

Lock-out / Tag-out



What is Lockout / Tagout

- **Lockout**: placing a lock (lockout device) on the energy-isolating device of a machine or piece of equipment so that it **CANNOT** be operated.
- **Tagout**: placing a tag (tagout device) on the energy-isolating device of a machine or piece of equipment to indicate it **MAY NOT** be operated (not a physical restraint).



What is the Purpose

- **Purpose:** to protect workers performing any activities related to servicing and/or maintenance from being injured by the unexpected energization or startup of machines and equipment, or the release of hazardous energy.



Energy Comes in Several Forms

Workers may be exposed to hazardous energy in several forms and combinations during installation, maintenance, service or repair work:

- **Kinetic** (mechanical) energy in the moving parts of mechanical systems .
- Potential energy stored in **pressure** vessels, gas tanks, **hydraulic** or **pneumatic** systems and **springs** (potential energy can be released as hazardous kinetic energy).
- **Electrical** energy from generated electrical power, static sources or electrical storage devices (such as batteries or capacitors).
- **Thermal** energy (high or low temperature) resulting from mechanical work, radiation, chemical reaction or electrical resistance.



Who Must follow OSHA's LO/TO Rules

- Workers performing activities related to servicing and/or maintenance on machines or equipment and who are exposed to the unexpected energization, startup, or release of hazardous energy.



Types of Employees

Three levels of employees are covered by the standard:

- **Authorized employee:** locks or tags machines or equipment in order to perform servicing or maintenance.
- **Affected employee:** required to use machines or equipment on which servicing is performed under the lockout/tagout standard or who performs other job responsibilities in an area where such servicing is performed.
- **Other employee(s):** are or may be in an area where energy control procedures may be used.



Activities Covered

- Servicing and/or maintenance of machines or equipment when the source of energy to the machines or equipment is electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy
 - E.g., constructing, installing, setting up, adjusting, inspecting, modifying, maintaining and/or servicing machines or equipment; including lubrication, cleaning or unjamming of machines or equipment, and making adjustments or tool changes



Energy Control Program

- Employers must establish an energy control program, to ensure that machines and equipment are isolated from their energy source(s) and made safe before service and maintenance is performed.



Procedures

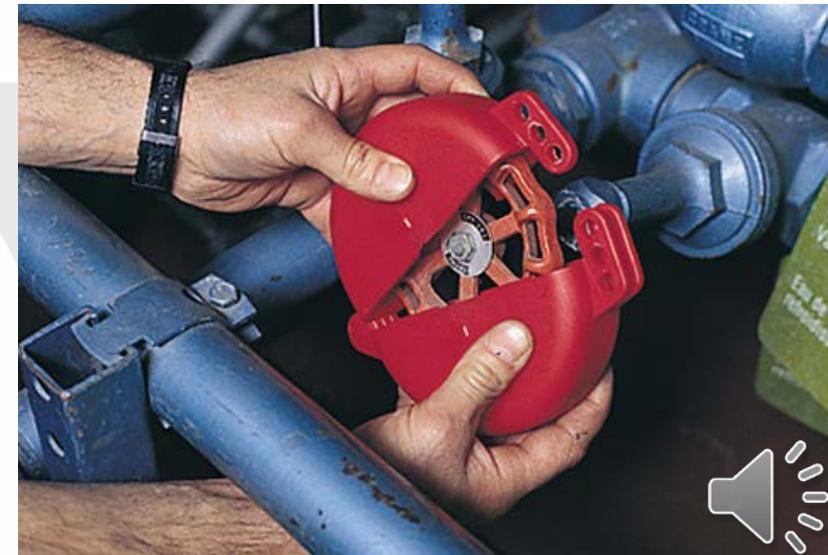
Procedures must include, but are not limited to:

- A statement on how and when the procedure will be used.
- The steps needed to shut down, isolate, block and secure machines or equipment.
- The steps for the safe placement, removal and transfer of lockout/tagout devices and who has the responsibility for them.
- The requirements for testing machines or equipment to check the effectiveness of locks, tags and other energy control measures.



Devices

- A mechanical device that physically prevents the transmission or release of energy.
- The energy-isolating device is the primary tool for providing protection under the standard.
- There are two types of energy-isolating devices:
 - Those that can be locked
 - Those that cannot be locked



Physical Device Descriptions

- Lockout device: any device that uses positive means, such as a lock, blank flanges and bolted slip blinds, to hold an energy-isolating device in a safe position, preventing the energizing of machinery or equipment (can only be applied to energy-isolating devices that are capable of being locked out).
- Tagout device: any prominent warning device, such as a tag and a means of attachment, that can be securely fastened to an energy-isolating device to indicate that the machine or equipment may not be operated until the tagout device is removed.



Devices

- **Durable** – able to withstand the environment to which they are exposed for the maximum duration of the expected exposure.
- **Standardized** – according to either color, shape or size.
- **Substantial** – enough to minimize early or accidental removal. Locks must be substantial to prevent removal except by excessive force or special tools. Tag means of attachment must be non-reusable, attachable by hand, self-locking and non-releasable, with a minimum unlocking strength of no less than 50 pounds.
- **Identifiable** – Locks and tags must clearly identify the employee who applies them. Tags must also warn against hazardous conditions if the machine or equipment is energized and must include a legend such as the following:

DO NOT START
DO NOT OPEN
DO NOT CLOSE
DO NOT ENERGIZE
DO NOT OPERATE



Lockable

If the energy-isolating device is lockable, the employer must use locks unless he or she can prove that the use of tags would provide protection at least as effective as locks.



Lock out Procedure

This procedure can be performed only by authorized employees. The steps are as follows:

- Notify all affected employees that the machine or equipment will be shut down and locked out
- Prepare for shut down.
- The authorized employee must know:
 - The type and strength of the energy
 - The hazards of the energy to be controlled
 - How to control the energy
- Shut down the machine or equipment.
- The machine or equipment must be turned off or shut down using the *procedures established in the energy control plan*



Lock out Procedure

- Isolate the machine or equipment.
- Apply the lockout or tagout device.
- Lockout devices must be affixed in a manner that will hold the energy-isolating devices in a "safe" or "off" position.
- Tagout devices must be affixed to show clearly that the operation or movement of energy-isolating devices from the "safe" or "off" position is prohibited.



Lock out Procedure

- Make all stored or residual energy safe.
- Make sure the machine or equipment has been isolated or disconnected and de-energized.
- Before any work begins on machines or equipment that have been locked out or tagged out, an authorized employee must make sure that the machine or equipment has been properly isolated and de-energized (check facility's energy control procedures for specifics).



Removing Devices

1. Inspect the work area to ensure that non-essential items have been removed and that machine or equipment components are ***intact*** and capable of operating properly.
2. Check the area around the machine or equipment to ensure that all employees are a safe distance away.
3. Make sure that locks or tags are removed **ONLY** by those employees who attached them.
4. Notify affected employees immediately *after* removing locks or tags and *before* re-energizing and starting equipment or machines.



Contractors Onsite

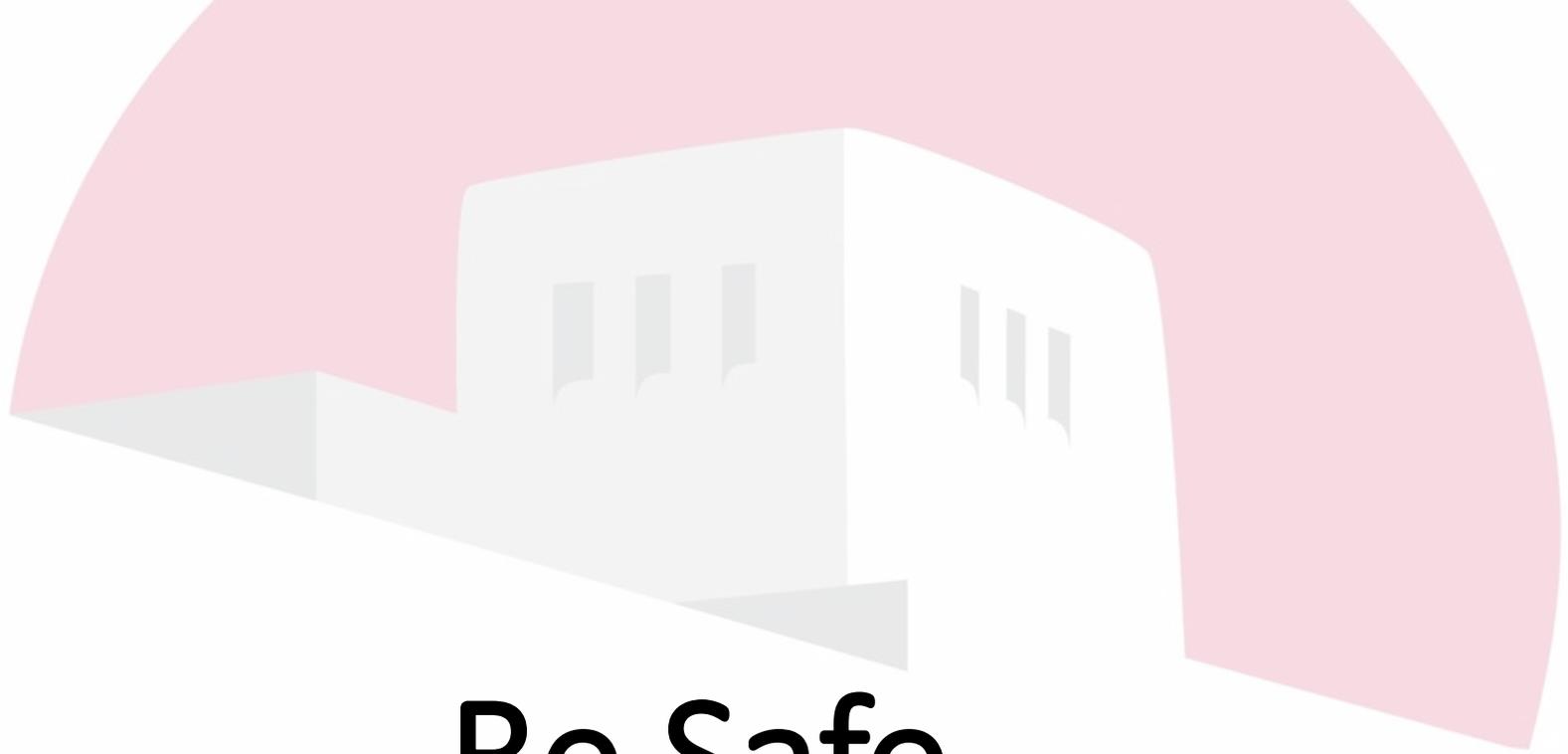
- When outside personnel such as contractors are on site, the onsite employer and the outside employer must inform each other of their respective lockout or tagout procedures.
- Each employer must ensure that his or her personnel understand and comply with all restrictions and/or prohibitions of the other employer's energy control program.



Annual Inspections

- Formal periodic inspections of the energy control procedures ensure that the procedures and the requirements of the standard are being followed.
 - Must be performed at least once a year
- The employer must certify that the periodic inspections have been performed.
- For lockout procedures, the periodic inspection must include a review between the inspector and each authorized employee of that employee's responsibilities.
- When a tagout procedure is inspected, a review on the limitation of tags must also be included with each affected and authorized employee.
- The employer must correct any deficiencies or deviations identified during the inspection.





Be Safe

INNM



Acknowledgement

I _____, have completed the Lockout Tagout training.
(Print Name)

Date: _____

Please print the acknowledgement sheet, fill in requested information and email to srsweb@unm.edu to complete training.