

Lockout/ Tagout Overview 1-Hour Module

Overview

Workers performing service or maintenance on machinery and equipment may be exposed to injuries from the unexpected energization, startup of the machinery or equipment, or release of stored energy in the equipment.

The Lockout/Tagout standard requires the adoption and implementation of practices and procedures to shut down equipment, isolate it from its energy source(s), and prevent the release of potentially hazardous energy while maintenance and servicing activities are being performed. It contains minimum performance requirements, and definitive criteria for establishing an effective program for the control of hazardous energy. However, employers have the flexibility to develop lockout/tagout programs that are suitable for their respective facilities.

Topics to be covered

- a. General Environmental Controls – *29 CFR 1910.141*
- b. Lockout Tagout – *29 CFR 1910.147*
- c. Typical Minimal Lockout Procedures – *29 CFR 1910.147 Appendix A*

Objectives

Upon completion of this topic students should be able to:

- a. Explain the contents and implications of *29 CFR 1910.147*
- b. Understand the relationship between Machine Guarding and Lockout Tagout

Training Resources

- a. PowerPoint Presentation with instructor notes (Black and White)

Hour 1

- I. Outline *29 CFR 1910.147*- The Control of Hazardous Energy
 - a. Discuss operations/ activities covered by the standard
 - b. Review the relationship between Machine Guarding and LOTO
- II. Types of Energy and Associated Hazards:
 - a. Electrical
 - b. Mechanical
 - c. Hydraulic
 - d. Pneumatic
 - e. Chemical
 - f. Thermal
 - g. Other

- III. LOTO v. Tagout:
 - a. Prefer Lockout
 - b. Tags allowed, if employer can demonstrate *Full Employee Protection*

- IV. Definitions:
 - a. Authorized employee
 - b. Affected employee
 - c. Capable of being locked out
 - d. Energy isolating device
 - e. Servicing and or maintenance

- V. Servicing and maintenance Activities Outlined
 - a. Setting up
 - b. Adjusting
 - c. Inspecting
 - d. Modifying
 - e. Installing
 - f. Cleaning?

- VI. Lockout Tagout program requirement
 - a. Written program including specific written procedures
 - i. Scope
 - ii. Purpose
 - iii. Authorization
 - iv. Rules, techniques for control of energy

- VII. Equipment Specific Procedures
 - a. Step 1: Employee Notification
 - i. Before controls are applied and before they are removed
 - b. Step 2: Prepare for Shutdown
 - i. Knowledge of the type and magnitude of energy and appropriate methods to control energy
 - c. Step 3: Machine or Equipment Shutdown
 - i. Orderly shutdown to avoid increased hazards
 - d. Step 4: Machine or Equipment Isolation
 - i. Mechanical disconnects required for isolation
 - 1. Breakers/ Disconnects
 - 2. Line Breaking
 - e. Step 5: Lockout or Tagout Device Application
 - i. Affixed by authorized employee holding energy isolating device in safe or off position
 - f. Step 6: Dissipation of Stored Energy (Potential)
 - i. Batteries or capacitors
 - ii. Pressure differentials
 - 1. Hydraulics
 - 2. Pneumatics
 - 3. Vacuum
 - iii. Springs

- iv. Gravity
- g. Step 7: Verification
 - i. Prior to servicing or maintenance, authorized employee must verify machine has been de-energized
- h. Step 8: Release from Lockout or Tagout
 - i. Inspect the work area\
 - ii. Employees safely positioned
 - iii. Lockout Tagout removal (by authorized employee who applied)

VIII. Lock/ tag removal

IX. Hardware Requirements

X. Periodic Inspections

- a. Annual review of Lockout Tagout procedures

XI. Training and re-training

XII. Testing or positioning of machines

XIII. Group lockout

- a. Discuss accountability and the use of Lockout Tagout as a method of protection for each individual employee.

XIV. Contractors

- a. Using contractors to service or maintain equipment does not alleviate the hazards associated with the unexpected start up of equipment.

XV. Personnel or shift changes

Activities and Classroom Procedures

a. Training Techniques

- Give examples of equipment to be serviced and maintained and activities that would require the control of hazardous energy in your facility.
- Use PowerPoint slides with OSHA's Lockout Tagout e-Tool to overview the requirements and procedures necessary to protect workers from the unexpected energization and start up of equipment.

b. Activities

- a. Utilize the case studies provided (also available on OSHA's Lockout Tagout eTool @ <http://www.osha.gov/dts/osta/lototraining/case/cs-overv.htm>) to facilitate discussion related to Lockout Tagout.

Evaluation and Assessment

a. Interactive conversations