C3306
LOCKOUT/TAGOUT FOR
AUTHORIZED EMPLOYEES

Leader’s Guide

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LOCKOUT/TAGOUT FOR AUTHORIZED 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**
Personnel whose jobs include performing maintenance work on energized equipment are known as “authorized employees.” These employees must also know how to control the equipment’s hazardous energy sources through lockout/tagout procedures. This program explains the authorized employee’s responsibilities during the lockout and repair process. Topics include the roles of authorized and affected employees, types of hazardous energy sources, use of locks, lockout devices and tags, steps of the lockout process, special lockout situations and returning equipment to service.

**PROGRAM OUTLINE**

**BACKGROUND**
• All workplaces regularly perform maintenance, repair and service work on equipment. It may seem like “routine maintenance,” but if not done correctly, service work can be dangerous to both the employees performing the maintenance and also to people who are working nearby.
• Equipment that has been shut down for service can inadvertently be restarted by a co-worker or equipment controlled by automatic processors, timers or computers can restart without warning.
• Serious injury and equipment damage can be caused by the failure to control hazardous energy during maintenance, repair and service work. That’s why we use a safety procedure called lockout/tagout.

**WHAT IS LOCKOUT/TAGOUT?**
• Lockout/tagout is the name for a safety procedure that does two things. It protects against the accidental restarting of equipment and it controls the unintentional release of hazardous energy while maintenance is being performed.
• Because of the hazards associated with the maintenance, servicing or repair of the equipment used in the workplace, your organization has developed a lockout/tagout program. This program defines the specific procedures to follow to protect authorized employees and the equipment while they are working on it.
AUTHORIZED & AFFECTED EMPLOYEES
• Lockout/tagout involves two different categories of personnel: authorized employees and affected employees.
• A part of some employees’ jobs is to perform maintenance work on equipment. In terms of lockout/tagout, such an employee is called an “authorized employee.”
• An authorized employee is anyone who is authorized to shut down, lockout and tagout equipment in order to perform service or maintenance.
• An “affected employee” is anyone who either operates or who works near the equipment being serviced or maintained, but does not actually do the service work.
• Since his or her job may be affected by what you (an authorized employee) are doing, an important part of the lockout/tagout procedure is to inform affected employees about the equipment being locked and tagged out for service.
• Safety means working as a team and understanding everyone’s role in the lockout/tagout process.

HAZARDOUS ENERGY SOURCES
• Many machines have multiple energy sources that can cause injury. Such sources include electrical circuits, hot water under pressure and moving parts.
• An energy source is just about anything in a machine that can cause an injury. We need to know what they are and how to control them while we are doing the work.
• There may be several energy sources in the equipment that we service. The common ones include electrical energy from the electrical circuits in the machine, pneumatic energy in pressurized air lines, hydraulic energy in cylinders, hoses and pumps, mechanical energy in moving parts, thermal energy from accumulated heat and gravity.

ENERGY ISOLATING & LOCKOUT DEVICES
• Energy isolating devices are used to isolate the energy in the equipment and physically prevent the transmission or release of that energy. Electrical circuit breakers, disconnect switches, line valves and mechanical blocks are all examples of energy isolating devices.
• When working on equipment, just turning the switch off isn’t good enough because someone can come along and turn it back on. That’s where lockout devices come in.
• Locks and tags are examples of lockout devices. Placing a lock on a disconnect switch or valve physically prevents anyone from restarting or reenergizing the equipment during servicing or maintenance.
• There are different types of lockout devices for control panel switches, valves, circuit breakers and gas line handles.
• On some equipment, it is also necessary to use chains or blocks to keep parts of the equipment from moving.
• Some lockout devices accept multiple locks. If several people are working on the equipment, each person has to have a place to put their lock; you might see several of them daisy chained together.
• Each employee involved in the maintenance procedure is provided with his or her own lock and matching key.
• Locks and keys are never shared or exchanged: one lock, one key. That is how those working on equipment stay safe on the job.

INFORMATION CONVEYED BY TAGS
• A lock and a lockout device don’t tell the whole story. To help communicate what’s going on, tags are used in the lockout/tagout procedures.
• The tag tells who placed the lock and serves as a visible reminder the equipment is shut down. Everybody on the floor needs to be familiar with the tags in your operation and what they mean.
• When the equipment is shut down, locked and tagged, it means keep away unless you’re one of the authorized employees working on the equipment.

STEPS OF THE LOCKOUT/TAGOUT PROCESS

Prepare & Notify
• Lockout/tag-out begins with “prepare and notify.” Preparation involves answering four questions about the equipment: What is the type and amount of energy source in the equipment? What are the potential hazards related to the energy source? What steps will be necessary to control each energy source? Who needs to be notified that the equipment will be shut down, locked out and tagged out?
• Once you can answer all four questions and you’re sure you understand all the energy sources and the steps you need to take to isolate and control them, you can go ahead and notify all employees affected by the work to be done.
• Explain to them why the shut down is occurring. It’s a good idea to let them know how long the equipment will be shut down in case they need to do some planning to get their work done differently during their shift.

Shutting Down The Equipment
• The next step of the lockout/tag-out process is to shut down the equipment following the manufacturer’s instructions and the company’s safety procedures. You may have to shut parts of the equipment down in a particular order or sequence.
• Depending on what you plan to do, you might have to shut down the equipment so that it is in a particular position in its cycle to make it easier to service.

Isolating Equipment From Energy Sources
• The next step in the lockout/tag-out process is to locate each energy source and activate the energy isolating device on the equipment. This might mean shutting off a disconnect switch or a circuit breaker, closing valves, disconnecting process lines, pulling plugs and attaching chain or placing blocks.
• Remember, it’s very common to have multiple energy sources or backup systems; you have to isolate all of them.

Attaching Locks & Tags
• Now that we have isolated the equipment from its energy sources, we lock and tag each of the energy isolating devices on the equipment.
• Attach an appropriate lock to each lockout device so they are secured in the off or safe position.
• Now tag out each lockout device, making sure that each tag is secure and can’t be easily removed.

Releasing Stored Energy
• Since we’ve shut down the equipment and locked and tagged all the energy isolating devices, we can now move on to the next step to make sure we release any energy left in the system.
• The equipment is shut down, but it’s still not safe to begin service work. There may be still pressure in the hot water line.
• Be sure to follow the manufacturer’s recommendations and your company’s procedures for bleeding off any stored energy.
Verifying A Zero Energy State

- The last step before you start servicing the equipment is to test the equipment in order to verify that the energy state is zero. The purpose of this step is to check that all the energy sources in the equipment are properly isolated and that all hazardous energy is safely under control.
- This can involve measuring electrical circuits with a meter, checking pressure gauges, and attempting to start the machine to verify that all the energy sources have been controlled. Make sure that everyone is safely out of danger before testing.
- Once you’ve verified the energy state is zero you can get to work servicing the equipment.

SPECIAL LOCKOUT SITUATIONS

- If the job was started on the first shift and the crew on the second shift is supposed to finish the job, or some extra people are added to the job, those people must also be protected.
- This is accomplished by having the next shift’s employees or the new people simply add their lock to the lockout devices already on the machine. If you’re changing shifts, it’s a good idea to have some overlap time to make sure the new employees know what’s been done and what’s left to do.
- If you have contractors coming into your facility to do some work on a machine, make sure they know your lockout/tag-out procedures. On the other hand, if they use any procedures that are different from yours, you’ve got to coordinate things ahead of time to make sure there’s no confusion.
- Some special cases may involve projects that have dozens of lockout devices spread over a facility with many people working on different parts of the equipment. Because you may have so many locks, things could get confusing and someone could get hurt if a lock is forgotten.
- This is when you might use a lockout box. In this procedure, a single lock and tag is placed on each lockout device. Each lock has a single key and the keys are all placed in a lockable box and then each worker simply puts his own lock on the box.

RETURNING EQUIPMENT TO SERVICE

- With the service procedure complete, we need to go through the safe startup procedures in order to get the equipment back on line. There are three steps to safe startup.
- First, we check all parts of the equipment to make sure they’re fully operational and we replace all safety guards. We also make sure that the controls are in the neutral position to prevent unintended startup when we turn on the power.
- Then we inspect the work area for tools or materials that might have been left behind; we don’t want anything left where it could get pulled into the equipment and cause injury or damage when we restart. Finally, we take one final look to make sure all personnel are clear of the work area.
- In step two, we remove all the lockout devices and tags. Remember, only the individuals who placed the locks can remove them. If there was more than one worker on the equipment we need to coordinate the startup with everyone who was involved in the shutdown.
- If needed, we reconnect any supply lines we have disconnected and close any valves that we opened to bleed off the pressure.
- The third and final step of the safe startup procedure involves notifying all affected employees that the maintenance work has been completed and that we’re going to be restarting the equipment. Then, and only then, can we start up the equipment.

PREPARE FOR THE SAFETY MEETING OR TRAINING SESSION

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. Make an attendance record 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.
Place or secure extension cords to prevent them from becoming a tripping hazard.

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 explain the responsibilities of the authorized employee in the company’s lockout/tagout program.
Introduce the videotape program. Play the videotape without interruption. Review the program content by presenting the information in the program outline. Lead discussions about equipment that must be serviced at your facility and the procedures authorized employees must follow to isolate the energy to this equipment. After watching the videotape program, the viewer will be able to explain the following:
• The roles of affected and authorized employees in the lockout/tagout process;
• Types of hazardous energy sources;
• The use of locks, energy control devices, lockout devices and tags;
• Steps of the lockout process;
• How to safely return equipment to service.
LOOLOCKOUT/TAGOUT FOR AUTHORIZED EMPLOYEES

REVIEW QUIZ

Name__________________________________Date_______________________________

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

1. One piece of equipment may have several energy sources.
   a. true
   b. false

2. Circuit breakers, disconnect switches and line valves are all examples of
   ________________.
   a. lockout devices
   b. tagout devices
   c. energy isolating devices

3. Locks and keys used in the lockout process can only be shared by employees working on the same shift and equipment.
   a. true
   b. false

4. The first step in the lockout process begins with shutting down the equipment.
   a. true
   b. false

5. The final step in the lockout process before you start servicing equipment is
   ________________.
   a. attaching locks and tags
   b. verifying a zero energy state
   c. releasing stored energy

6. If new people are added to a job while a lockout is in place, they should add their locks to lockout devices already on the equipment.
   a. true
   b. false

7. When starting up the equipment after service, we should remove all lockout devices and tags after notifying all affected employees that maintenance work has been completed.
   a. true
   b. false
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ANSWERS TO THE REVIEW QUIZ
1. a
2. c
3. b
4. b
5. b
6. a
7. b