LOCKOUT/TAGOUT TRAINING FOR EMPLOYEES

This easy-to-use Leader's Guide is provided to assist in conducting a successful presentation. Featured are:

INTRODUCTION: A brief description of the program and the subject that it addresses.

PROGRAM OUTLINE: Summarizes the program content. If the program outline is discussed before the video is presented, the entire program will be more meaningful and successful.

PREPARING FOR AND CONDUCTING THE PRESENTATION: These sections will help you set up the training environment, help you relate the program to site-specific incidents, and provide program objectives for focusing your presentation.

REVIEW QUESTIONS AND ANSWERS: Questions may be copied and given to participants to document how well they understood the information that was presented. Answers to the review questions are provided separately.

INTRODUCTION

Energy—it's a part of our lives every day. Being around energy is an every day part of our lives, and an important part of our workplace operations. High pressure steam, electricity, hydraulic and pneumatic systems, even the force of gravity are common forms of energy used to power our machines and processes. While energy is obviously useful, it can also be dangerous. Understanding how to properly control hazardous energy is one of the keys to workplace safety. This program reviews the procedures used to control this energy, commonly known as lockout/tagout.

Topics include types of energy sources, the energy control plan, situations requiring lockout/tagout, lockout/tagout devices, energy control procedures and special lockout situations.

PROGRAM OUTLINE

TYPES OF ENERGY SOURCES

- In order to control energy correctly, we must first understand the types of energy sources we may find in the workplace.

- There are several types of energy sources, including electrical, mechanical, chemical, thermal and the force of gravity. No matter its source, the various types of energy must be harnessed and controlled in order to perform useful work.

- The types of energy can be divided into two states. When an energy source is in the process of actively doing its work, it is referred to as kinetic energy.

- Energy that is inactive but has the potential to do work is referred to as Stored Energy, or Potential Energy. For example, electricity stored in a capacitor, grain stored in silo or a spring held in tension are all examples of potential energy.

THE ENERGY CONTROL PLAN

- To help prevent injuries from the unexpected energization of machines or equipment; or the unexpected release of stored energy. Your organization has developed an "Energy Control Program" as outlined in OSHA standard 1910.147 titled "The Control of Hazardous Energy".

- The energy control program consists of energy control procedures which clearly outline specific methods to be used to isolate and control hazardous energy and employee training and inspections to ensure energy sources are properly isolated before service or maintenance work is performed.

• The energy control procedures contained in the energy control plan are commonly called lockout/tagout procedures because these procedures require an energy source to be isolated, locked and then marked with a tag to indicate it should not be operated.

• Also included in the energy control plan are procedures for the proper placement and removal of lockout devices, specific requirements for testing the effectiveness of the energy control methods and any special lockout policies such as multiple lock-outs, working with outside contractors, shift changes and other special situations.

• Check with your supervisor or consult the written parts of the Energy Control Plan if you have any questions about controlling hazardous energy.

WHEN IS LOCKOUT/TAGOUT REQUIRED?

• All employees must know when a lockout/tagout is required and who is authorized to perform a lockout.

• Usually, employees are protected from hazardous energy sources by things such as machine guards and cover plates; however, when these safety devices are removed or bypassed in the course of maintenance or repair operations, the energy sources must be controlled.

• Energy sources need to be isolated and controlled using lockout/tagout procedures if your body can get in the path of a machine's actions or if there is danger from the sudden release of energy.

• Various situations that require lockout/tagout include servicing electrical circuits, repairing or restoring equipment, lubrication and clearing machine jams.

AUTHORIZED, AFFECTED AND OTHER EMPLOYEES

• When it comes to lockout/tagout operations employees are designated as either authorized employees, affected employees or other employees. Each designation carries differing roles and responsibilities.

• Authorized employees play the key role in lockout/tagout; they must know the type and magnitude of the energy sources and understand the methods and means of isolating and controlling that energy.
• This will also include knowing the proper shut-down sequence for the equipment, using an appropriate lockout device and testing the machinery to verify all energy has been released.

• Affected employees do not perform servicing or maintenance work on the machine or a piece of equipment they operate and do not employ lockout tagout procedures. Authorized employees are the only ones permitted to perform lockout/tagout procedures.

• Affected employees are those who operate machines or equipment that will be affected by lockout/tagout operations. Employees who perform other work in an area which may be affected by lockout/tagout operations are also considered affected employees.

• Affected employees must be notified before lockout/tagout operations are begun and informed which machines or equipment will be shut down and locked out.

• All other employees who work in the area of the lock-out must be able to recognize when a lock-out procedure is in progress. They shall be instructed about the procedure taking place and understand that they are prohibited from removing the lock or tag or attempting to apply power to locked and tagged equipment.

• It bears repeating that only Authorized Employees, those properly trained to isolate and control hazardous energy sources as described in the written energy control plan may perform lockout tagout operations.

LOCKOUT/TAGOUT DEVICES

• Any time a lockout/tagout procedure is performed, some type of lockout device is needed. These devices come in a wide variety of types and styles.

• Some examples are locks, chains, wedges and locking valve covers or self-locking fasteners. Although they may look different, their purpose is the same: to isolate, secure or block the machine or equipment from its energy source.

• All lockout devices must be approved by the company. Within each organization, the approved lockout device will be consistent in color, shape or size so that they are easily identified.

• It must be substantial enough that it cannot be easily removed without excessive force, such as with bolt cutters. Lockout and tagout devices need to be able to withstand the environment to which they are exposed for the duration of the lockout.

• Tagout devices, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal. Attachment devices are required to be of a non-reusable type, attachable by hand and self-locking.

• They must be able to withstand 50 pounds of force. The print and format of the tag will be standardized to be recognizable.

• Information contained on a tag is valuable, especially in the event of an emergency. While the tag must indicate the identity of the employee applying it, it can also specify the department they work in, the date the work began and when it is expected to be completed.

• In addition, tags must warn against hazardous conditions if the machine or equipment is energized. Some of these warnings are “Do Not Operate,” “Do Not Start,” “Do Not Open Valve,” “Do Not Close” and “Do Not Energize.”

• Once the company has approved a certain type of lock, tag or other device, it must not be used for any other purpose. Using lockout or tagout devices for other uses may cause confusion and reduce their effectiveness as a safety device.

ENERGY CONTROL PROCEDURES

• When preparing to lockout a machine, the authorized employee must be familiar with the written energy control procedures for the equipment. They must know its operation, the various types of energy it uses and how each energy source, including any stored energy, should be isolated.

• After identifying the energy types used and before shutting down the machine, notify all affected employees that the equipment is being removed from service. Explain why it is being locked out and remind them not to apply power to the equipment while it is locked and tagged.

• After informing any affected workers, shut down the equipment using its normal control function. This may include shutting down the machine in a certain order to avoid additional hazards.

• Once the machine is shut down, all energy sources should be locked in the off position using company approved lockout devices. The lockout tag should be affixed at the same place as the lock or at least as close as safely possible and clearly visible to anyone attempting to operate the device.

• After lockout and tagout devices are applied, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained and otherwise rendered safe.

• After a lockout procedure has been applied, it must be tested. Before servicing the equipment, attempt to operate the normal on/off controls to verify no power is connected to the machine.

• In electrical systems, verify with a voltmeter that the system has achieved a zero energy state.

• With some equipment there may be multiple locations from which to operate the machine. Attempt to operate the equipment from each location to verify the success of the lockout. If you have any questions about the proper method to lock out a piece of equipment or how to test to ensure the lock/out is complete, consult the written lock-out procedure.

• Once the repair work has been completed, it's time to begin returning the equipment to service. The first step is to remove all tools and materials from the immediate area around the machine.

• Locks and tags should be removed by the authorized employee who installed them. Replace all machine guards, safety devices and interlock switches.

• Notify all affected employees that the machine is about to be re-energized. Make sure they are not in the path of the machine or in the danger zone around the machine.

• Double-check that the control switches are still in the off position before reapplying power.

• Just as there may be a specific shut down procedure for certain equipment, it may be critical to re-energize the system in a specific order. Consult the written lockout procedure if you are unsure.

• After the machine's operation has been restored, verify that the repair work was successful before alerting affected employees that the machine is up and running.

SPECIAL SITUATIONS

• There are certain lockout situations which require special consideration. The three most common are group lockout, during shift changes and when outside contractors are working at a plant.

• These circumstances are challenging because they involve more than one employee working on a system. Clear communication is vital to ensure the safety of all.

• During a group lockout, primary responsibility for the lockout will be given to a designated authorized person, who will be able to ascertain the exposure status of the individual members under him.

• Each person involved has his or her own lock and tag and must place it either on the energy control device, as in the case of a multiple lock hasp, or onto a lock box.

• Each employee is responsible for removing his or her lock and tag when they stop working on the machinery or piece of equipment. This ensures that all personnel are accounted for and out of danger before the machine is re-energized.

• Another special situation occurs during a shift change. Specific procedures should be listed in the written energy control plan for this situation in order to maintain continuity of a lockout; in this case, the departing workers must not remove their locks until the arriving workers attach theirs.

• An additional special situation is when working with outside contractors on-site. Outside personnel that are actually servicing equipment are to be trained in lockout/tagout by their employer, making them authorized employees; those who are completing work in an area where energy control is taking place are affected employees.

• Communication is critical. In most cases, the on-site employer and outside employer will exchange copies of their respective energy control plans.

- A pre-job briefing with all those involved will take place and at times, an authorized on-site employee escort can provide additional training on the procedures for a specific task. The on-site employer shall ensure that on-site employees comply with the restrictions included in the outside employer's energy control plan.

- Each piece of equipment is different and may not always be easily accessible. When locking out equipment that is out of sight of its control panel, a coworker must help when testing the effectiveness of the lockout.

- In the event a lockout device must be removed and the person who installed it cannot be located after making reasonable efforts to contact them, only a member of the company's management team may authorize the lock be removed.

- This is usually limited to emergency situations. When the employee returns to work at the facility, they must be notified as to what occurred.

- Finally, if you are unsure how to perform a proper lockout under certain conditions or on a particular piece of equipment, don't do it. Check the written plan or consult your supervisor.

PREPARE FOR THE SAFETY MEETING
Review each section of this Leader's Guide as well as the videotape. Here are a few suggestions for using the program:

Make everyone aware of the importance the company places on health and safety and how each person must be an active member of the safety team.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline.

Copy the review questions included in this Leader's Guide and ask each participant to complete them.

Copy the attendance record as needed and have each participant sign the form. Maintain the attendance record and each participant's test paper as written documentation of the training performed.

Here are some suggestions for preparing your Videotape equipment and the room or area you use:

Check the room or area for quietness, adequate ventilation and temperature, lighting and unobstructed access.

Check the seating arrangement and the audiovisual equipment to ensure that all participants will be able to see and hear the videotape program.

CONDUCTING THE PRESENTATION
Begin the meeting by welcoming the participants. Introduce yourself and give each person the opportunity to become acquainted if there are new people joining the training session.

Explain that the primary purpose of the program is to review the types of energy sources that are found in the workplace and the lockout/tagout procedures that must be followed to control this energy when maintaining or servicing energized equipment.

Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline. Lead discussions about specific equipment at your workplace and the lockout procedures that must be followed when maintaining or servicing this equipment. Use the review questions to check how well the program participants understood the information.

After watching the videotape program, the viewer will be able to identify the following:

- What the energy control plan is and how it works;
- What the roles of authorized, affected and other employees are;
- Which types of devices are used for lockout/tagout;
- How to properly isolate the energy from equipment;
- What procedures must be followed in special situations.

LOOKOUT/TAGOUT TRAINING FOR EMPLOYEES
REVIEW QUIZ

Name_____Date_____

The following questions are provided to check how well you understand the information presented during this program.

1. An energy source that is in the process of actively doing its work is known as _____ energy.

a. potential
b. kinetic
c. controlled

2. Only authorized and affected employees are permitted to perform lockout procedures and maintenance on energized equipment.

a. true
b. false

3. All lockout devices must be approved by your company.

a. true
b. false

4. Tags must be attached securely enough to withstand _____ pounds of force.

a. 5
b. 50
c. 500

5. What is the first step to take for returning equipment to service after repair work has been completed?

a. remove locks and tags from the equipment
b. inform affected employees the work has been completed
c. remove all tools and materials from the immediate area

6. During shift change, departing workers must remove their locks _____ the arriving workers attach theirs.

a. before
b. after

7. Only authorized employees may remove a lockout device that must be removed when the person who installed it cannot be located.

a. true
b. false

ANSWERS TO THE REVIEW QUESTIONS

1. b
2. b
3. a
4. b
5. c
6. b
7. b