

19.1: Introduction to Lock out Tag out

Introduction

Since OSHA's formation in the 1970's they have adopted various lockout/tagout related provisions from existing national consensus standards and other Federal standards, which were developed for specific types of equipment or industries. In 1990 a new standard 1910.147 Control of Hazardous Energy (Lockout/Tagout) went into effect. This standard seeks to safeguard employees from the unexpected startup of machinery or equipment or release of hazardous energy while performing service or maintenance work.

Application to construction

The provisions of 1910.147 standard, while not mandatory for construction, provide a good foundation for safe lockout/tagout procedures no matter where the maintenance operation occurs. The OSHA 1910.147 standard is intended to be used when electrical supply lines are being de-energized for the purpose of performing maintenance type operations. While a comprehensive lockout/tagout standard does not exist for construction there are components of some standards that require this protection. These lockout/tagout provisions will also be reviewed in this lesson.

Scope and Application

The Lockout/Tagout standard covers the servicing and maintenance of machines and equipment in which the "unexpected" energizing or startup of the machines or equipment, or release of stored energy could cause injury to employees. The standard establishes minimum performance requirements for the control of such hazardous energy.

This standard does not cover the following:

1. Construction, agriculture and maritime employment;
2. Installations under the exclusive control of electric utilities for the purpose of power generation, transmission and distribution including related equipment for communication or metering; and
3. Exposure to electrical hazards from work on, near, or with conductors or equipment in electric utilization installations, which is covered by Subpart S.
4. Oil and gas well drilling and servicing.

Normal production operations

Normal production operations are not covered by this standard (See Subpart O of this Part). Servicing and/or maintenance which takes place during normal production operations is covered by this standard only if:

1. An employee is required to remove or bypass a guard or other safety device; or
2. An employee is required to place any part of his or her body into an area on a machine or piece of equipment where work is actually performed upon the material being processed (point of operation) or where an associated danger zone exists during a machine operating cycle.

Minor tool changes and adjustments

Minor tool changes and adjustments, and other minor servicing activities which take place during normal production operations, are not covered by this standard if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection.

Application of standard

This standard does not apply to the following:

1. Work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energizing or startup of the equipment is controlled by the unplugging of the equipment from the energy source and by the plug being under the exclusive control of the employee performing the servicing or maintenance.
2. Hot tap operations involving transmission and distribution systems for substances such as gas, steam, water or petroleum products when they are performed on pressurized pipelines, provided that the employer demonstrates that-
 - continuity of service is essential;

- shutdown of the system is impractical; and
- documented procedures are followed, and special equipment is used which will provide proven effective protection for employees.

Definitions

The following definitions are applicable to the lockout/tagout standard:

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.

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 of 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 the 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 energizing or startup of the equipment or release of hazardous energy.

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 tag out device is removed.

Energy Control Program

General

The employer shall establish a program consisting of energy control procedures, employee training and periodic inspections to ensure that before any employee performs any servicing or maintenance on a machine or equipment where the unexpected

energizing, startup or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source and rendered inoperative.

Not capable of being locked out

If an energy isolating device is not capable of being locked out, the employer's energy control program shall utilize a tagout system.

Capable of being locked out

If an energy isolating device is capable of being locked out, the employer energy control program shall utilize lockout, unless the employer can demonstrate that the utilization of a tagout system will provide full employee protection.

Effective date

After January 1990, whenever replacement or major repair, renovation or modification of a machine or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machine or equipment shall be designed to accept a lockout device.

Tag out device use

When a tagout device is used on an energy isolating device which is capable of being locked out, the tagout device shall be attached at the same location that the lockout device would have been attached, and the employer shall demonstrate that the tagout program will provide a level of safety equivalent to that obtained by using a lockout program.

Full employee protection

In demonstrating that a level of safety is achieved in the tag out program which is equivalent to the level of safety obtained by using a lockout program, the employer shall demonstrate full compliance with all tagout-related provisions of this standard together with such additional elements as are necessary to provide the equivalent safety available from the use of a lockout device. Additional means to be considered as part of the demonstration of full employee protection shall include the implementation of additional safety measures such as the removal of an isolating circuit element, blocking of a controlling switch, opening of an extra disconnecting device, or the removal of a valve handle to reduce the likelihood of inadvertent energizing.

This page titled [19.1: Introduction to Lock out Tag out](#) is shared under a [CC BY 4.0](#) license and was authored, remixed, and/or curated by [Kimberly Mosley](#) ([ASCCC Open Educational Resources Initiative \(OERI\)](#)).

- [18.1: Introduction to Lock out Tag out](#) by [Kimberly Mosley](#) is licensed [CC BY 4.0](#).