

Hazardous Energy Control Plan (Lock Out Tag Out)

General Purpose

Western Kentucky University seeks to commit to a working, learning, and safe environment. The purpose of this plan is to prevent injury or death of Western Kentucky University students, faculty, staff, and visitors when performing maintenance or service of equipment that can release hazardous energy, unexpected energization, or the start-up of equipment or machines. The release of hazardous energy could result in electrocution, burns, crushing, cutting, lacerating, amputating, or fracturing body parts, and others. Lockout is required on equipment and/or machines that have any of the listed possible hazards.

Regulations pertaining to this plan include Federal Occupational Health and Safety Administration (OSHA) standard on the Control of Hazardous Energy, 29 CFR 1910.147 (General Industry Standard), Kentucky Administration Regulations 803 KAR 2:309, and Accredited Standards Committee (ANSI) Z244.1 (2016).

Scope

This plan applies to all WKU employees, staff, and student workers who may be exposed to hazardous energy when performing service or maintenance to equipment or machines. Energy sources include electrical (batteries, capacitors), hydraulic, pneumatic (energy stored within pressurized air), mechanical (example a spring that is compressed or coiled, turning shafts, gears, belts, chains, fans), thermal (energy from explosion, flame, objects with high or low temperatures or radiation from heat sources), gravitational, chemical (when released substance undergoes a chemical reaction), fluids, gases, pressurized water and steam.

Responsibilities

Environmental Health & Safety

- Remain current on rules and regulations.
- Maintain and update Hazardous Energy Control Plan.
- Provide assistance with energy control procedures upon request.
- With departmental assistance EH &S will provide placards and post at equipment with lockout points and energy sources, these will be updated upon change of equipment.
- Provide overview of lockout training upon request.
- Provide annual audit of training of WKU DFM employees led by Contracted Management Company

Deans, Directors, Department Heads, Professors

- Ensure specific procedures are developed and followed for equipment and machines that are serviced, cleaned, or maintained by their division.
- Provide lockout devices and tags for specific equipment.
- Review energy control procedures annually, documenting date, specific piece of equipment, authorized person conducting review, and person performing procedures.

Supervisors

- Provide energy control procedures for each piece of equipment or machinery with the potential of releasing hazardous energy when serviced or maintenance performed.

Ensure authorized and affected persons receive training on equipment and/or machinery.
Provide specific locks, lockout devices, and tags for authorized personnel to use when servicing or repairing equipment with hazardous energy.
Locks provided must be singularly identifiable and not used for other purposes.
Tags shall not be used without a locking device (lock).

Employees

Follow energy control procedures and lock out hazardous energy when servicing equipment.
Perform work only if they have been trained and are the authorized employee.
Ensure the affected people are aware of equipment or machinery that is under lockout.

Contractors

University contractors are to have a Hazardous Energy Control Plan in place prior to performing work on campus that requires lockout tagout activities.
Must provide PDC with a copy of their program upon request.
Must maintain line of communication for lockout of equipment or serviced equipment affecting WKU employees.

Lockout Tagout Required When:

A guard or other safety device must be removed or bypassed to service or repair a piece of equipment.

A person is required to place any part of his/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.

Lockout Tagout Not Required:

When performing maintenance or service on equipment that is controlled completely by unplugging the equipment and where the exclusive control of the plug is in the employee's management.

Definitions

Authorized employee - A person who locks out machine or equipment in order to perform servicing or maintenance on that machine. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

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 whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

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;

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.

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.

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* energization or startup of the equipment or release of hazardous energy.

Tagout device – May not be used alone but must be with an identifiable lock.

A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device. Tagout device is a warning statement of the hazardous conditions if the machine or equipment is energized: *Do Not Start, Do Not Open, Do Not Close, Do Not Energize, Do Not operate.*

Lockout tagout locks shall be singularly identified, shall be the only devices used for controlling energy, shall not be used for other purposes, and must be durable. Locks should be standardized with at least color, shape, or size.

Tags shall be standardized, not deteriorate in environment, and the message on the tag must be legible.

Group Lockout

When more than one crew, craft, or department is involved in repair of the same piece of equipment

each shall affix their own lock and one central supervisor be in control to ensure each group removes their lock upon completion of their specific task.

Energy Control Procedures

Energy control procedures are documents that are machine specific procedures to control potentially hazardous energy. Each piece of equipment will need to have its own procedure. They are to be understandable, readable, and useable. These procedures must provide the following information:

- A statement of the intended use of the procedure
- The type and magnitude of the energy that the machine utilizes
- Specific procedural steps to shut down, isolate, block, and secure machine.
- Specific steps designating the safe placement and removal of lockout devices and the authorized employee's responsibility for them
- Specific requirements for testing machines to determine and verify the isolation and de-energization of the machine.

(At the end of plan you will find an example of minimal lockout procedures from CFR 1910.147 Appendix A)

Written Energy Control Procedures Not NEEDED IF

- The machine has a single energy source that completely de-energizes the equipment and can be isolated before being serviced.
- The machine can be locked out with a single lockout device.
- There is no potential for the machine to store or re-accumulate energy during the shutdown period.
- There are no hazards posed to other employees.

Training

Training is required for three types of workers: authorized, affected, and other.

“Authorized” workers need to recognize hazardous energy sources, understand the types and magnitudes of energy, know the methods for isolating and controlling hazardous energy, and know methods for the safe application, use, and removal of energy controls.

“Affected” and “other” workers need to know the importance of the lockout process, how to recognize when lockout is in progress, and how not to interfere with the process.

Retraining

Retraining is required when there is a new job assignment, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures. Retraining is also necessary if there are deviations or inadequacies of the workers performance in following the energy control procedures.

Training must be certified and contain each workers name and date of training.

Annual Inspection of Energy Control Procedures

An authorized worker will need to do an annual inspection of the energy control procedure to ensure that the steps of control are sufficiently detailed, that all hazardous energy is documented, and any

corrections of inadequacies are identified and corrected. An authorized worker performing the inspection can not be the one utilizing the energy control procedure being inspected. The certification will identify the machine or equipment on which the procedure is being utilized, the date of the inspection, the workers included in the inspection, and the name of the authorized worker performing the inspection.

Before servicing or performing maintenance,

Follow the steps according to the specific steps of the energy control procedures.

- Prepare for shutdown (Understand equipment hazards, notify affected workers, gather all necessary equipment and tools.)
- Shut down equipment (use normal shutdown procedure turn all switches to OFF, shut all control valves, disable all sources of energy.)
- Disconnect or isolate the machine from the energy source(s) (Valves, breakers, disconnects.)
- Apply the lockout tagout device(s) to the energy-isolating device(s) (Locks and tags must be affixed in a manner that will hold the energy isolating devices in a "safe" or "off" position.)
- Release, restrain, or otherwise render safe all potential hazardous stored or residual energy. If a possibility exists for re-accumulation of hazardous energy, regularly verify during the service and maintenance that such energy has not re-accumulated to hazardous levels. (Discharge capacitors, block or release springs, block elevated parts, stop rotating flywheels, relieve system pressure, drain fluids, vent gases, allow hot system to cool.)
- Verify the isolation and de-energization of the machine. (Check locking devices to see securely placed, check isolation, and attempt normal startup, return controls to OFF.)
- Lockout energy isolation devices remain in place during the servicing and maintenance on equipment

Release from Lockout/tagout

Upon completion of service/maintenance of equipment; inspect area and equipment, ensure all machine guards are in place, move tools away from equipment, inform other of startup, restore system connections, remove lock and tags, restore equipment to normal, clean area, conduct normal startup and ensure equipment is operating properly. Only authorized employee who placed the lock will be able to remove their lock.

For More Information

WEBSITE FOR KY OSHA LOTO

<http://laborcabinetetrain.ky.gov/standards2014/1910/1910.147.html>

WEBSITE FOR FEDERAL OSHA LOTO

<https://www.osha.gov/SLTC/controlhazardousenergy/>

Appendix A

General

The following simple lockout procedure is provided to assist employers in developing their procedures so they meet the requirements of this standard. When the energy isolating devices are not lockable, tagout may be used, provided the employer complies with the provisions of the standard which require additional training and more rigorous periodic inspections. When tagout is used and the energy isolating devices are lockable, the employer must provide full employee protection (see paragraph (c)(3)) and additional training and more rigorous periodic inspections are required. For more complex systems, more comprehensive procedures may need to be developed, documented and utilized.

Lockout Procedure

Lockout procedure for

(Name of Company for single procedure or identification of equipment if multiple procedures are used)

Purpose

This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury.

Compliance With This Program

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized employees are required to perform the lockout in accordance with this procedure. All employees, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance shall not attempt to start, energize or use that machine or equipment.

Type of compliance enforcement to be taken for violation of the above.

Sequence of Lockout

(1) Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

Name(s)/Job Title(s) of affected employees and how to notify.

(2) The authorized employee shall refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.

Type(s) and magnitude(s) of energy, its hazards and the methods to control the energy.

(3) If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open switch, close valve, etc.).

Type(s) and location(s) of machine or equipment operating controls.

(4) De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).

Type(s) and location(s) of energy isolating devices.

(5) Lock out the energy isolating device(s) with assigned individual lock(s).

(6) Stored or residual energy (such as that in capacitors, 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 grounding, repositioning, blocking, bleeding down, etc.

Type(s) of stored energy—methods to dissipate or restrain.

(7) Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

Caution: Return operating control(s) to neutral or “off” position after verifying the isolation of the equipment.

Method of verifying the isolation of the equipment.

(8) The machine or equipment is now locked out.

Restoring Equipment to Service. When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken.

(1) Check the machine or equipment and the immediate area around the machine or equipment to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.

(2) Check the work area to ensure that all employees have been safely positioned or removed from the area.

(3) Verify that the controls are in neutral.

(4) Remove the lockout devices and reenergize the machine or equipment.

Note: The removal of some forms of blocking may require reenergization of the machine before safe removal.

(5) Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

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