



Lock Out/Tag Out – Control of Hazardous Energy

University Facilities

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Approved by: Bob Wells

1.0 Program Objective

UF has adopted this policy for the prevention of employee exposure to hazards resulting either directly or indirectly from Control of Hazardous Energy and Lock Out/Tag Out procedures in the workplace from the following OSHA regulations:
§1910.147 – The Control of Hazardous Energy (Lock Out/Tag Out)

2.0 Purpose and Scope

UF has implemented this Hazardous Energy Control Program and Lock Out/Tag Out procedures to ensure that employees are properly trained, aware of hazards associated with Lock Out/Tag Out, and correctly informed of procedures, policies, and practices to prevent or, if possible, eliminate these hazards. The UF Hazardous Energy Control Program will address the following elements:

- 2.0.1 Program training.
- 2.0.2 Who controls the program?
- 2.0.3 Inspections where unexpected energizing start up or release of stored energy could occur and cause injury.
- 2.0.4 How the program is enforced.
- 2.0.5 Specific procedures that outline the scope, purpose, authorization, rules, and techniques to be utilized.
- 2.0.6 Equipment surveys and listings will be provided that will include electrical, steam, hydraulic, tension, gravity, etc. as potential sources of energy.

- 2.1 UF will provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for

the safe application, usage, and removal of the energy controls that are required by employees.

2.2 When tag out systems are used, employees will also be trained in the following limitations of tags:

- 2.2.1 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.
- 2.2.2 When a tag is attached to an energy isolating means, it is not to be removed without permission of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
- 2.2.3 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.
- 2.2.4 Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
- 2.2.5 Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
- 2.2.6 Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.

2.3 UF will provide employees retraining under the following circumstances:

- 2.3.1 Retraining will be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment, or processes that present a new hazard, or when there is a change in the energy control procedures.
- 2.3.2 The retraining will reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

2.4 UF will certify that employee training and/or retraining has been accomplished and is being kept up to date. The documentation will contain each employee's name, dates of training, and who conducted the training.

2.5 If an energy source can be locked out, this method will be utilized. A "Lock Out Device" utilizes a lock, either key or combination, to hold an energy isolating device in a safe position.

2.6 If an energy source cannot be locked out, a tag out system will be utilized. A "Tag Out Device" is a warning tag (weather and chemical resistant) standardized in size, color, with wording warning of hazardous energy such as: (Do Not Start) (Do Not Open) (Do Not Close) (Do Not Energize) (Do Not Operate).

2.7 Lock Out/Tag Out devices will be clearly marked to indicate the identity of the employee applying the device.

- 2.8 Lock Out or Tag Out will be performed only by the authorized employees who are performing the servicing or maintenance.
- 2.9 The servicing or maintenance does not create hazards for other employees.
- 2.10 The department, in using this exception, has had no accidents involving the activation or re-energization of the machine or equipment during servicing or maintenance.

A specific written procedure for all machines, equipment or systems that are not exempt as identified above shall be developed and will be followed before beginning any servicing or maintenance work. Please use the attached Equipment Energy Control Planning Procedure form to document either the LOTO exemption or the LOTO procedure. The steps outlined below will serve as a guide in accomplishing this requirement.

3.0 Detailed LOTO Procedure

- 3.1 Affected Employees must be notified by the Authorized Employee of the application and removal of LOTO devices. Notification must be given before the controls are applied, and after they are removed from the machine or equipment.

3.2 Preparation for shutdown

- 3.2.1 Before an authorized or affected employee turns off a machine or equipment, the authorized employee shall have been trained.
- 3.2.2 The machine or equipment shall be turned off or shut down using the procedures established for the machine or equipment. An orderly shutdown will avoid any additional or increased hazard(s) to employees as a result of the equipment stoppage.

3.3 Energy Isolation

3.3.1 Evaluation

- 3.3.1.1 Review the surrounding area for other possible sources of energy transmission.
- 3.3.1.2 Inspect the immediate area where locks or tags will be attached.
- 3.3.1.3 Notify all employees in the general vicinity that LOTO procedures are being implemented.

3.4 Electrical Control

- 3.4.1 Unplug the machine or piece of equipment using an electrical plug lock or a disconnect switch with padlocks, locks and tags.
- 3.4.2 Ensure that all power sources are locked and tagged out.
- 3.4.3 Bleed any stored electrical energy to a “zero energy state.”
- 3.4.4 Use a tester to check that all circuits are dead.

3.5 Pneumatic control

- 3.5.1 Release the pressure to reach a “zero energy state.”
- 3.5.2 Lockout the energy source using lockout valves.

3.6 Hydraulic Control

- 3.6.1 Release pressure valve to reach a “zero energy state.”
- 3.6.2 Lockout the energy source using lockout valves, chains, padlocks, or locks

3.7 Fluids and Gasses

- 3.7.1 Evaluate all hoses and valves.
- 3.7.2 Insert a blank or blind in the line.
- 3.7.3 Use lockout valves, chains, padlocks, or locks at the isolating source.

3.8 Lockout or Tagout device application

- 3.8.1 Install all energy isolating devices that are needed to control the energy to the machine or equipment to isolate the machine or equipment from the energy source(s).
- 3.8.2 Tagout devices, where used, shall be attached in such a manner that will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited.
- 3.8.3 Where a tag cannot be affixed directly to the energy isolating device, the tag shall be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.

3.9 Verification of isolation

- 3.9.1 Prior to starting work on machines or equipment that have been locked out or tagged out; the Authorized Employee shall try to startup the machine or equipment to verify that the machine or equipment has been de-energized. (Example: pushing local start buttons, throwing switches, etc.). Ensure the operating controls are returned to the OFF or NEUTRAL positions. The work can now begin.

3.10 More than One Person LOTO

- 3.10.1 When more than one person will be involved with maintenance or repair of a piece of machinery or equipment requiring isolation of energy source, each person shall place their locks and tags on the energy isolating device.
- 3.10.2 When the machinery or equipment cannot accept more than one lock or tag, an additional hasp or similar energy isolating device shall be used, if feasible. Should this technique not be feasible, one lockout device can be used requiring a key, and the key shall be placed in a lockout box or cabinet that accommodates multiple employee locks to secure it. Each employee that works on the machine, equipment or system will place their lock and tag on the lockbox or cabinet. As each employee no longer needs to maintain lockout protection, they shall remove their locks from the box or cabinet.

3.11 Restoring Machines and Equipment to Normal Operations

- 3.11.1 When maintenance or servicing has been completed and the machinery or equipment is ready to be placed into normal operation, check out the immediate area to confirm that no one is exposed to any danger.
 - 3.11.1.1 Remove or check that all tools have been removed from the machinery or equipment.
 - 3.11.1.2 Confirm that all guards, pulleys, and safety devices have been reinstalled and are secure.
 - 3.11.1.3 Remove all locks and tags only after one final check to ensure all employees are in the clear.
 - 3.11.1.4 Operate the energy isolating devices to restore energy to the machine or equipment.
 - 3.11.1.5 Notify all Affected Employees that all LOTO devices have been removed and that the machine or equipment is now safe to operate.

3.12 Removal of Authorized Employee Locks and Tags When Off-site

- 3.12.1 There may be times when the LOTO needs to be closed out to put equipment back into service when an Authorized Employee still on the LOTO is off-site and cannot be located. Removal of an Authorized Employee lock and tag without the Authorized Employee's signature will require a review by the Authorized Employee's direct Supervisor.
- 3.12.2 The Authorized Employee's Supervisor will attempt to reach the Authorized Employee to determine if the LOTO may be closed. If the Authorized Employee indicates that the LOTO may be closed, the Authorized Employee must return to the site to follow the normal LOTO removal procedure.
- 3.12.3 If the Authorized Employee cannot be contacted or cannot return to the facility, the Authorized Employee's Supervisor may authorize removal of the Authorized Employee from the LOTO.

- 3.12.4 If the Supervisor authorizes the removal of the Authorized Employee's lock(s) and tag(s) all potentially affected employees shall be notified.
- 3.12.5 The Authorized Employee will be contacted by his/her Supervisor immediately upon their return to work, to notify them that they have been removed from the LOTO.

4.0 Contractors

- 4.1.1 Outside contractors that will be performing work on site must follow OSHA compliant LOTO procedures and the requirements as stated below.
- 4.1.2 The Clemson University contract administrator and the outside Contractor firm must coordinate LOTO procedures when University employees may be impacted by the LOTO event. The responsibility to train outside contractor employees lies with their employer.
- 4.1.3 There are several LOTO conditions that must be met by the outside Contractors before they begin work at the University.
 - 4.1.3.1 The Contractor shall establish and have available for review a LOTO program that meets 29 CFR 1910.147, Control of Hazardous Energy (LOTO); 29 CFR 1910.333, Lockout/Tagout Electrical Safe Work practices; and 1926.417, locking and tagging of circuits, as they relate to the control of hazardous energy sources.
 - 4.1.3.2 Prior to the Contractor performing work, a designated point of contact will be made within the Contractor's organization for the purpose of interfacing and coordinating the LOTO procedures.

5.0 Periodic LOTO Inspections

- 5.1 The Department shall conduct a periodic inspection of all energy control procedures at least annually. The inspections are to be performed by an authorized employee other than the one(s) utilizing the energy control procedure being inspected. Departments may use this review to correct any deviations or inadequacies identified.
- 5.2 Where lockout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.
- 5.3 Where tagout is used for energy control, the periodic inspection shall include a review, between the inspector and each authorized and affected employee, of the employees' responsibilities under the energy control procedure being inspected.

Note: All Departments on main campus may perform a single annual inspection in March of each year.

- 5.4 Certify Inspections

- 5.4.1 The Department shall certify that the periodic inspections have been performed. The certification shall identify (1) the machines or equipment on which the energy control procedures are utilized, (2) the dates of the inspections, (3) the employees included in the inspections, and (4) the persons performing the inspections each year.

Employee Training Acknowledgment

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I, _____, acknowledge receipt of training with regard
Clemson University's Control of Hazardous Energy Program and Lockout/Tagout Procedures.

I understand the purpose for having such a plan is to reduce injuries resulting from the accidental
startup of a machine or piece of equipment while undergoing service or routine maintenance.

I have been instructed to identify the piece of machinery and/or equipment and its energy source
utilizing the company's Survey for Applying Lockout/Tagout Devices prior to beginning any
lockout/tagout procedures. I understand that it is my responsibility to notify all co-workers of a
machine's or equipment's inactive state each time I begin lockout/tagout procedures.

Finally, I have specifically been issued the following Lockout/Tagout Device for my use only:

(Insert Identifying Number of Lockout/Tagout Device)

Training was received on the _____ day of _____, 19_____

Employee's Signature: _____ Date: _____

Trainer's Signature: _____ Date: _____