UNIVERSITY OF OREGON

Lockout/Tagout (LOTO) Program

1. INTRODUCTION

This program is intended to provide consistent standards for the safe maintenance on machines or equipment at the University of Oregon (UO). The primary objective is to prevent injuries to employees, students, the public and other members of the University community. The secondary objective is to prevent property damage by ensuring that machinery and/or equipment is stopped, isolated from all hazardous energy sources and properly locked or tagged out prior to conducting work. Appendix A to this document contains a list of relevant definitions.

2. SCOPE

This program applies to all UO employees and contractors working on UO properties who may be exposed to hazardous energy during service or maintenance work. Energy sources include potential, kinetic, chemical, electrical, thermal, and gravitational sources.

3. RESPONSIBILITIES

a. Department

Departments are responsible for:

1. Identifying which employees are authorized employees.
2. Ensure that all affected and authorized employees understand and comply with this program.
3. Verifying that authorized employees receive training on this program prior to being issued a lock.
4. Identifying equipment and machinery which is subject to LOTO procedures.
5. Providing machine specific instruction in LOTO procedures.
6. Providing locks, tags, hasps, and locking mechanisms to authorized employees.
7. Conducting periodic lockout inspections of authorized employees.
8. Supplying equipment specific lockout information to contractors who are working in their area.
9. Where appropriate, department employees will LOTO equipment together with contractors working in the area.

b. Environmental Health and Safety

Environmental Health and Safety (EHS) Department is responsible for:

1. Writing, reviewing and updating this program.
2. Providing training and training materials to authorized and affected university employees.
3. Maintaining associated training records.

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c. Authorized Employees

Authorized employees are responsible for:

1. Following LOTO procedures for machines and/or processes in accordance with department, machine specific instructions.
2. Recognizing possible changes and additional hazards not listed in the current LOTO procedures.
3. Immediately notifying Supervisor of possible changes and additional hazards not listed in the current LOTO procedures.
4. Notifying Affected Employees prior to initiating LOTO procedures and again after the LOTO is complete.

d. Affected Employees

Affected employees are responsible for:

1. Following the instruction of the Authorized Employee and/or Supervisor when a lockout of equipment is in the Affected Employees' work area.
2. Informing Authorized Employees of any circumstances that could affect the work to be conducted.

e. Contractors

Contractors are responsible for:

1. Following their company LOTO program including applying and removing their own locks when required.
2. Coordinating with UO departments as needed to control energy in areas where UO and contract employees are both affected or areas where access is restricted to university employees.
3. Supplying a written copy of their LOTO program upon request.

4. WRITTEN MACHINE SPECIFIC LOCKOUT/TAGOUT PROCEDURES

a. If one or more of the following conditions exist, the responsible department will provide written, machine specific lockout/tagout procedures.

1. The machine or equipment has potential for stored or residual energy or re-accumulation of stored energy after shutdown.
2. The machine or equipment has more than a single energy source which can be readily identified and isolated.
3. The isolation and locking out of that energy source will not completely de-energize and deactivate the machine or equipment.
4. The servicing or maintenance could create hazards for other employees.

b. Machine specific LOTO procedures will include the following:

1. Name and location of the machine/equipment.
2. Types and magnitude of all types of energy that supplies the equipment.
3. All sources of stored energy.

4. The specific location of each energy source.
5. A checklist to verify that the sources is locked in the safe position.
6. A sample machine specific procedure is located in Appendix B.

5. LOCKOUT DEVICES AND TAGOUT TAGS

Lockout and tagout devices must meet the following criteria to ensure that they are effective:

a. Locks

1. Lockout locks will be assigned to employees by a supervisor or made available by lockout stations in the following departments:

Department	Lock Issuer	Lock Description
Athletics	Locks in LOTO stations, single key, issued at each lockout	Red or black w/LOTO sticker. Galvanized steel w/number ID.
Campus Planning & Facilities Management	Door & Lock Shop Supervisor	Red, stamped with identification
College of Design	Facilities Services Manager	Red, stamped with work center and ID number
Erb Memorial Union	Facilities Maint Shop	Red, with tags
Housing	Housing Locksmith	Red with number ID
Student Rec Center	Locks in LOTO stations	Red with tags

2. Locks used for lockout must be distinguishable from all other types of locks.
3. Locks used for lockout may not be used for any purpose other than lockout.
4. Lockout devices must be strong enough that they can't be removed inadvertently.

b. Tagout Tags

1. Tagout tags will only be used when a lock cannot be affixed to the energy isolation device. Every effort will be made to ensure a lockable isolation is provided for all lockout/tagout points. **NOTE:** tagout tags may be used in conjunction with a lock at any time to provide additional information.
2. Tagout tags will be attached with a single use, self-locking material such as a cable tie.
3. Tagout tags must be strong enough that they can't be removed inadvertently.
4. Tagout tags must remain legible even when used in wet, damp or corrosive environments.

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6. ENERGY CONTROL PROCEDURES

a. The following energy control procedures must be performed prior to beginning of service or maintenance work:

1. Inform affected employees of equipment shutdown.
2. Shut down equipment at point of operation using the normal stopping procedure.
3. Isolate and/or block all sources of hazardous energy.
4. Remove any potential (stored) energy. (i.e. releasing springs, opening air dump, blocking elevated equipment, etc.)
5. Lockout or tagout all of the energy sources.
6. Verify the equipment is de-energized by conducting a test start on the affected equipment. After the test start, return the equipment to the "off" position.
7. Proceed with the work.

b. The following energy control procedures must be performed prior to re-energizing equipment.

1. Inspect area to remove all tools and debris.
2. Replace machine/equipment guards.
3. Ensure all employees are clear of the work area.
4. Inform affected employees that the equipment will be returned to services.
5. Verify machine or equipment power controls are in the "off" or "neutral" position.
6. Remove the lockout/tagout device(s).
7. Re-energize equipment.

7. ENERGY CONTROL PROCEDURES – SPECIAL CIRCUMSTANCES

a. Lockout/Tagout Procedures for More Than One Person: If a job will require more than one person, the following requirements will be met:

1. The first employee to apply his/her lock must use a lockout hasp (multi-lock device) on each lockout point. (See Appendix E for example hasp and other lockout devices)
2. Additional employees will affix their own locks to the hasp for each lockout point.
3. Proceed with the work following normal lockout procedures.
4. The first person to apply his/her lock and the last person to remove his/her lock will be responsible for notifying affected employees of the lockout.

b. Lockout/Tagout Requirements for Jobs in Progress: The following procedures will be met if a lockout is already in progress when other employee(s) join the job:

1. Identify the primary Authorized employee on the job/project.

2. The person joining the job will add their name to the authorized employee's project log.
3. The person joining the job will introduce himself/herself to each LOTO member in the log and explain their task.
4. The person joining the job will verify that the equipment is de-energized and add their lock(s) to all lockout points.
5. The new person has the right to do a test start on the equipment to verify it is de-energized.
6. Proceed with the work.
7. When finished, alert primary authorized worker and let each LOTO member know work is completed.
8. Remove lock(s) and indicate completion in the project log.

c. **Applying Locks in Electrical Panels:** The following procedures will be followed when locking individual breakers within an electrical panel. Breaker lockout device will be affixed and the employee's lockout lock added. ***Locks are required to isolate breakers; affixing a tag is not sufficient to ensure a secure lockout.*** Where possible, breaker lockouts will be designed so that the electrical panels can be closed with the lockout locks affixed.
   1. Unlock panel door.
   2. Identify breaker(s) to be locked out.
   3. Switch the breaker to the "off" position. **NOTE:** Authorized employees may turn breakers on and off during the LOTO process but may not reset tripped breakers unless they are an electrician.
   4. Select a lockout device that is designed to fasten securely to the breaker. (See Appendix E for lockout device examples)
   5. Fasten the lockout device to the breaker and verify that it is securely attached.
   6. Affix lock and tag to the lockout device.
   7. Close and lock panel door, if possible. If panel can't be closed all the way, close the panel as much as possible and proceed with work. Follow the lockout procedures for returning the equipment to service.

d. **Lock Removal by Another Person:** The following procedure will be followed if a lockout or tagout device has to be removed by anyone other than the one who applied it.
   1. The Supervisor of the employee who applied the lockout device is responsible for verifying that the employee is not available to remove their lock.
   2. The Supervisor will attempt to contact the absent employee via phone, radio and any other means. When contact is made, the Supervisor will request that the employee return to remove their lock(s) and tag(s).

3. If the employee cannot be reached (or if it is not practical for the employee to return to remove his/her locks), the Supervisor may use his/her discretion to determine if the lock(s) needs to be removed.
4. If it is determined that the lock(s) need removal, **the Supervisor is responsible for ensuring that the equipment is safe and ready to re-energize** (i.e. tools are removed, guards are in place, affected employees are notified, etc.)
5. The Supervisor will document in the log book the attempts to contact the lock owner and indicate date, time, means of contact and if contact was successfully made.
6. The Supervisor will remove the lock by using a supervisor key or may cut the hasp or lock to remove the lockout.
7. The Supervisor is responsible for notifying the employee that his/her lock was removed as soon as possible upon the employees return to work if the employee was not previously notified.
8. When the lock(s) are removed, the equipment can be re-energized per regular procedures.

e. Energized Testing: If re-energizing equipment is necessary in order to test, track or position the equipment, temporary removal of the lockout and tagout devices is allowed by using the following steps:

1. Ensure all people, tools and debris are clear from the equipment to be tested.
2. Each employee will remove their locks from all power sources.
3. Proceed with testing/tracking of equipment.
4. If additional repair work is needed, all employees will reapply locks to each energy source and complete the work.
5. Replace machine/equipment guards before re-energizing the equipment.

f. Group Lockout: If a large piece of equipment has multiple lockout sources, a group lockout/lockbox procedure will be utilized. It is the responsibility of each department to determine what (if any) equipment will require group lockout. Group lockout procedures are as follows:

1. A lead person will act as the Project Coordinator.
2. A dedicated set of locks and identification tags shall be used for the group lockout. Each lock in this group will be keyed alike and there will be only 1 key for the entire set.
3. The Project Coordinator (or designee) will lock out every energy source to the equipment by following the equipment specific lockout procedure.
4. The Project Coordinator will verify the locks, initial and sign the lockout procedure and place the procedures and the only key into the designated group lockbox.

5. The Project Coordinator shall place his/her personal lock in the first slot on the group lockbox.
6. All employees who will be working on the project will place their personal lockout locks on the lockbox. Note: every employee working on the project has the right to review each lockout point with the Project Coordinator.
7. If a lockout log is used, each employee will add their names to the lockout log.
8. Once the box is locked, it will not be reopened until the job is complete. **If an additional lock or locks are required, it must be considered a separate lockout.**
9. Work will proceed per normal lockout procedures.
10. When work is complete, each employee will remove their personal lockout lock from the box and sign the lockout log (if used).
11. The last person to remove his/her box will be the Project Coordinator. He/she will review the equipment prior to allowing removal of the locks from the energy sources to verify that it is safe to remove the lockout.
12. Once verified that it is safe to do so, the Project Coordinator will remove the key from the lock box. He/she may then remove the locks or designate a representative to remove the locks from the energy sources.
13. The Project Coordinator is responsible for informing affected employees that the equipment will be returned to service.

g. **Lockouts that Extend Over Shift Change:** Lockouts must be controlled by the person who placed the lock(s). If a lockout is to remain in place for longer than a shift, the following procedures must be used:
    1. Ensure that the lockout is recorded in the lockout log book.
    2. Locks will remain in place until they are removed by the person who placed the lock, even if it extends over one or more shift.
    3. If another person needs to work on the equipment, they will lock it out independently with their own lock.
    4. In the event that the lockout must be removed and the person is not on site, the lock removal process will be followed.

h. **Decommissioned Equipment:** if a piece of equipment is to be permanently decommissioned, the following steps must be followed:
    1. Utilize regular LOTO procedures to de-energize equipment prior to beginning work.
    2. All energy sources will be completely disconnected.
        a. Electrical supply will be disconnected at the breaker in the electrical panel.
        b. Electrical wiring to the equipment will be removed.
        c. Piping supply (i.e. steam, air, gas, etc.) will be disconnected and capped.

3. Where log books are used, decommissioned equipment shall be logged in the book as decommissioned.
4. A tag should be affixed to the equipment with the date and name of who employee who removed from service.

8. LOCKOUT LOG BOOKS

Lockout/Tagout log books are used by some departments to keep track of the various lockouts in process at any given time. Lockout log books are not a requirement of the university, however they may be required by specific departments. Employees must use the log book if it is required by the department. A sample of a lockout log book is shown in Appendix C.

9. TRAINING

a. Training will be provided to ensure that Authorized and Affected employees understand energy control procedures.

b. General Lockout/Tagout training will be conducted to authorized employees prior to issuing them a lock. Training will be provided by EHS personnel or qualified supervisors. Training materials will be provided by EHS.

c. Job specific training will be conducted by employee supervisors and will include:
1. Recognition of hazardous energy sources.
2. Type and magnitude of the energy source.
3. Method and means required for energy isolation and control.
4. Machine specific instructions and procedures for the department's equipment.

d. Retraining will occur when:
1. An inspection reveals that an employee does not understand how to control the hazardous energy in their work area.
2. When there is a change in an employees' job assignment, or a change in equipment, machinery or energy control procedures.
3. Any time changes are made to this Lockout/Tagout Program.

e. Training records will identify the trainee, trainer, date and time spent. Training records will be filed with EHS.

10. PERIODIC INSPECTIONS

a. Each department will perform and document annual inspections of energy control procedures to ensure that employees understand and use them effectively. (See Appendix D for sample inspection form). Documentation will include:
1. The equipment on which the procedure is used.
2. The date of the inspection.
3. The employee(s) included in the inspection.
4. The name of the person conducting the inspection.

Inspectors will:
1. Understand the procedures.

2. Verify the procedure's accuracy, completeness and effectiveness.
3. If the inspector finds that employees are not following the energy control procedure or that the procedure is not adequate, employees must be retrained and the procedures corrected.

11. APPENDICES

- **a.** Appendix A – Definitions
- **b.** Appendix B – Machine Specific Procedure (Sample)
- **c.** Appendix C – Log Book (Sample)
- **d.** Appendix D – Inspection Form
- **e.** Appendix E – Lockout/Tagout Devices

12. DOCUMENTATION

Original Preparation Date: 1990
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