

UNIVERSITY OF SOUTH CAROLINA LANCASTER

LOCKOUT/ TAGOUT PROGRAM

Section 1 Program Statement

1.1 Lockout/Tagout Program

USC-Lancaster will maintain a safe and healthy work environment in an ongoing effort to protect each employee from potentially hazardous or unsafe conditions. It is the goal of University of South Carolina to insure that employees will at no time suffer any adverse health effects or injuries related to their work environment. In the attainment of this goal, the USC-L Maintenance Department, through the USC safety Program Guide, Section C.3, has implemented a Lockout/Tagout Program.

In the ongoing control of personal injury associated with equipment repair and maintenance, it is the USC-L Maintenance Department's primary objective to make repairs to equipment in a safe and proper manner. Guidelines and procedures outlined in this manual have been developed to insure that a machine or piece of equipment is isolated from all potentially hazardous energy sources before servicing is performed.

1.2 Purpose

The purpose of the Lockout/Tagout Program is to establish and maintain a program that will assure compliance with all applicable federal and state regulations and limit the number of accidents and losses associated with servicing and maintenance activities.

1.3 Objectives

The objectives of the Lockout/Tagout Program include:

- To insure that specific lockout/tagout procedures are developed for all pieces of equipment and machinery in which the unexpected energization, start up or release of stored energy could cause injury to employees.
- To insure that "Affected Employees" recognize the various types of equipment used by "Authorized Employees" and understand the use and purpose of lockout/tagout equipment.
- To insure that "Authorized Employees" are properly trained and implement the lockout/tagout system according to developed procedures.
- To insure that only "Authorized Employees" lockout or tagout machines or equipment.

- To insure that every new or transferred employee, and any other employee, whose work operations may be in the area, are instructed in the purpose and use of lockout/tagout procedures.
- To insure that contracting employees are given correct and proper notification of required lockout/tagout procedures used by the USC-L Maintenance Department of and that the contracting company adheres to these guidelines.

1.4 Application:

This program applies to the control of hazardous energy during servicing and/or maintenance of machines and equipment.

Servicing and/or maintenance which takes place during normal machine operations is covered by this standard if:

- An employee is required to remove or bypass a guard or other safety device;

An employee is required to place any part of their 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.

Section 2 Regulatory Requirements

2.1 Regulations/Requirements

Requirements and regulations pertaining to Lockout/Tagout are found in the following publications:

- Occupational Safety and Health Standards for General Industry (29 CFR 1910.147).

Section 3 Responsibility/Resources Employed

3.1 Departmental Safety Manager

The campus safety director is responsible for developing the written lockout/tagout program and ensuring that training is scheduled. He serves as the first contact for issues concerning the departmental lockout/tagout program. Information and support is available through the program manager at the office of USC Environmental Health and Safety (EHS).

3.2 Area Supervisor:

The campus safety director will develop written equipment specific procedures and review the proficiency of their subordinates in following developed procedures. The area supervisor will also be responsible for following emergency procedures for lock and tag removal in the absence of an employee who attached the lock and tag.

3.3 Authorized Employees

"Authorized Employees" are responsible for locking and tagging out equipment and machinery in accordance with procedures outlined in this manual. Also,

"Authorized Employees" are responsible for notifying *"Affected Employees"* before these procedures are implemented, and when the equipment is placed back into service.

3.4 Affected Employees

"Affected Employees" are responsible for recognizing the various types of lockout/tagout equipment used by *"Authorized Employees"* and ensuring that this equipment is not tampered with or removed by anyone but the *"Authorized Employee"*.

3.5 Environmental Health and Safety (EHS)

EHS is responsible for auditing departments that have implemented lockout/tagout programs. Upon request, EHS will assist departments in developing equipment specific lockout/tagout procedures, train *"Affected"* and *"Authorized Employees"*, and assist with lockout/tagout equipment selection.

Section 4 Training

4.1 Authorized Employees:

"Authorized Employees" will receive training in the recognition, magnitude and types of hazardous energy sources found at USC-Lancaster. These include, but are not limited to, electrical, mechanical, hydraulic, pneumatic, chemical, and thermal. In addition, *"Authorized Employees"* will receive training on the methods and means necessary for isolating and controlling these hazardous energy sources.

"Authorized Employees" will also be trained in the use and limitation of tags. The following topics will be addressed:

- tags are essentially warning devices and do not provide physical restraint that is afforded by the use of a lock;
- once a tag is attached to a piece of equipment it is not to be removed by anyone except the "Authorized Employee" attaching the tag and is never to be ignored, bypassed or otherwise defeated;
- tags must be legible and understandable by all Authorized Employees, and all other employees who work, or may work, in the area;
- tags will only be attached to equipment using a white nylon tie, and must be securely attached to energy isolating devices so that they will not be inadvertently or accidentally detached during use;
- tags may evoke a false sense of security and their meaning and limitations need to be thoroughly understood.

4.2 Affected Employees

At USC-Lancaster, "Affected Employees" are considered to be persons directly operating a machine or piece of equipment. These employees will be instructed on the purpose and use of the hazardous energy control procedures used by "Authorized Employees", and about the prohibition of attempts to restart or reenergize machines or equipment that are locked/tagged out.

"Affected Employees" will also be trained in the use and limitation of tags. The following topics will be addressed:

- tags are essentially warning devices and do not provide physical restraint that is afforded by the use of a lock;
- once a tag is attached to a piece of equipment it is not to be removed by anyone except the "Authorized Employee" attaching the tag and is never to be ignored, bypassed or otherwise defeated;
- tags must be legible and understandable by all Authorized Employees, and all other employees who work, or may work, in the area;
- tags will only be attached to equipment using a white nylon tie, and must be securely attached to energy isolating devices so that they will not be inadvertently or accidentally detached during use;

- tags may evoke a false sense of security and their meaning and limitations need to be thoroughly understood.

4.3 Training Frequency

All "Affected" and "Authorized" employees will be trained at least annually. In addition, retraining will be provided whenever there is a change in their job assignments, a change in the equipment or process that may present a new hazard, or when there is a change in energy control procedures. Additional training will also be conducted whenever a periodic inspection reveals that there are deviations from or inadequacies in the employees knowledge or use of the energy control procedures outlined in this manual. Training will reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

4.4 Random/Periodic Evaluations

The lockout/tagout program will be periodically evaluated by the campus safety director. Periodic evaluations will be made to ensure that lockout/tagout procedures are being effectively and properly implemented. Each employee who has been issued locks and tags will be evaluated at least annually. Once an evaluation has been completed, the employee performance will be noted on the "Performance Evaluation" form (Appendix A). The Performance Evaluation form will be kept on file in the campus safety director's office. Employees will be retrained if deficiencies are noted.

Section 5. Standard Lockout/Tagout Devices Used

5.1 Standard Use Equipment:

The following standardized equipment is used for lockout/tagout procedures at USC-L.

- Master hasp for multiple lockout/tagout applications:
Klein USA #45200
- Tags to be used in combination with locks, or separately, as established procedures demand. Tags will only be attached using nylon ties. Nylon ties will not be reused. Tags will have the employees name written on the tag in permanent black marker.
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DANGER BREAKERS LOCKED OUT
[IDEAL #44-890 Magnetic Lockout Sign]

DANGER DO NOT OPERATE
[IDEAL #44-833 Heavy Duty Lockout Tags]

[IDEAL#44-809 277 Volt Single Pole Breaker Lockout]

[IDEAL#44-810 Single Pole Breaker Lockout]

5.2 Proper Use of Equipment:

Lockout/Tagout devices will not be used for any other purpose than controlling hazardous energy. It is improper and against the rules to use lockout/tagout equipment to lock lockers, tool boxes, etc.

Most commonly, all equipment will be locked and tagged in order to control any hazardous energy sources. If an energy isolating device is not capable of being locked out, a tagout system will be utilized and documented procedures will demonstrate that a level of safety is achieved equivalent to that obtained with the full lockout/tagout system. Additional means will be considered as part of the written demonstration, such as: the removal of an isolating circuit element, blocking of a control switch, opening of an extra disconnecting device, or the removal of a valve handle to reduce the likelihood of inadvertent energization.

Section 6. Procedures

6.1 General Energy Control Procedures

OSHA regulations state that it is not necessary to document a specific procedure for a particular machine or piece of equipment when all of the following conditions are met:

- 1) The machine has no potential for stored or residual energy or re-accumulation of stored energy after shut down which could injure employees.
- 2) The machine or equipment has a single energy source which can readily be identified and isolated.
- 3) The isolation and locking out that energy source will completely de-energize and deactivate the machine or equipment.
- 4) The machine or equipment is isolated from that energy source and locked out during servicing or maintenance.

- 5) A single lockout device will achieve a locked-out condition.
- 6) The lockout device is under the exclusive control of the Authorized Employee performing the servicing or maintenance.
- 7) The servicing and maintenance does not create hazards for other employees.
- 8) No accident involving the unexpected activation or re-energization of the machine or equipment during servicing or maintenance.

A general procedure for the lockout/tagout of equipment that meets the above requirements is listed in 6.2. This procedure is established to provide some guidelines for equipment and machinery that do not need to have a specific and separate written lockout/tagout procedure. In order to exceed OSHA requirements, every effort will be made to document specific procedures for ALL equipment used at USC-L.

6.2 General Procedure for Equipment/Machinery Not Requiring a Specific Procedure:

- STEP #1: Notify all "Affected Employees" that lockout/tagout is going to be utilized and the reason why.
- STEP #2: If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.).
- STEP #3: Operate the switch, valve, or other energy isolating device(s) so that the equipment is isolated from its energy source.
- STEP #4: Lockout/Tagout the energy isolating devices.
- STEP #5: After insuring that no personnel are exposed, and as a check on having disconnected the energy source, operate the push button or other normal operating control to make certain the equipment will not operate.
- STEP #6: Return the operating control to the "neutral" or "off" position after the test. The equipment is now locked and tagged out.

6.3 General Procedures for Multiple Employee Lockout/Tagout:

Employees may at times be required to repair/service equipment that requires the expertise of more than one (1) person. For these applications, a Multiple Employee Lockout procedure will be used. The following steps will be followed to properly lockout/tagout equipment that has more than one employee performing maintenance and service:

- STEP #1: One (1) Authorized Employee will place all the required locks/tags on the equipment/machinery being repaired or serviced. Locks and tags will be placed on the equipment by following a written procedure developed for the particular piece of equipment.
- STEP #2: All keys are then placed into a lock box by the one (1) "Authorized Employee".
- STEP #3: A multi-lock hasp is then placed on the lock box and all other employees performing maintenance/service on the piece of equipment lockout/tagout the box of keys.
- STEP #4: If maintenance/service of the equipment will occur on different shift and with different employees, the employees on the leaving shift will meet with the employees on the incoming shift to change out locks. A new "Authorized Employee" will be designated for the new shift and will be responsible for the locks, tags and keys that are directly on the equipment.
- STEP #5: Once a employee has completed their work on the locked out piece of equipment, they will remove their lock and tag from the group lockout box.
- STEP #6: Once all employees have removed their locks and tags from the group lockout box, the "Authorized Employee" that placed the locks on the piece of equipment will be able to access his/her key and can proceed to unlock the entire piece of equipment.

6.3 General Procedures for Lock or Tag Removal:

Each lockout or tagout device will be removed from each energy isolating source by the employee who put the device on the equipment. **EXCEPTION:** When the employee who applied the lock or tag is not available to remove it, the following procedures will be followed:

1. The campus safety director will be contacted and notified of the situation
2. Verification that the employee who applied the lock or tag is not at work.
3. An attempt will be made to phone the employee who applied the lock or tag. If telephone contact is made with the employee, he/she will be instructed that their lock or tag needs to be removed and that they must report to work to remove the lock or tag. If telephone contact is not made, the course of action will continue to Step 4.
4. The campus safety director will inspect the work area to ensure that non-essential items have been removed, machine components are operationally intact, all employees have been safely positioned or removed, and that affected employees in the area have been notified that the lock and tag are being removed.
5. No employee may remove a lock or tag belonging to another employee or contractor, unless specifically directed by safety or maintenance personnel.
6. Before the employee who applied the lock or tag that has been removed returns to work, they will be retrained on proper lockout/tagout procedures, instructed on the situation that arose and the steps taken to remove the lock and tag.

EQUIPMENT TYPES, DESCRIPTIONS, AND SPECIFIC PROCEDURES:

SHUTDOWN PROCEDURES, LISTED IN A STEPWISE MANNER:

	PROCEDURE	LOCATION OF LOCK/TAG	DE-ENERGIZED STATE TO BE VERIFIED, HOW
1	Notify affected employees	N/A	N/A
2			
3			
4			
5			
6			

START-UP PROCEDURES, LISTED IN A STEPWISE MANNER:

	PROCEDURE	ENERGY SOURCE ACTIVATED	DE-ENERGIZED STATE TO BE VERIFIED, HOW
1			
2			
3			
4			
5			
6			

