

Lockout/Tag out Compliance Program 29 CFR 1910.147

Lockout-Tag out

All stored sources of energy must be locked out and tagged before working on an item where the accidental release of energy could injure or cause a fatal accident. Stored energy can be found in electricity, pipelines, explosives devices, compressed springs and compressed gases.

Purpose

The purpose of this program is to establish lockout/tag out procedures to prevent the unintended startup of machines or equipment or release of stored energy which could cause injury to employees

Responsibility

The Safety and Facilities Management Department of the Horn Point Laboratory shall be responsible for the establishment, implementation and continued support of this program. The administrative unit shall ensure that affected and authorized personnel are properly trained in all aspects of this program and will provide retraining to those employees annually, whenever there is a change in employee job assignments, a new hazard is introduced due to changes in machines, equipment or processes.

Programmatic changes are made as dictated by inadequacies uncovered during periodic inspection or whenever there is an incident involving the unintended release of stored energy. The employee shall be responsible for his/her own health and safety by strict adherence to the procedures set forth in this document.

Affected Personnel

Affected personnel shall be defined according to 29 CFR 1910.147 as "an employee whose job requires them to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tag out, or whose job requires him/her to work in an area in which such servicing is being performed."

Authorized Personnel

Authorized personnel shall be defined according to 29 CFR 1910.147 as "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

Lockout/Tag out Compliance Program 29 CFR 1910.147

employee's duties include performing servicing or maintenance covered under this section."

Hazardous Energy Sources:

Hazardous energy sources shall include, but not be limited to, all of the following:

- Electrical: service panels, sub-panels, circuit breakers, switches and plugs, uninterruptible power supply, computers, monitors, batteries;
- Pneumatic: air compressors and pressurized cylinders and containers;
- Hydraulic: elevators and lifts, boats, and lawn equipment;
- Gas: propane gas tanks and lines to boilers and laboratories;
- Steam: boilers and associated low pressure steam lines;
- Water Pressure: pipes, valves, and tanks;
- Emergency generators.
- Chemical
- Thermal

Lockout Procedures:

Lockout is the preferred method for isolating machines or equipment from energy sources. In conjunction with an established procedure outlined in below, this procedure effectively communicates the risks involved when maintenance or servicing is required for energized equipment and isolates the personnel performing the maintenance or servicing from those risks.

- Affected personnel shall be notified by authorized personnel whenever an energy isolating device in their area is being locked out and shall be instructed about the procedure and the prohibition relating to attempts to restart or re-energize the machines or equipment that are locked out.
- A lockout device shall be placed on the energy isolating device that provides energy to machine or equipment requiring maintenance or servicing, to ensure that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed. Energy isolating devices found on the Horn Point Laboratory campus which may be subject to lockout procedures include, but are not limited to the following:

Lockout/Tag out Compliance Program 29 CFR 1910.147

- Electrical service panels, sub-panels, circuit breakers, switches and plugs, uninterruptible power supply, batteries, charged computers and monitors;
- Air compressor pressure tank valves and line valves and pressurized cylinders and tanks;
- Elevators and lifts, boats and lawn equipment;
- Gas tanks and line valves to boilers and laboratories;
- Autoclaves
- Water line shut-off valves; and filled tanks;
- Emergency generators.
- The machine or equipment requiring maintenance or servicing shall be turned off by the normal method prior to lockout. The main power sources shall then be turned to the "off" position and the lockout device shall then be engaged. Once the lockout device is in place, it shall be tagged in accordance with the tagout procedures outlined in Section III below.
- Lockout devices shall be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as the use of bolt cutters or other metal cutting tools. These devices include, but are not limited to the following items:
 - locks
 - self-locking fasteners
 - chains and cables
 - wedges
 - key blocks
 - adapter pins.
- Once lockout has been accomplished, any stored energy must be released. Methods for releasing stored energy include, but are not limited to:
 - providing a path to ground for electrical energy storage devices such as capacitors;
 - removing the positive lead from a battery and the placing a lockout device on the positive terminal to prevent any connection between the terminal and ground;
 - venting to atmospheric pressure by opening pressure relief (bleed) valves.
- Appropriate personal protective clothing and/or equipment shall be worn during all phases of the lockout/tag out procedure as dictated by the nature of the work being performed.
- Once the lockout procedure has been completed, maintenance or

Lockout/Tag out Compliance Program 29 CFR 1910.147

servicing of the machines or equipment may be performed.

- Upon completion of the maintenance or servicing procedure(s) the lockout device may be removed only after the following has been performed:
 - Check the area around the machine or equipment to ensure that no one is exposed.
 - Ascertain that all tools have been removed from the work area.
 - Assure that all guards have been replaced.
- The lockout device may then be removed only by the individual authorized employee who placed the lockout device on the energy isolating device.

Tag out:

Tag out, by itself, shall be used only when there is no means available to lockout an energy isolating device. A tag out device is a prominent warning device such as a tag, and a means of attachment which can be securely fastened to an energy isolating device to indicate that the equipment being controlled may not be operated until the tag out device is removed by the authorized employee who placed it. These devices shall be substantial enough to prevent inadvertent or accidental removal and incorporate the following features:

- The tag out 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.
- Tag out devices shall warn against the hazardous conditions if the machine or equipment is energized and shall include a legend such as: Do Not Start, Do Not Energize, Do Not Operate, Do Not Open, Do Not Close.
- The tag out device shall indicate the identity of the employee applying the device.

The preferred tag out method for isolating machines or equipment from energy sources is the same as for the lockout method above (II).

Periodic Inspections:

Lockout/Tag out Compliance Program 29 CFR 1910.147

The Facilities Management Department shall assure compliance with the lockout/tag out program through the use of periodic inspections which review the entire process. The inspection shall be conducted by the Environmental Compliance Safety Officer (ESCO) at least once annually. The inspection shall provide for a demonstration of the procedures by all authorized employees. The inspection may also include periodic random audits and visual observation of a lockout/tag out by authorized personnel during the performance of normal assigned duties. Deficiencies noted during the audit shall be communicated to the HPL Facilities Department and the lockout tag out program and training schedule adjusted to correct these deficiencies.

Lockout/Tag out Compliance Program 29 CFR 1910.147

LO/TO Personnel: _____		Energy Source: _____	
Building #: _____		Building Name: _____	
Room#: _____		Date: _____	
Task	Yes	No	Comments:
Affected Personnel Notified of			
Energy Turned Off			
Stored Energy Discharged			
Lockout Device Used			
Tag Used			
LO/TO Personnel Clearly Identified			
Completion Date/Time			
Personal Protective Equipment Used			
LO/TO Completed in Satisfactory			
Further Training Required			
Inspection Completed By: _____			Date: _____
Signature: _____			

For more information and/or suggestions contact the Environmental Safety
Compliance Officer (ESCO) at Ext. 8441 or Email [hpl-
safety@hpl.umces.edu](mailto:hpl-safety@hpl.umces.edu)