

Lockout/Tagout for Authorized Workers

LENGTH: 13 MINUTES

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PROGRAM SYNOPSIS:

OSHA's standard 1910.147 titled "The Control of Hazardous Energy" requires employers to establish a written Energy Control Program. This program categorizes three types of workers as related to lockout/tagout operations: authorized workers, affected workers, and other workers. The only employees who may perform lockout/tagout operations are Authorized Employees and they are the focus of this program. During interviews and instruction, viewers will see how important it is for authorized employees to perform a lockout/tagout correctly and safely.

PROGRAM OBJECTIVES:

After watching the program, the participant should be able to explain the following:

- What is lockout/tagout;
- The three types of workers listed in OSHA's standard and their differences;
- The responsibilities of an authorized employee;
- How to perform a shutdown and drain all energy;
- How to verify a lockout;
- What to do when returning equipment to service.

PROGRAM OUTLINE:

INTRODUCTION

- A machine becomes jammed by materials and needs to be cleared. A machine guard must be removed in order to lubricate a part. Some electrical switchgear needs to be serviced. And a chemical process tank needs to be entered for cleaning.
- These are just a few of the common workplace situations that require the control of hazardous energy to protect workers from the unexpected startup or energization of machinery or equipment.
- Controlling hazardous energy is commonly referred to as "lockout/tagout."
- The Occupational Safety and Health Administration, OSHA, requires that all sources of hazardous energy be controlled any time machine guards are opened or removed or electrical doors or cover plates are opened or removed.
- Lockout/tagout must also be performed any time a worker is potentially exposed to injury from the inadvertent startup of equipment or unintentional release of hazardous energy.
- A maintenance worker makes this point: "The whole point of lockout is to make sure no one gets hurt. And the only way to do that is to turn off the power and lock it, so no one can turn it back on. Then I put my tag on it to make sure everyone knows that I locked it and I'm the only one who can turn it back on."
- Many types of machines or equipment are powered by multiple energy sources. Some types of energy sources that must be controlled include electricity, compressed air or "pneumatic" systems, pressurized liquids or "hydraulic" systems, and stored energy or "potential" energy, such as that found in springs under tension, capacitors, or even the force of gravity.
- Conditions that require lockout/tagout typically occur during maintenance, service, or repair operations.

TYPES OF WORKERS

- OSHA's standard 1910.147 titled "The Control of Hazardous Energy" requires employers to establish a written Energy Control Program. This written program contains equipment-specific lockout/tagout procedures in addition to governing all aspects of the company's lockout/tagout program.
- OSHA's standard also categorizes three types of workers as related to lockout/tagout operations: **Authorized** Workers, **Affected** Workers, and **Other** Workers.
- According to OSHA, the only employees who may perform lockout/tagout operations are Authorized Employees. They are the focus of this program.

- Another maintenance worker comments: “As someone authorized to perform a lockout, I’m familiar with all the power sources to the equipment. I know how to turn them off or “isolate” them. And even though I’m experienced doing it, I can still reference the procedure to make sure I don’t miss any steps or skip any isolation points.”

NOTIFY AFFECTED WORKERS

- There is a specific lockout/tagout procedure for each piece of equipment. The procedure lists each energy isolation point and the sequence of steps required to perform the lockout.
- Authorized workers must have access to these procedures as well as the organization’s written Energy Control Program.
- Prior to beginning any lockout/tagout operation, the authorized employee must inform any worker who may be affected by the lockout/tagout operation that the equipment will be locked and tagged out of service, how long the equipment will be unavailable, and the purpose of the planned work.
- “It’s really important to let the machine operators know what’s going on, otherwise they might be tempted to try and start it back up,” comments an authorized worker.

THE SHUTDOWN PROCESS

- After notifying all affected workers, the next step in the lockout/tagout process is to shut down the machine or process following its prescribed shutdown procedure.
- Certain processes and equipment must be shut down in a specific sequence to avoid damaging process equipment or creating additional hazards. This may require assistance from the equipment operator or other operations personnel.
- Once the equipment has been properly shut down, the next step for the authorized worker is to locate and isolate all energy sources connected to the equipment.
- “I’ve seen all kinds of isolation points that have to be controlled, valves that need closing, circuit breakers that are opened, and even chemical lines broken and blanked,” notes an authorized worker.
- “And sometimes you may have to block up anything that may still move due to gravity or other forces,” adds another maintenance worker.
- Because there are a variety of hazardous energy sources, OSHA requires that authorized employees be able to identify the types and magnitudes of the energy sources involved and understand the methods and means for isolating and controlling that energy. This critical information can be found in the equipment’s lockout/tagout procedure.
- Due to the potential for an arc flash to occur, operating electrical disconnects may require additional PPE such as leather gloves, a hardhat, earplugs, safety glasses, and a long sleeve arc-rated shirt and pants. Make sure you understand the PPE required to safely de-energize the equipment to be serviced.

LOCKOUT ISOLATION POINTS

- Once isolated, each energy source must be made secure so it may not be re-energized by other workers. This is achieved by applying company-approved lockout and tagout devices to the energy source.
- Each organization will define the type, style, and color of their approved locks and tags and document this information in the written Energy Control Plan.
- To avoid confusion, locks and tags designated for use in energy control operations may NOT be used for any other purpose.
- In addition, tags must be able to endure the environment in which they are used and withstand 50 pounds of force without detaching.
- The purpose of placing a tag is to provide a visible indicator that the equipment has been purposefully shut down and should not be re-energized. This is why tags must display an appropriate text message such as “DO NOT OPERATE.”
- “One of the most important things about lockout is that you put your own lock on each energy source, and you keep control of the key,” remarks an authorized worker.
- “And when there are multiple crews involved or there are many isolation points, we’re probably going to use a group lockbox,” adds another maintenance worker.
- When a group lockbox is used, one or more locks are placed on each energy isolation point and the sole keys to these locks are placed into a lockbox, which is then locked by the overall person in charge and each worker involved in the work.
- To ensure the safety of all persons involved, only the worker who has placed a lock and tag may remove them. This prevents anyone from re-energizing the system while work remains in progress.

DRAIN POTENTIAL ENERGY

- After all energy isolation points have been locked and tagged in the isolating position, any residual energy or stored energy remaining in the system must be dissipated or controlled.
- For example, capacitors may need to be discharged, hydraulic or pneumatic lines bled, or spring tension released.

VERIFY THE LOCKOUT

- The next critical step in every energy control procedure is to test or “try” the lockout to ensure the locked-out equipment or process will not start.
- “Around here, we call it lockout, tagout, and try out, because no lockout is complete until you try it,” comments an authorized worker.
- “To try a lockout, attempt to start it using its normal controls,” says another authorized worker. “Also, be sure to try any secondary controls. The purpose of testing the lockout is to make sure you got it right and the equipment won’t start.”
- If the equipment being locked out is located out of sight from any of its controls, the equipment operator or other qualified person may be needed to help test the lockout.
- Never fail to test your lockout. Always attempt to start the equipment prior to performing any work.
- When the work to be performed involves exposed electrical conductors or circuit parts, an electrically safe condition must be created and verified prior to beginning work. This process includes verifying an absence of voltage.
- Prior to voltage testing, voltmeters and other voltage testers must be verified to be working properly by measuring a known voltage source.
- Until an electrically safe condition is created and verified, an appropriate level of electric shock protection and arc flash protection must be worn. However, once an absence of voltage is confirmed at each point of planned service, and all other requirements of the lockout/tagout procedure have been met, then any required shock and arc flash protection may be removed, and the planned work may proceed.
- When the service work involves a shift change or a change of crew, the arriving workers should install their locks and tags before the departing workers remove theirs.

RETURNING EQUIPMENT TO SERVICE

- “The job is not over when the repair or service is done,” states an authorized worker. “The whole thing must be put back together again, in the specific order laid out by the procedure.”
- The first step is to remove all tools, materials, and debris from the equipment and out of the immediate area.
- Next, any machine guarding, protective devices, and electrical covers or doors must be replaced, reinstalled, closed, or otherwise returned to their normal intended position.
- Also, the equipment’s normal controls must be verified as being in the “off” position.
- Prior to removing the locks and tags, the authorized employee must inform all affected employees that the machine will be re-energized and instruct all nearby personnel to stay clear of the danger zone around the equipment.
- Only then may the lockout and tagout devices be removed from each energy isolation point. Remember, the only person who may remove a lock and tag is the person who placed it. If an employee cannot be located to remove a lockout device, then a very specific procedure to remove an abandoned lock must be followed.
- This procedure will be contained in the written Energy Control Program and will require the involvement of management before the abandoned lock may be removed.
- It’s important that the equipment or machine be re-energized and re-started by following any appropriate re-starting procedure. Once the equipment is up and running, the authorized employee, with assistance from the operator, if necessary, should confirm that the service work was successful, and that the equipment is functioning properly.
- Once it is confirmed that the equipment is functioning properly, any affected workers should be informed that the equipment has been returned to service.

CONCLUSION

- As an authorized worker, you have the training, knowledge, and skill to safely conduct energy control operations otherwise known as lockout/tagout. Never forget that your life, and the lives of others, depends on each step of the lockout/tagout procedure being followed, every time.
- Never assume other workers understand that equipment is being shut down; always inform affected workers first.

- Never assume an energy source will remain isolated; always place your lock and tag.
- Never assume you have isolated the correct energy sources; always test the lockout.
- By following the energy control procedures specified by their organization, authorized employees ensure the safety of each person involved or affected by the service work being performed.

LOCKOUT/TAGOUT FOR AUTHORIZED WORKERS

ANSWERS TO THE REVIEW QUIZ

1. a

2. b

3. a

4. b

5. a

6. a

7. a

8. a

LOCKOUT/TAGOUT FOR AUTHORIZED WORKERS

REVIEW QUIZ

Name _____ Date _____

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

1. Controlling hazardous energy is commonly referred to as “lockout/tagout”.
 - a. True
 - b. False

2. OSHA’s standard categorizes only two types of workers as related to lockout/tagout operations: Authorized Workers and Other Workers.
 - a. True
 - b. False

3. After notifying all affected workers, the next step in the lockout/tagout process is to shut down the machine or process following its prescribed shutdown procedure.
 - a. True
 - b. False

4. Electrical equipment can be shut down in whatever way is most convenient for the authorized worker, regardless of the written lockout procedure.
 - a. True
 - b. False

5. Due to the potential for an arc flash to occur, operating electrical disconnects may require additional PPE, such as leather gloves, a hardhat, earplugs, safety glasses, and a long sleeve arc-rated shirt and pants.
 - a. True
 - b. False

6. After placing a lock and tag on the equipment and draining the potential energy, the next critical step is to test or “try” the lockout to ensure the locked-out equipment or process will not start.
 - a. True
 - b. False

7. When the service work involves a shift change or a change of crew, the arriving workers should install their locks and tags before the departing workers remove theirs.
 - a. True
 - b. False

8. Once it is confirmed that the equipment is functioning properly after the service work is complete, any affected workers should be informed that the equipment has been returned to service.
 - a. True
 - b. False