

Linn-Benton Community College

LOCKOUT – TAGOUT PROGRAM

OR-OSHA Div 2/Sub J 29 CFR 1910.147

The Control of Hazardous Energy (Lockout/Tagout)

(c)(1) Energy Control Program. 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, start up or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source, and rendered inoperative.

Purpose: The LBCC lockout/tagout program applies to all staff, students, contractors, or others engaged in service or maintenance activities of machines, equipment or processes where the release of stored energy may put them at risk. The purpose of the lockout/tagout program is to prevent personal injury and property damage due to the unexpected or accidental start up or release of stored energy from machinery and equipment which is under repair or maintenance. This program is intended to clearly state:

- the intended use of these procedures,
- list specific procedures to shut down, isolate, block/secure machines/equipment,
- specifically list procedures to place, remove and transfer lockout/tagout devices to energy isolating devices,
- assign responsibility for lockout/tagout devices,
- list requirements and procedures to test machines and machinery to determine and verify effective lockout/tagout devices, and other energy control measures.

Definition: The term lockout/tagout (LO/TO) means using a lock or a lock and a lockout device that, when in use, makes it impossible to activate a switch, circuit breaker, etc., that would set a machine or process in motion endangering someone working on the machine or process. Lockout takes into account the total energy system sources such as: electrical, mechanical, hydraulic, pneumatic, chemical, nuclear, and thermal, as well as gases in pipes, hot water and high volume water.

Deviations from this Program:

The consequences of deviating from this program can be severe in terms of human suffering and loss. Deviations from this policy will be addressed aggressively, with a goal of determining how to improve the procedures so that no similar deviations will occur.

Copies of the Policy: Copies of the Linn-Benton Community College (LBCC) Lockout/Tagout policy will be kept in each department found to have vehicles, machinery or equipment that requires the use of the policy, and “authorized” and/or “affected” personnel to use the policy. A master copy will be maintained on the LBCC Public Safety website at <https://www.linnbenton.edu/faculty-and-staff/college-services/public-safety-emergency-planning-ehs/safety-plans.php> and electronically on the LBCC network by the Director of Safety & Loss Prevention.

Exceptions: Minor tool changes and adjustments, and other minor servicing activities, which take place during normal production operations, are not covered by this policy if they are routine, repetitive, and integral to the use of the equipment for production, provided the work is performed using alternative measures which provide effective protection. (See OAR 437-02/O: Machinery and Machine Guarding 1910.211-1910.222.)

Work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energization or start up of the equipment is controlled by the unplugging of the equipment from the energy source is not covered by this policy when the plug remains under the exclusive control of the employee performing the servicing or maintenance.

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 1) continuity of service is essential; 2) shutdown of the system is impractical; and 3) documented procedures are followed, and special equipment is used which will provide proven effective protection for employees.

--- CAUTION -- CAUTION -- CAUTION -- CAUTION ---

TO AVOID ELECTRIC SHOCK:

- Be extra cautious of electrical equipment in WET work areas.
- Use a ground fault circuit interrupter (GFCI).
- Never use a worn or frayed electrical cord.
- **Always lock out equipment before adjusting or repairing it.**

BE SURE TO CONTROL (LOCK-OUT) EACH SOURCE OF ENERGY:

- | | |
|-----------------------|--------------|
| - Electrical | - Mechanical |
| - Gravitational | - Hydraulic |
| - Pneumatic | - Chemical |
| - Thermal | - Spring |
| - Flywheel or gravity | - Stored |
| - Radiation | |

BEFORE BEGINNING WORK ON EQUIPMENT, YOU MUST:

- Isolate and de-energize each source of energy.
- Place YOUR lock (and tag) on the switch or valve lockout point.
- Try to start the equipment to make sure it is in a zero energy state.
- Make sure you identify all sources of energy to a piece of equipment. In addition to electrical energy, equipment may have pressure lines, storage vessels or accumulators which can harm you.
- Remember that energy can enter a system from more than one direction.

SAFE WORKING DISTANCES FROM OVERHEAD POWER LINES:

0 to 50kV	10 feet
Over 50 up to 200 kV	15 feet
Over 200 to 350 kV	20 feet
Over 350 to 500kV	25 feet
Over 500 to 750kV	35 feet
Over 750 to 1000 kV	45 feet

RESPONSIBILITY

It is the responsibility of the individual servicing or maintaining the equipment to place a personal lock and tag on the machine in accordance with this LBCC Lockout/Tagout Program.

OAR 437-02-154 - Each person's lock shall have either a key or combination which is unique to that device.

Locks, tags, and other devices will be standardized within the college. Locks will be labeled with the individual's name. Other devices will be identified as a lockout device and made of a substantial material. An appropriate employee identification tag will be attached to the device during servicing or maintenance.

Servicing and/or maintenance include but are not limited to the following activities:

- lubrication
- cleaning
- un-jamming
- making adjustments
- tool changes or re-tooling
- maintaining or modifying
- constructing
- inspecting
- installing or setting up
- inspecting

While performing these activities the employee may be exposed to the unexpected energization or start up of the equipment or release of hazardous energy. It is required that equipment be locked or tagged during these procedures. Lockout equipment (locks/tags) are departmental purchases and property.

Department supervisors and the Safety and Loss Prevention Office will maintain a list of trained "authorized" persons and "affected" persons within each department. The information will be included in the LO/TO policy notebook and each department is required to provide any updates to that list annually to the Safety and Loss Prevention Office, Red Cedar Hall 119. *[Please provide the Department, Person's Name, Position and date of training]*

Who will lockout equipment

Any individual who is authorized and trained in the LBCC lockout/tagout program for that piece of equipment/machinery, and follows the written procedures may lock-out equipment.

When to lockout equipment

Equipment should be locked out whenever a person is performing service and/or maintenance and the possibility of personal injury exists due to any of the following conditions:

- unexpected start up

- release of stored energy
- whenever a guard or safety device must be removed
- when any part of the body is (or could possibly be) placed where it could be caught or injured by moving equipment
- whenever there is a possibility of someone coming in contact with a live (energized) electrical part
- whenever someone is going to work on a piece of machinery, whether energized or not, that a person might be caught, struck, pinned, thrown or in some way hurt by the movement of the machine.

Where to place lockout equipment:

Locks will be placed at the energy source which include:

- motor disconnect
- remove and secure keys and place a lock/out tag on steering wheel
- block or chain hydraulics so they cannot go up or down
- release pressure on power brake air tanks
- branch power switch
- branch power breaker
- feed line
- other sources of stored potential or kinetic energy

NOTE: Circuit breakers are an acceptable lockout point for equipment which has no other lockout point. Locking the panel is not an acceptable lockout method, since this locks out all other breakers as well, and prevents energy access.

The on/off switch for a piece of equipment is not a lockout point. The power source must be the lockout point.

TAGS: A TAG MAY BE USED ONLY IF A LOCK CANNOT BE USED due to the design of the energy isolating device. The TAG must be accompanied by a strap or other means that will hold the tagged device in the closed or off position.

Procedures for controlling energy

Lockout/tagout will be performed by authorized personnel only --those individuals who are doing the maintenance and servicing and have been trained in energy control procedures.

All employees who work in the affected area must be notified prior to applying lockout/tagout procedures.

Six steps to the control of hazardous energy:

1. Preparation for shutdown:

Employees shall have knowledge of the source, type and magnitude of energy, hazards and methods/means to control the energy prior to turning off the equipment/machinery.

2. Machine/equipment shutdown:

Shutdown shall be achieved using the procedure established for that machine. Use a normal orderly shutdown to avoid additional or increased hazards.

3. Machine/equipment isolation:

All isolating devices that are needed to control energy, shall be located and used so as to isolate machine/equipment from the energy sources.

4. Lockout/Tagout device application:

Devices are to be affixed by authorized personnel only, a lock is affixed to hold energy isolation devices in the "safe" or "off" position, tagout is to be placed clearly so as to indicate prohibition of operation. It will be placed directly on the energy isolating device or as close as is safely possible.

NOTE: A tag may be used as an energy control device ONLY if a lock cannot be used because of the design of the energy isolating device. The tag must be accompanied by a strap or other means that will hold the tagged device in the off or closed position.

5. Stored energy:

After lockout/tagout has been implemented, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained or otherwise rendered safe. If the possibility of accumulation of stored energy exists, verification of isolation shall be continued until the task is completed or until the possibility of such accumulation no longer exists.

6. Verification of isolation:

An authorized employee shall verify isolation and de-energization of equipment/machinery, prior to the start of work. As a check, the authorized employee shall ensure that the equipment is disconnected from the energy source by checking that no personnel are in or exposed to the machinery; then start test the equipment by implementing normal starting and operating procedures, to ensure the machinery will not operate and that all residual energy has been controlled.

CAUTION: RETURN THE OPERATING CONTROLS TO THE NEUTRAL POSITION AFTER THE TEST HAS BEEN COMPLETED.

Removing a Lock

When the work is completed and the lock is ready to be removed, contact the operator and the area supervisor and notify them.

When it has been cleared, the lock may be removed after the following checks have been made:

1. The person who placed the lock has gone through and made sure all tools have been removed and equipment is ready to be placed in service.

2. That person then removes the lock and start tests the equipment to ensure it is operable.

Restoring machinery to normal operation

After the servicing or maintenance has been completed and the machinery is ready for normal operation, a check of the area must be completed to ensure that:

1. No one is in the area of operation where they could be injured by the machinery or material during operation.
2. All tools and other equipment have been removed.
3. Verify that the controls are in neutral and all safeguards have been properly reinstalled.

After all tools have been removed, guards have been replaced and people have been notified and are all clear, the individual who installed the locks/tags must remove the locks and/or tags from the switches, valves, etc. The equipment may now be start-tested and placed into normal service.

VEHICLES: Procedure for vehicle lockout/tagout

Machinery and vehicles maintained by any in-house maintenance mechanic are required to use the college lockout/tagout procedure.

All vehicles ignition keys will be removed and secured in the Facilities or another central office and/or a secure location. Note vehicle out-of-service on vehicle report schedule and tag the vehicle steering mechanism.

LBCC Policy involving more than one person:

GROUP LOCKOUT IS NOT PERMITTED. Currently, group lockout / tagout procedures are not permitted in Oregon except in the pulp and paper industry (OAR 437-02-312), electrical power generation industry (1910.269), or under a special variance approved by OR-OSHA.

What is group lockout? *Group lockout is when qualified people lockout equipment, place equipment lock keys in a box, and place their personal lockout lock on that box. Other workers who work on the equipment place their lock on that box, but not necessarily on the equipment being locked out. The Locks will be removed in the reverse order they were placed, and are removed by the individual who placed them there. **Multiple locks on an energy isolating device is not group lockout.***

TRAINING

The supervising department is responsible to ensure each of their staff or others who use this program are trained in the items listed below. The Safety and Loss Prevention Office maintains access to online training. Staff are required to be trained in the program, including:

- Recognition of applicable hazardous energy sources and means for isolation and control.
- Instruction in purpose and use of the energy control procedure.
- Instruction for area employees in the area of controls, prohibition of restarting or re-energizing locked out equipment.

The supervising department is responsible for:

- Surveying the work area to identify the machines, equipment and processes that utilize hazardous energy and that are covered by this program.
- Ensuring that equipment-specific energy control procedures are established for the machines, equipment and processes in their area.
- Ensuring that employees and contractors follow established lockout/tagout and energy control procedures.
- Ensuring that employees receive proper lockout/tagout training prior to assignment to covered service or maintenance tasks.
- Providing protective equipment, hardware and appliances (e.g., locks, lockout devices, keys, tags, etc.).
- Designating the authorized employee who has primary responsibility for overall lockout/tagout control in a group lockout situation.
- Maintaining exclusive control of duplicate or master keys.
- Ensuring that (at-least) annual inspections are conducted and documented as required by this procedure.

Authorized employees

- Those employees who are authorized to implement the lockout/tagout procedure will receive training in recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the work place, and the methods and means necessary to obtain a zero energy state. Authorized employees/others are trained in:
 - Following the procedures that have been developed for lockout/tagout and ensuring the proper use of his/her equipment;
 - Determining the type(s), magnitude(s) and hazards of energy to be controlled, and the method(s) or means to control the energy before commencing the covered service or maintenance task;
 - Locating and identifying all energy isolating devices that will be locked or tagged out before commencing the covered service or maintenance task;
 - Reporting any lost lockout/tagout equipment immediately to the supervising department.
 - Inspecting his/her own equipment prior to use;
 - Notifying affected employees before lockout/tagout is performed and then again before energy is restored once servicing or maintenance is complete;
 - Participating in the development of equipment-specific energy control procedures, and reporting any problems associated with those procedures; and
 - Attending assigned training sessions

Affected employees

Those employees who operate equipment that may be isolated so that servicing may take place, or those who work in areas where servicing will be performed, will be instructed in the purpose and use of the energy control procedure.

Be aware of lockout/tagout procedures used to guard against unexpected startup.

Not attempt to operate any machine, equipment or process that is locked out or tagged out.

Not attempt to remove any locks or tags from energy isolating devices.

Other employees and student workers

Those employees whose work operations may be in the area where energy control procedures may be used, will be instructed about the procedure, and about prohibition of attempting to restart or re-energize equipment which has been locked-out or tagged-out.

Safety and Loss Prevention is responsible for

- Developing and maintaining the LOTO policy.
- Providing technical assistance to interpret and comply with LOTO requirements.
- Assisting with provision of training to ensure compliance with this procedure.

TAGS: Employees shall also be trained in the following limitations of tags:

1. Tags are essentially only warning devices and do not provide physical restraint, which is provided by a lock.
2. A tag is not to be removed without authorization from the person who is responsible for its placement, and it is never to be bypassed, ignored or otherwise defeated.
3. Tags must be legible and understandable to all area employees to be effective.
4. Tags and their means of attachment will be made of materials which will withstand environmental conditions of the workplace.
5. Tags will be securely attached to energy isolating devices to ensure they will not inadvertently or accidentally be detached.
6. To avoid a false sense of security, the meaning of tags must be understood as part of the overall energy control program.

Retraining

It will be necessary to retrain employee under the following circumstances:

1. Whenever there is a change in job assignments, machines, equipment or processes which may present a new hazard, or a change in energy control procedures.
2. When inspection reveals inadequacies in employee's knowledge or ability to use the energy control procedures.

All training should be certified and recorded and kept in the employee's training file located in the department as well as evidence of completion provided to the Safety and Loss Prevention Director located in Red Cedar Hall Room 119.

INSPECTION

Periodic inspections of the energy control procedure will be conducted to ensure the lockout program and procedures are complete, deficiencies are corrected, and that the lockout/tagout requirements are being followed.

1. The inspection will be performed by the Safety Committee and/or the Safety and Loss Prevention Director and/or her/his designee and always by someone other than the one(s) utilizing the control procedure being inspected.
2. Where lockout is used for energy control, the inspection will include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.
3. Where tagout is used for energy control, the inspection will include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected.

OUTSIDE CONTRACTORS

Outside contractors are required to comply with all OR-OSHA safe work practices, including Lockout/Tagout. However, they may use the programs established by their employer(s), rather than LBCC programs.

Prior to implementing lockout/tagout measures involving contracted work, a pre-job coordination meeting shall be conducted with LBCC and appropriate representatives of the contractor(s). This pre-job meeting will cover, at a minimum 1) An exchange of LOTO program information; 2) Specific application points; and 3) An exchange of emergency contact information, including means of contacting responsible parties 24/7 until the lockout/tagout situation is no longer in effect.

Each contractor employee engaged in service or maintenance activities of LBCC machines, equipment or processes where the release of stored energy may put them at serious risk must follow their employer's LOTO procedures, including the use of that employer's LOTO hardware and tags meeting Oregon OSHA requirements under Division 2/Subdivision J, 29CFR 1910.147. At no time may a contractor rely on the presence of LBCC lockout/tagout devices as protection for their employees.