Lockout Tagout

Preparation

1. Read Applicable Background information and related Company Policy Chapter.
2. Make _____ Copies of this Lesson Plan for Personnel
3. Make Transparency, procure transparency pens, etc.
4. Coffee, tea, snacks

Material

1. Locks, Tags, Electrical Locking Devices and Valve Locking Devices

Objective

By the end of this session, personnel shall be able to describe:

1. Reasons for a Lockout Tagout Program
2. Lockout Tagout Definitions
3. Protective Materials and Hardware
4. Training and Communication Requirements
5. Notification of employees
6. Release from lockout or tagout
7. Additional requirements, to include:
   (1) Testing or positioning of machines, equipment or components thereof.
   (2) Outside personnel (contractors, etc.).
   (3) Shift or personnel changes
8. Sequence of Lockout
9. Restoring Equipment To Service

Background

This lesson covers the servicing and maintenance of machines and equipment in which the unexpected energization or start up of the machines or equipment, or release of stored energy could cause injury to employees. This lesson establishes minimum performance requirements for the control of such hazardous energy

Notes

Lesson

Reason for a Lockout Tagout Program

The Company must establish a program and utilize procedures for affixing appropriate lockout devices or tagout devices to energy isolating devices, and to otherwise disable machines or equipment to prevent unexpected energization, start-up or release of stored energy in order to prevent injury to employees.

Procedures described apply to all electrical equipment and machinery connected to an energy source by either hard wire or other permanent connection (hydraulic lines, electrical, etc.) that is repaired, serviced, or maintained by Company personnel. The Machinery Tag Out Program applies to all equipment or machinery operated by mechanical, hydraulic, pneumatic, chemical, thermal, or other energy resources where the unexpected energizing could cause injury to employees or customers.

Circuit breakers, disconnect switches, and other energy isolating devices used to control the flow of energy to the machine/equipment must be operated in such a manner as to shut off or "isolate" all energy to the machine.

Lockout Tagout Definitions

Affected employee. An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

Authorized employee. A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

Capable of being locked out. An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

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Energized. Connected to an energy source or containing residual or stored energy.

Energy isolating device. A mechanical device that physically prevents the transmission or release or energy, including but not limited to the following: A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

Energy source. Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Hot tap. A procedure used in the repair, maintenance and services activities which involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Lockout. The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device. A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

Normal production operations. The utilization of a machine or equipment to perform its intended production function.

Servicing and/or maintenance. Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

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Setting up. Any work performed to prepare a machine or equipment to perform its normal production operation.

Tagout. The placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout device. A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Protective Materials and Hardware

Each person shall be issued a lock, and each lock shall have either a key or combination which is unique to that device.

(i) Locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware shall be provided by the Company for isolating, securing or blocking of machines or equipment from energy sources.

(ii) Lockout devices and tagout devices shall be singularly identified; shall be the only devices(s) used for controlling energy; shall not be used for other purposes; and shall meet the following requirements:

Durable-

(1) Lockout and tagout devices shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.

(2) Tagout devices shall be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.

(3) Tags shall not deteriorate when used in corrosive environments such as areas where acid and alkali chemicals are handled and stored.

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Standardized-
Lockout and tagout devices shall be standardized within the facility in at least one of the following criteria: Color; shape; or size; and additionally, in the case of tagout devices, print and format shall be standardized.

Substantial-
(1) Lockout devices. Lockout devices shall be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters or other metal cutting tools.

(2) Tagout devices. Tagout devices, including and their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal. Tagout device attachment means shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds and having the general design and basic characteristics of being at least equivalent to a one-piece, all-environment-tolerant nylon cable tie.

Identifiable-
Lockout devices and tagout devices shall indicate the identity of the employee applying the device(s).

(iii) Tagout devices shall warn against hazardous conditions if the machine or equipment is energized and shall include a legend such as the following:

Do Not Start, Do Not Open, Do Not Close, Do Not Energize, Do Not Operate

Training and Communication Requirements

The Company shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. The training shall include the following:

(A) Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control. Each affected employee shall be instructed in the purpose and use of the energy control procedure.

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All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

When tagout systems are used, employees shall also be trained in the following limitations of tags:

(A) Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.

(B) When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.

(C) Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.

(D) Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.

(E) Tags evoke a false sense of security and their meaning needs to be understood as part of the overall energy control program.

(F) Tags must be securely attached to energy isolating devices so they cannot be inadvertently or accidentally detached during use

Employee retraining-

(A) Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures.

(B) Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever the Company has reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

The Company shall certify that employee training has been accomplished and is being kept up-to-date. The certification shall contain each employee's name and dates of training.

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Notification of Employees

Affected employees shall be notified by the Company or authorized employee of the application and removal of lockout devices or tagout devices. Notification shall be given before the controls are applied, and after they are removed from the machine or equipment.

Release from Lockout or Tagout

Before lockout or tagout devices are removed and energy is restored to the machine or equipment, procedures shall be followed and actions taken by the authorized employee(s) to ensure the following:

(1) The machine or equipment. The work area shall be inspected to ensure that non-essential items have been removed and to ensure that machine or equipment components are operationally intact.

(2) Employees.

(i) The work area shall be checked to ensure that all employees have been safely positioned or removed.

(ii) After lockout or tagout devices have been removed and before a machine or equipment is started, affected employees shall be notified that the lockout or tagout device(s) have been removed.

(3) Lockout or tagout devices removal. Each lockout or tagout device shall be removed from each energy isolating device by the employee *who applied the device*.

When the authorized employee who applied the lockout or tagout device is not available to remove it, that device may be removed under the direction of the Company. The Safety and Health Manager shall oversee and direct the removal. The Safety and Health Manager shall:

(i) Verify that the authorized employee who applied the device is not at the facility;

(ii) Make all reasonable efforts to contact the authorized employee to inform him/her that his/her lockout or tagout device has been removed; and

(iii) Ensure that the authorized employee has this knowledge before he/she resumes work at that facility.

Notes

Additional Requirements

Testing or positioning of machines, equipment or components thereof-

In situations in which lockout or tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine, equipment or component thereof, the following sequence of actions shall be followed:

(i) Clear the machine or equipment of tools and materials,

(iii) Remove employees from the machine or equipment area,

(iii) Remove the lockout or tagout devices,

(iv) Energize and proceed with testing or positioning;

(v) Deenergize all systems and reapply energy control measures in accordance with paragraph (d) of this section to continue the servicing and/or maintenance.

Outside personnel (contractors, etc.)-

(i) Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of this standard, the on-site Company and the outside Company shall inform each other of their respective lockout or tagout procedures.

(ii) The on-site Company shall ensure that his/her employees understand and comply with the restrictions and prohibitions of the outside Company's energy control program.

Shift or personnel changes-

Specific procedures shall be utilized during shift or personnel changes to ensure the continuity of lockout or tagout protection, including provision for the orderly transfer of lockout or tagout device protection between off-going and oncoming employees, to minimize exposure to hazards from the unexpected energization or start-up of the machine or equipment, or the release of stored energy.

Notes

Sequence of Lockout

(1) Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

(2) The authorized employee shall refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.

(3) If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open switch, close valve, etc.).

(4) Deactivate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).

(5) Lock out the energy isolating device(s) with assigned individual lock(s).

(6) Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.

(7) Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

Caution: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

Notes

Restoring Equipment To Service

When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken:

(1) Check the machine or equipment and the immediate area around the machine or equipment to ensure that non-essential items have been removed and that the machine or equipment components are operationally intact.

(2) Check the work area to ensure that all employees have been safely positioned or removed from the area.

(3) Verify that the controls are in neutral.

(4) Remove the lockout devices and reenergize the machine or equipment.
Note: The removal of some forms of blocking may require reenergization of the machine before safe removal.

(5) Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

Closure

Employees involved in the use of this Machinery Tag Out Program must receive training in the requirements of this program upon initial assignment. The Safety and Health Manager is responsible for verifying that training is completed as required by this program.

Employees must be trained to recognize when the Machinery Tag Out Program is being implemented and understand the purpose of the procedure and the importance of not attempting to start up or use machinery or equipment that has been locked or tagged out.

Do you understand the purpose and the importance of not starting up a tagged out piece of equipment?

What questions do you have?

Notes

Machinery Tag Out Program
Inspection Form

<u>This form will be used when inspecting the Tag Out/ Lock Out Procedure</u>

Inspector's Name _____ Date _____

MACHINERY / EQUIPMENT INSPECTED	**COMMENTS**
1. _____	_____.
2. _____	_____.
3. _____	_____.
4. _____	_____.
5. _____	_____.
6. _____	_____.
7. _____	_____.
8. _____	_____.
9. _____	_____.
10. _____	_____.

I hereby certify that I have inspected the Lock Out/Tag Out procedure for the above listed equipment, have interviewed operators of such equipment and determined that compliance with the Company Lock Out/Tag Out procedure is satisfactory.

_____ _____

Inspectors Signature Date

Lock and Tag Check Out / Check In Log

Date	Lock # Tag #	Employee	Equipment to be Locked or Tagged Out	Check Out Time	Check In Time


DANGER
DO
NOT
OPERATE
Signed by
Date