

CAL / OSHA: LOCKOUT/TAGOUT FACT SHEET

LENGTH: 15 MINUTES

PROGRAM SYNOPSIS:

Our workplace is full of hazards. One such hazard is the unexpected startup of machines or other unplanned releases of hazardous energy. When equipment and machines start, when electrical equipment becomes energized, when pressurized systems are released and when gravity sets objects in motion, energy is released to perform useful work. To prevent these things from happening, a lockout/tagout procedure must be done. Your life or a coworker's life can depend on it.

PROGRAM OBJECTIVES:

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

- What a lockout/tagout procedure is;
- The steps to properly perform a lockout/tagout procedure;
- Where each employee falls into the procedure;
- What happens during a lockout/tagout procedure.

INSTRUCTIONAL CONTENT:

BACKGROUND

- Our workplace is full of hazards. Controlling these hazards and preventing injuries is the purpose of our safety and health program.
- One such hazard is the unexpected startup of machines or other unplanned releases of hazardous energy.
- Controlling hazardous energy can prevent injuries and save lives.
- That is why it's important that you be familiar with your company's Hazardous Energy Control Procedures and undergo lockout/tagout training.
- When equipment and machines start, when electrical equipment becomes energized, when pressurized systems are released and when gravity sets objects in motion, energy is released to perform useful work.
- This same release of energy can also cause serious injury or death when workers fail to follow proper energy control procedures.
- The procedures used to control the release of hazardous energy are commonly called lockout/tagout procedures.
- Under California OSHA, companies must develop a written Hazardous Energy Control Procedure for cleaning, repairing, servicing, setting-up or adjusting prime movers, machinery, and equipment in the workplace.

HAZARDOUS ENERGY CONTROL PROCEDURES

- Each machine, piece of equipment or prime mover must have separate procedural steps for their safe lockout/tagout.
- The Hazardous Energy Control Procedures must clearly and specifically outline at least the following:
 - The machines, equipment, operations, and processes where they apply,
 - What the procedures are used for,
 - The name of the people who will carry out the procedures,
 - Rules for carrying out the procedures,
 - The means to enforce compliance with the procedures,
 - Techniques used for the control of hazardous energy,
 - The steps for shutting down, isolating, blocking, and securing machines or equipment to control hazardous energy,
 - The placement, removal, and transfer of lockout/tagout devices and who is responsible,
 - And testing to determine and verify the effectiveness of lockout and tagout devices and other hazardous energy control devices.

WHY LOCKOUT/TAGOUT IS PERFORMED AND WHO PERFORMS IT

- For our lockout/tagout program to be effective, all employees must understand when performing a lockout/tagout is required.
- A lockout/tagout is required anytime your body is exposed to the path of a machine's actions, or if there is a danger from the sudden release of energy.
- Some common examples include removing machine guarding to lubricate machinery or make repairs, reaching into machines or equipment to clear jams or make adjustments and servicing any type of electrical equipment.
- The Hazardous Energy Control Procedures establish three different employee designations related to lockout/tagout procedures.
- These designations are authorized employees, affected employees and other employees. Each designation carries differing roles and responsibilities.

AUTHORIZED EMPLOYEES

- Cal/OSHA defines an authorized employee as a qualified person who locks out or tags out specific machines or equipment in order to perform cleaning, repairing, servicing, setting-up, and adjusting operations on that machine or equipment.
- Furthermore, authorized employees have been designated as such by their employer and, by reason of training and experience, have demonstrated the ability to safely perform their duties. In addition, where required, authorized employees are properly licensed in accordance with federal, state or local laws and regulations.
- Authorized employees are the only ones permitted to perform lockout/tagout procedures.
- They must be knowledgeable about the type and magnitude of the energy sources associated with the equipment being locked out.
- Authorized employees must know the proper method of isolating and controlling each energy source.
- For example, many machines use energy sources other than electricity, such as hydraulic or pneumatic pressure, the force of gravity and even spring tension.
- Authorized employees must be knowledgeable about all sources of energy for the equipment they intend to lockout.
- Again, authorized employees are the only ones permitted to perform lockout/tagout procedures.

AFFECTED & OTHER EMPLOYEES

- Affected employees, on the other hand, are defined by Cal/OSHA as employees whose job requires them to operate or use a machine or equipment on which cleaning, repairing, servicing, setting-up or adjusting operations are being performed under lockout or tagout, or whose job requires the employee to work in an area in which such activities are being performed under lockout or tagout.
- To ensure the safety of all workers involved in a lockout operation, all affected employees must be notified prior to beginning any lockout/tagout operation.
- Affected employees should be told which machines or equipment will be shut down and locked out, the purpose of the procedure and an approximate time frame for the equipment being restored to service.
- Good communication before, during and after a lockout procedure is a key component to staying safe.
- The final designation is that of "Other Worker."
- Other workers are those who are not directly affected by the lockout operation.
- Because every lockout operation has the potential for serious injury or death to occur, all workers, even those not directly affected, must be able to recognize when a lockout procedure is in progress and understand that they are prohibited from removing a lock or tag and must never apply power to locked and tagged equipment.

LOCKOUT/TAGOUT DEVICES

- During the lockout/tagout process, once an energy source is isolated by opening a switch, closing a valve or by other methods, the energy isolating device must be locked in the isolating position and marked with an approved tag.
- The locks used for this purpose are referred to as lockout devices and the tags used for this purpose are called tagout devices.
- Both lockout and tagout devices must meet certain requirements. Lockout and tagout devices must be approved by the company or organization.
- Each approved device within an organization will be consistent in color, shape, or size. The print and format of tagout devices must also be standardized. This allows all lockout/tagout devices to be quickly and easily identified so

there can be no mistaking its purpose when in use.

- Lockout devices must be constructed in a sturdy manner so they cannot be easily removed and must be able to withstand the environment in which they are used.
- Tagout devices help make the lockout more visible and provide important information about the operation in progress.
- The tagout device must indicate the identity of the employee applying it. Other information which is often required is the date the work began, the expected completion date and the department of the worker involved.
- The tagout device must also indicate that a hazardous condition will occur if energy is released. This is commonly achieved by the verbiage such as “Danger: Do Not Operate”.
- Tagout devices must be substantial enough to prevent inadvertent or accidental removal.
- Equally important is that the device used to attach the tag also be substantial. Attachment devices are required to be of a non-reusable type, attachable by hand and must be self-locking.
- Tags and attachment devices must be able to withstand 50 pounds of force and be able to withstand the environment in which they are used.
- Lockout and tagout devices may not be used for any other purpose. They may only be used for lockout/tagout operations.

LOCKOUT/TAGOUT PROCEDURES

- When authorized workers perform a lockout tagout procedure, there are certain steps that must be performed if the lockout is to be safe and effective.
- The first step is for the authorized worker to be familiar with the written hazardous energy control procedures for that specific piece of equipment.
- The organization’s Hazardous Energy Control Procedures contain written lockout procedures for all equipment and machines on site.
- The written lockout procedure will specify the proper way to isolate and control the various energy sources feeding the equipment.
- Prior to beginning the lockout process, affected workers must be notified that the equipment is being removed from service and that a lockout procedure will be performed.
- The machine or equipment should then be shut down using its normal control functions.
- Be aware that some machines may require a specific shut down sequence be performed to avoid additional hazards or damage to process equipment.
- After the equipment is properly shut down, all sources of energy for the equipment must be isolated by opening disconnecting switches, closing valves or other methods as specified by the written lockout procedure.
- Then, each energy isolating device must be locked with an approved lockout device and tagged with an approved tagout device.
- Each worker who is participating in the repair or servicing of the equipment must place their own lock and tag onto each energy isolating device.
- When multiple workers are involved it is known as a “group lockout.” A group lockout hasp is often used to accommodate multiple locks.
- In some instances, a group lockbox may be used to more easily accommodate a large number of locks. When this is the case the lockbox will contain the keys to the master locks which are on the energy isolating devices.
- After all energy sources have been isolated, locked and tagged, any stored or residual energy must also be controlled.
- The written lockout procedure may require capacitors be discharged, objects affected by gravity be secured or other hazards rendered safe.
- And finally, the equipment must be tested to ensure the lockout procedure was done properly and that the equipment is in fact de-energized.
- Testing or verifying the lockout is critically important. There are many cases of serious injury and death attributed to equipment that was assumed to be locked out but in fact was not. This type of mistake is easy to make because many energy sources look alike and selecting the correct one can be confusing.
- The lockout can be tested by attempting to operate the equipment using its normal on/off controls. Be sure to also test any secondary controls as well as any computer-based automation.
- If the controls are located out of site of the equipment, a co-worker can help confirm the lockout was effective.
- When service or repair work is being performed on electrical systems, the lockout must also be tested by using a

known working voltmeter to verify that no voltage exists.

- Keep in mind that only a properly trained, authorized and qualified electrical worker may perform electrical testing.
- Only after the lockout has been tested and verified successful may the required repair or service be performed.
- Remember, the purpose of performing a lockout/tagout is to prevent injury due to the unexpected starting of machines or equipment.
- This is why each step in the lockout procedure must be carefully followed.

RETURNING EQUIPMENT TO SERVICE

- Similarly, when the work has been completed, there are specific steps which must be followed to safely return the equipment to service.
- The first step is to remove all tools and materials from the immediate area around the machine. Inadvertently leaving a tool inside a machine or near electrical equipment can cause serious damage when the equipment is turned back on.
- Next, replace any protective devices or machine guards which were removed as part of the service procedure and make sure the equipment's controls are in the off position.
- Inform all affected employees the equipment is going to be re-energized and ensure that no one is in the path of the machine's action or in the danger zone around the machine.
- Next, remove all locks and tags from the energy isolating devices.
- Be aware that a lock and tag may only be removed by the person who placed it. This ensures that each worker is safely clear of the equipment. If a worker cannot be located to remove their lock, a supervisor must be notified. Do not remove another worker's lock on your own.
- Once all locks and tags are removed, the equipment may be re-energized by closing disconnect switches, opening valves or by other means as defined by the written lockout procedure.
- Once properly re-energized, the equipment may be restarted using its normal operating controls; however, be sure to follow any appropriate restarting procedure so the equipment or process is not damaged.
- After the machine's operation has been restored, verify that the repair work was successful then alert any affected employees that the machine is up and running.
- Because equipment and processes can change, California OSHA requires the employer to perform a periodic inspection of their energy control procedures at least once a year to evaluate their continued effectiveness.

CONCLUSION

- In this program we have provided an overview of our energy control or lockout/tagout procedures and explained how following these procedures can prevent injuries and fatalities.
- All workers must be able to recognize when a lockout procedure is in progress and understand that they are prohibited from removing a lock or tag and must never apply power to locked and tagged equipment.

CAL / OSHA: LOCKOUT/TAGOUT

ANSWERS TO THE REVIEW QUIZ

1. b

2. a

3. b

4. d

5. a

6. b

7. b

8. a

9. a

**CAL / OSHA: LOCKOUT/TAGOUT
REVIEW QUIZ**

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

Name _____ Date _____

1. Procedures used to control the release of hazardous energy are commonly called _____ procedures.
 - a. Nail/hammer
 - b. Lockout/tagout
 - c. Prime/pain

2. One of the Hazardous Energy Control Procedures is the means to enforce compliance with the procedures.
 - a. True
 - b. False

3. Any employee can perform a lockout/tagout procedure.
 - a. True
 - b. False

4. Many machines use energy sources such as _____.
 - a. Hydraulic or pneumatic pressure
 - b. Force of gravity
 - c. Spring tension
 - d. All of the above

5. Good communication before, during and after a lockout procedure is a key component to staying safe.
 - a. True
 - b. False

6. Once an energy source is isolated the device does not need to be locked.
 - a. True
 - b. False

7. Tagout devices help make the lockout more visible and provide _____.
 - a. The names of those performing the lockout
 - b. Important information about the operation in progress
 - c. Information about the machine

8. Tagout devices must be substantial enough to prevent inadvertent or accidental removal.
 - a. True
 - b. False

9. Because equipment and processes can change, Cal/OSHA requires employers to perform periodic inspections of energy control procedures at least once a year.
 - a. True
 - b. False