

Shop Topics LOTO Safety (004 - SG)

Study Guide

What is the primary purpose of Lockout/Tagout (LOTO) procedures?

To protect workers during the servicing and maintenance of machinery and equipment.

According to OSHA, approximately how many fatalities are prevented annually by proper LOTO procedures in the U.S.

An estimated \$120\$ fatalities.

How many injuries does OSHA estimate are prevented each year through effective LOTO implementation?

Approximately \$50,000\$ injuries.

What is the specific OSHA regulation number governing the Control of Hazardous Energy?

\$29\$ CFR \$1910.147\$.

What are the three mandatory components of an employer's written Energy Control Program?

Procedures, training, and periodic inspections.

Under OSHA requirements, what must be done to machines before servicing or maintenance begins?

They must be isolated from all energy sources.

What are the three required physical characteristics for LOTO devices?

They must be durable, standardized, and substantial.

How does the function of a lockout device differ from a tagout device?

Lockout devices physically prevent operation, while tagout devices serve as warning indicators.

Which group of employees must be trained in specific energy types, isolation methods, and LOTO procedures?

Authorized employees.

In the context of LOTO, who are 'affected employees'?

Those who operate or work near equipment that is being serviced under LOTO.

What is the specific training requirement for 'all other' employees not directly involved in LOTO?

They must be trained not to restart equipment that is locked or tagged out.

How often must employers conduct inspections of their LOTO procedures?

Annually.

What must be included in a periodic LOTO inspection besides a verification of effectiveness?

A review of the procedures with authorized employees.

What are two examples of electrical energy sources in a manufacturing environment?

Motors and control panels.

Presses and fluid-powered lifts are typically powered by which type of hazardous energy?

Hydraulic energy.

Air compressors and actuators are primary examples of which energy source?

Pneumatic energy.

In manufacturing, ovens and heat exchangers are sources of ____ energy.

Thermal

Tanks, pipelines, and cleaning systems are common sources of ____ energy.

Chemical

Which category of energy includes moving parts like springs and flywheels?

Mechanical energy.

What must be developed for each piece of equipment to identify all energy sources and isolation points?

Machine-specific procedures.

What visual aids are recommended to enhance the clarity of machine-specific LOTO instructions?

Diagrams or photos.

How can departments or roles distinguish their LOTO equipment using standardized devices?

By using color-coded locks.

What three pieces of information must be included on a LOTO tag?

Employee name, date, and the reason for the lockout.

Besides annual refreshes, when must LOTO training be repeated for employees?

Whenever procedures change.

What is the purpose of attempting to start a machine after applying LOTO devices?

To verify that the equipment is successfully de-energized.

Which procedure is used specifically to ensure a machine has reached a 'zero energy state'?

Tryout procedures.

What was the primary LOTO failure in the 2023 Ohio Meat Processing Facility incident?

Failure to implement procedures during maintenance, leading to chemical burns.

In the Conveyor Jam Incident, what specific type of energy was overlooked, leading to a worker being crushed?

Stored mechanical energy.

What was the critical error in the 2019 Arc Flash Burn incident involving a technician?

[Failure to verify de-energization of all energy sources.](#)

Before applying locks, what is the first step an authorized employee should take regarding 'affected employees'?

[Notify them that a lockout is about to occur.](#)

During the shutdown phase of the LOTO checklist, how should equipment be powered down?

[Using standard controls.](#)

What action should be taken for hydraulic or pneumatic systems during the 'Stored Energy Check'?

[Release the pressure.](#)

What must be done to electrical capacitors during a LOTO stored energy check?

[They must be discharged.](#)

How is stored mechanical energy addressed in the LOTO checklist?

[By blocking mechanical movement.](#)

What is the final verification step before beginning work on a machine?

[Confirming a zero energy state.](#)

What must be done regarding machine guards during the restoration process?

[They must be reinstalled.](#)

Who is the only person permitted to remove LOTO locks and tags?

[The authorized employee who applied them.](#)

After LOTO devices are removed, what is the final step before restarting the equipment?

[Notify affected employees that the lockout is over.](#)

Why is LOTO documentation like digital checklists or forms recommended?

[To streamline compliance and maintain records of procedures and inspections.](#)

On a LOTO Record Sheet, what is the purpose of identifying 'Isolation Points'?

[To document the specific locations where energy sources were disconnected.](#)

What are three common reasons for OSHA LOTO citations in manufacturing?

[Missing procedures, inadequate training, and poor documentation.](#)

What type of energy source is specifically associated with wiring and control panels?

[Electrical energy.](#)

What is the recommended method for training employees on LOTO to ensure they understand real-world application?

[Conducting hands-on training with real equipment.](#)

During shift changes or when working with contractors, what specific LOTO procedures should be included in training?
[Group lockout procedures.](#)

What check must be performed on gauges and control panels during the verification step?
[Ensure they indicate a state of zero energy.](#)

Under the 'Restoration After Work' checklist, what must be done with tools before removing locks?
[They must be removed from the equipment area.](#)

What does a strong LOTO program reflect regarding a company's values?
[Commitment to safety, accountability, and professionalism.](#)

What is the recommended action for pipelines containing cleaning systems during LOTO?
[Draining the fluids.](#)

On a LOTO record form, what follows the application of lockout devices in the sequence of documentation?
[The device verification method.](#)

What is the primary risk of not performing LOTO in manufacturing environments?
[Unexpected startup or release of hazardous energy.](#)