromagnetic radiation, which can have harmful effects on the human body with prolonged exposure.

Importance of Understanding Electrical Hazards

Every employee should have a basic understanding of these hazards, regardless of their role within the company. Even if an employee's job does not involve direct work with electricity, indirect or accidental contact with electrical sources, or being near electrical fires or explosions, can still present a risk.

To minimize these risks, it's crucial to follow safety procedures, utilize appropriate personal protective equipment (PPE), and adhere to guidelines set forth in our company's Electrical Safety Training Program. This program, along with our company's

safety manual, is designed to provide you with the knowledge and skills needed to navigate the workplace safely when it comes to electricity.

As an [Your Company Name] employee, you play an essential role in creating a safe and healthy work environment. Therefore, understanding and respecting electrical hazards are crucial. It's not just about adhering to regulations and avoiding penalties — it's about ensuring every member of our team goes home safely at the end of each day.

- **Electrical Safety Basics:**

  Learn the fundamental safety practices for working with or near electricity, including maintaining a safe work distance from live parts, understanding the importance of insulation, grounding, and electrical safety devices.

- **Safe Work Practices:**

  This part of the training will include the methods of safe work practices, including but not limited to, de-energizing electrical equipment, using appropriate lockout/tagout procedures, avoiding contact with energized electrical circuits, and adhering to the company’s established electrical safety procedures.

- **Personal Protective Equipment (PPE):**

  Personal Protective Equipment, commonly referred to as PPE, plays a critical role in preventing and reducing the risk of injuries or illnesses caused by exposure to electrical hazards. PPE doesn't eliminate the hazards; rather, it provides a barrier of protection between the worker and the hazards.

Types of Electrical PPE

Insulating Gloves: Insulating gloves are one of the primary forms of PPE for electrical work. They are designed to protect workers from electrical shocks and burns. Gloves should be rated for the maximum voltage to which a worker will be exposed.

Insulating Sleeves: When there is a risk of arm and hand exposure to electric shock, workers should wear insulating sleeves. Like gloves, sleeves should be rated for the maximum voltage used.

Dielectric Footwear: Specialized footwear can insulate workers from electrical shock. Such footwear should be used in conjunction with other types of PPE and safety measures.

Safety Glasses or Face Shields: These protect against arc flashes, which can cause severe burns or blindness. Face shields should be used when working on energized parts or equipment.

Flame-Resistant (FR) Clothing: Certain jobs may require the use of flame-resistant clothing, which resists ignition and quickly extinguishes flames when exposed to an arc flash.

Insulating Tools: While not a wearable form of PPE, insulating tools provide a critical safety barrier between a worker and an energized component. Only tools rated for the voltage level in use should be utilized.

Implementing PPE

PPE is the last line of defense in our electrical safety program. Other controls such as safe work practices, de-energizing equipment, and maintaining a safe work environment should be implemented first.

All PPE should be inspected before each use for signs of damage or wear and replaced as needed. It's important to remember that even minor damage can significantly reduce the protective properties of the equipment.

Training in the proper use and maintenance of PPE is essential. All employees working in areas where there are potential electrical hazards should be trained on the correct selection, use, care, and disposal of PPE.

Importance of PPE in Electrical Safety

PPE plays a crucial role in protecting employees from potential electrical hazards. However, it's just one component of [Your Company Name]' comprehensive electrical safety program, which also includes hazard identification, risk assessment, and control measures.

- **Lockout/Tagout (LOTO) Procedures:**

An integral part of electrical safety, this section will thoroughly cover LOTO procedures, ensuring machinery or electrical equipment is safely shut down and cannot be started up again prior to the completion of maintenance or servicing work.

The goal of our Lockout/Tagout (LOTO) procedures is to ensure that machines and equipment are isolated from all potentially hazardous energy and are effectively de-

energized before employees perform any servicing or maintenance activities where the unexpected energization or startup of the machines or equipment could occur.

- **Preparation for Lockout:** Before LOTO procedures are initiated, employees must be familiar with the type and magnitude of the energy that the machine or equipment uses, the hazards of the energy, and the methods to control the energy.
- **Machine or Equipment Shutdown:** If the machine or equipment is operating, shut it down by the normal stopping procedure (such as depress stop button, open switch, close valve, etc.).
- **Machine or Equipment Isolation:** Operate the switch, valve, or other energy-isolating device(s) so that the equipment is isolated from its energy sources. Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
- **Lockout or Tagout Device Application:** Lockout devices, when used, must be affixed in a manner that will hold the energy isolating devices in a safe or off position. Tagout devices, when used, must be affixed in such a manner as to clearly indicate that the operation or movement of energy isolating devices from the safe or off position is prohibited.
- **Stored Energy Verification:** Ensure that stored energy has been adequately relieved, disconnected, restrained, or otherwise made safe once the machinery or equipment has been locked out.
- **Isolation Verification:** After ensuring that no personnel are exposed, and as a check on having disconnected the energy sources, operate the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.
- **Release from Lockout or Tagout:** Before lockout or tagout devices are removed and energy is restored to the machine or equipment, procedures shall be followed and actions taken by the authorized employee(s) to ensure the work area is clear of nonessential items, the machine or equipment components are operationally intact, and employees are safely positioned.

Remember, these procedures must be documented and communicated to all employees. Training should include not only the employees who will implement the lockout but also those who work in the area where the lockout is to be implemented. All employees need to understand the purpose of the procedure and the dangers associated with attempting to operate a machine that has been locked out.

Emergency Response:

In case of an electrical incident, knowing how to respond is crucial. Participants will be trained on immediate actions, including activating the emergency alarm, calling for medical help, using a fire extinguisher, and performing basic first aid/CPR.

Inspection and Maintenance:

This section will cover the importance of regular inspection and maintenance of electrical equipment, including recognizing when professional maintenance is needed and the appropriate steps to take.

Post-Training Evaluation:

At the end of the program, there will be an evaluation to assess your understanding of the training content. This helps ensure the effectiveness of the training and reinforces learning.

Remember, this training is designed to prevent electrical incidents and ensure a safe workplace. However, it does not replace the need to refer to the specific OSHA regulations and the company's safety policies for complete information and guidance.

12.2 Lockout/Tagout (LOTO) Program AKA Energy Control Program

(Your company name) Energy Control Program (Lockout/Tagout)

- **Purpose**

  The purpose of this Energy Control Program is to establish the procedures necessary to isolate, lockout, and control energy sources during maintenance, repair, or servicing of machines, equipment, or processes, thereby ensuring the safety and health of our employees.

- **Scope**

  This program applies to all employees engaged in the operation, maintenance, installation, and servicing of equipment, and those exposed to the unexpected energization or startup of equipment or release of stored energy.

- **Energy Control Procedures**

  Each piece of equipment/machinery in our facility has a unique, written energy control procedure that details the specific steps necessary to safely shut down, isolate, and lockout its energy sources. The steps include:

  Proper shut-down procedures.

  Equipment isolation.

  Application of lockout/tagout devices.

  Verification of isolation.

- **Employee Training**

  We provide training for all employees to ensure they understand the purpose and function of our Energy Control Program. Training includes:

  Recognition of hazardous energy sources.

  Type and magnitude of energy available.

  Methods and means necessary for energy isolation and control.

- **Authorized Employees**

  Only authorized employees who have completed the training can perform lockout/tagout procedures. These employees are trained in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the means and methods necessary for energy isolation and control.

- **Affected Employees**

  Affected employees, those who operate or work with the equipment under lockout/tagout, receive instruction on the purpose and use of the energy control procedure, recognition of lockout/tagout devices, and prohibition of attempts to start or use equipment that is locked out or tagged out.

- **Periodic Inspections**

  Our company conducts annual inspections of the energy control procedures to ensure employee compliance with our program. Inspections are performed by an authorized employee other than the one utilizing the energy control procedure under inspection.

- **Recordkeeping**

All training and inspections records will be maintained as per the regulatory requirements.

This program is designed to meet the requirements of OSHA's Lockout/Tagout standard (29 CFR 1910.147). Adherence to these procedures will help prevent unexpected start-up or release of stored energy which could cause injury. All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout/tagout.

By acknowledging receipt of these guidelines and the related training, employees are verifying they understand their responsibilities under this program.