

**BEREA COLLEGE
Workplace Safety
Program**

Lockout - Tagout

Purpose

This program is designed to meet the requirements of **29 CFR 1910.147**; regarding establishment of procedures for all workers to follow that will minimize workplace injuries by identifying sources of hazardous energy and the control of such energy. In accordance with procedures established by **29 CFR 1910.147**, only those Berea College employees who have been properly trained will be allowed to work or perform preventive maintenance on machines or equipment containing hazardous energy. All such work activity will require either a lockout or tagout mechanism before work is performed. No machine or energy source that is locked or tagged out should be reactivated by anyone other than the employee who applied the lock or tag. This program applies to an employee who, is required to bypass a guard or other safety device or 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 or where an associated danger zone exists during a machine operating cycle.

This program does not apply to construction, agricultural employment. Additionally this program does not apply to installations under the exclusive control of electric utilities for the purpose of power generation, transmission and distribution, including related equipment for communication or metering. Exposure to electrical hazards from work on, near, or with conductors or equipment in electric utilization installations.

Responsibilities

Department Head / Supervisor Responsibilities

1. Ensure that all departmental employees are provided with and have access to the required lockout devices.
2. Maintain files of all required training documentation and certification as maybe required by Berea College or any other Federal or state agencies.
3. Maintain a safe and healthy work environment that is free of hazard for all departmental employees.
4. Provide and maintain an adequate supply of appropriate personal protective equipment for use by employees.

Employee Responsibilities

1. Employees are responsible for attending all scheduled departmental training sessions and those provided by other agencies.
2. Employees are responsible for adhering to safety policies and procedures of their department and the safe work policies and procedures of Berea College.
3. Employees are responsible for taking proper safety precautions as outlined within this program.
4. Employees are responsible for wearing proper protective equipment as specified by the Comprehensive Safety program.
5. Employees are responsible for reading all warning labels and following warnings and instructions.

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/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 is trained in the locking out and/or tagging out procedures for machines or equipment in order to perform servicing or maintenance.

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.

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, and all ungrounded supply conductors, and, in addition no pole can be operated independently; a line valve; a block; and any other 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.

Kinetic Energy: The force caused by the motion of an object i.e. spinning wheel.

Lockout: The placement of a lockout device on an energy isolating device, 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.

Potential Energy: The force stored in an object that is not moving i.e.. A spring under tension.

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

Servicing and/or Maintenance: Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment.

Tagout: The placement of a tagout device on an energy isolating device 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 which can be securely fastened to an energy isolating device to indicate that the energy isolating device may not be operated until the tagout device is removed.

General Requirements

Exposure Control Program

This program is written to ensure all power sources have been identified and the means to control such energy has been established by the college to prevent the unexpected energizing, start up or release of stored energy. (Appendix A shows a listing of all power sources, and how they are locked and/or tagged out)

1. Energy control procedures must be written unless there is the existence of the following:

- A.** The equipment has no potential for stored energy
- B.** The equipment has a single energy source.
- C.** Isolation and lockout of one energy source completely deactivates the equipment
- D.** The equipment is isolated from energy sources and is locked out.
- E.** Single lockout devices achieve a lockout condition.
- F.** No other hazards are created.
- G.** The lockout device is under exclusive control of authorized employee performing maintenance.

The most efficient method to safeguard against accidental activation of machinery is by utilizing the "LOCKOUT\TAGOUT" procedure. By locking out and /or tagging off power sources, unauthorized use of the machine or equipment is prevented and thus locking out and / or tagging off power sources minimizes injuries incurred through accidental activation.

A lockout is simply a lock placed upon a machine or electrical circuit to keep the power supplies from being activated while repairs are being done. Lockout procedures are especially effective in preventing injuries to maintenance or repair personnel due to the fact that they are most frequently injured by sudden and unexpected activation of machinery while repairs are being completed.

Lockouts do not refer only to protection against electrical hazards. Other types of energy can cause accidents as well and employees can be protected through the use of lockouts. These sources include hydraulic, pneumatic, steam, chemical energy, and vehicles, such as forklifts, which can be left unattended or on inclines.

Tagging the machine/equipment should follow the locking out of machine/equipment. Tags that are marked with the words "DANGER DO NOT OPERATE" on one side, will have an area on the back for the employee responsible for locking out the machine/equipment to sign, with the date and time, and department name. Locks and tags are provided for by the company, as direct supervisors will responsible for direct issuance to employees, and for notifying their supervisor of the need for additional locks and tags.

All employees who perform a lockout/tagout procedure must be given the correct authorization to do so. Authorized employees are those employees who have received training on the steps that are required to safely lockout or tagout a machine/equipment. (A listing of authorized employee is provided in Appendix B) Any employee, who performs a lockout/tagout procedure but is not authorized to do so, is putting themselves and their fellow workers into grave danger and will be subject to disciplinary action equivalent to the company disciplinary policy.

The correct procedures that all employees are expected to follow when preparing for locking out or tagging out a machine or piece of equipment is:

1. Make a survey to locate and identify all isolating devices to be certain which switch(s), valve(s) or other energy devices apply to the equipment to be locked or tagged out.
2. Make sure that ALL energy sources to a specific piece of equipment have been identified. Usually machines have more than one energy source (electrical, mechanical, or others).

The correct sequence that all authorized employees are expected to follow when locking out or tagging out is as follows:

1. Notify all affected employees that a servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out and/ or tagged out to perform the servicing or maintenance.
2. It is the authorized employee's responsibility to know the type and magnitude of energy that the machine or equipment utilizes and to understand the hazards associated with the machine or equipment and the methods to control such energy. If the authorized employee is unsure as to the energy type and magnitude, the hazards associated with that machine or equipment or how to control the energy then that employee should contact his or her direct supervisor for assistance.
3. If the machine or equipment is operating, shut down by the normal stopping procedures (depress button, open toggle switch, close valve, etc.).
4. Operate the switch, valve, or other energy isolating device(s), so that the equipment is isolated from its energy source(s). Stored energy (such as that in 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 repositioning, blocking, bleeding down, etc., as required by that certain machine or switch.
5. Lockout and/or tagout the energy isolating devices with assigned individual lock(s) or tag(s). If the maintenance task requires group lockout (a group of employees working in the same machine or equipment), each should have a lock applied at each point. Only the person applying the lock will have a key to that lock. This assures that, as different team members complete their tasks and remove their locks, remaining members are still fully protected from hazardous energy.
6. After ensuring that no personnel are exposed, and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate.
7. If the equipment will not operate, it is now locked out or tagged out. If the equipment continues to operate, return to step # 3 to determine if all steps were followed correctly. If problem persists, contact your supervisor.
8. If a change in shift or personnel occurs, lockout/tagout protection must still occur. A full status report will be given to the on-coming shift or personnel, and they will apply their own lock and/or tag to the energy-isolating device.

The correct measures all employee's are expected to follow when restoring machines or equipment to normal operating production operations is as follows:

1. After the servicing and/or maintenance are complete and equipment is ready for normal production operations, check the area around the machines or equipment to ensure that no one is exposed.
2. After all tools have been removed from the machine or equipment, guards have been reinstalled and employees are in the clear, remove all lockout or tagout devices. Operate the energy isolating devices to restore energy to the machine or equipment.
3. Notify affected employees that the servicing or maintenance is completed and the machine is ready for use.
4. The employee who applied the device shall remove each lockout or tagout device from each energy-isolating device.

Training

Training of Berea College employees regarding the lockout/tagout program is the most important part of this program. Employees will be trained on the following:

1. ALL employees and new employees will be educated as to the purpose and use of an energy control procedure and as to what a tagout signifies, why the machine is locked and/or tagged out, and what to do when encountering a tag or lock on a switch or a device they wish to operate. Since any given employee may encounter a lockout or tag or lockout, employees who are covered under this program will be provided training as to the general understanding of lockout safety.
2. Before machine shutdown, the AUTHORIZED employee must know the type and magnitude of energy to be isolated and how to control it. Each machine or type of machine will have a written lockout procedure.
3. Retraining will be provided to employees whenever an employee is reassigned to a different area or machine; or when written procedures change.
4. Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever the respective supervisor has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.
5. The retraining shall establish employee proficiency and introduce new or revised control methods and procedures as necessary.
6. When outside contractors are brought on site, they will be informed of Berea College lockout procedures.
7. It will be the responsibility of the outside contractor to be familiar with Berea College lockout-tagout procedures and ensure that all contracting personnel understand and comply with Berea College energy control procedures.
8. All authorized employees will be trained in the proper sequence of locking out machines or equipment.

If a tagout system is used, employees will also be trained in the following limitations of tags:

1. 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.
2. When a tag is attached to an energy isolating means, it is not to be removed without the authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
3. 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.
4. Tags and their means of attachment must be made of materials, which will withstand the environmental conditions encountered in the workplace.
5. Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
6. Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.