



Lockout/Tagout Program

Purpose & Scope

The purpose of this program is to provide a system for the lockout/tagout (LOTO) of energy isolating devices and there by protect employees from potentially hazardous energy. Wherever possible, energy isolating devices should be locked out. Before employee's service, repair, or perform maintenance, the machine or equipment must be isolated from all potentially hazardous energy, and the isolating energy device(s) from the machine or equipment must be locked and tagged out.

This program applies to all authorized and affected employees. It does not apply to cord and plug type equipment provided that the person performing the service is in control of the unplugged cord.

Definitions

Affected Employee – Any employee whose job requires them to operate or use a machine or equipment on which servicing or maintenance is being performed under lock and tagout or whose job requires them to work in an area in which such servicing or maintenance is being performed.

Authorized Employee – A person who locks and tags out machines or equipment to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when the employee's duties include performing servicing or maintenance covered under this section.

Energized – Connected to an energy source or containing residual or stored energy.

Energy Control Device – A device that uses a positive means such as a lock and tag, to hold an energy isolation device in the safe position and prevent the energizing of a machine or equipment.

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, and 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/Tagout – The placement of a lockout/tagout device on an energy isolating device, in accordance with an established procedure, to indicate and ensure that the energy isolating device and the equipment being controlled cannot be operated until the lockout /tagout device is removed.

Roles & Responsibilities

EHS Officer/Professional is responsible for the following:

- Ensures that a written program is in place
- Reviews the program periodically and monitors to ensure compliance with this program
- Coordinates training for applicable employees
- Oversees the effectiveness of the program
- Assists in the development of energy control procedures
- Ensures that employees receive appropriate training and that training is documented

Manager/Supervisor is responsible for the following:

- Ensures that employees comply with the guidelines established by this program
- Ensures that authorized and affected employees complete required training
- Provides lockout/tagout equipment
- Notifies the EHS Officer / Professional when a new lockout/tagout procedure is required

Authorized & Affected Employees are responsible for the following:

- Complies with this program
- Completes required training
- Develops energy control procedures and inspects them
- Appropriately uses LOTO equipment and energy control procedures
- Notifies the supervisor/manager of concerns or problems with assigned LOTO equipment

Contractors are responsible for the following:

- All contractors hired at FSU shall have their own written LOTO program that fulfills all regulatory requirements or follows the guidance in this program

Type & Magnitude of Energy Hazards

Each employee must be instructed in the types and magnitude of energy used by the university. The following types of energy are used: Electrical, Mechanical, Hydraulic, Pneumatic, Fluids & Gases, Chemical, Thermal, and Gravitational.

Energy Isolation Device(s)

Each employee must be instructed that every department has conducted an energy control procedure of all machinery, equipment, and processes that possess potentially hazardous energy. The energy control procedure must locate all equipment and identify all isolating devices that must be locked and tagged to render the equipment safe for service, maintenance, or repair. The energy control procedure (Attachment 1) must also describe which energy isolating device(s) to use and how and where to use them.

Sequence of Lockout/Tagout System

Each employee will be informed of the lockout/tagout sequence used by the university. That sequence includes the following steps:

Step 1: The authorized employee will notify all affected employees that lockout/tagout is to be used and the reason for its use.

Step 2: The machine must be shut down by normal procedure.

Step 3: Each energy-isolating device must be located.

Step 4: Each device or manner by which energy can be stored must be located. Dissipate or restrain all stored energy.

Step 5: a. If more than one authorized employee is required to affix a lockout/tagout device, the designated group coordinator must have each authorized employee who affixes a lockout/tagout device write their name, job title, and date and time lock/tag was placed and removed (Attachment 2). b. Each energy isolating device from the energy control procedure must now be locked out/tagged out with assigned individual locks and tags.

Step 6: a. Ensure that personnel are no exposed; b. attempt to start the equipment with the normal operating controls to ensure that lockout/tagout has been effective; c. return the operating control(s) to “neutral” or “off”. The equipment is now locked and tagged out.

Restoring Machines or Equipment to Normal Production Operations

Step 1: When servicing, maintenance, or repair is complete and the equipment/machine is ready to be started up, the authorized employee will ensure that: a. no one is exposed to the equipment/machine; b. all tools have been removed from the machine/equipment; c. guards have been reinstalled; d. there are no exposed electrical wires; e. and that they have determined that it is safe for start-up.

Step 2: After responding to IMPORTANT NOTES (below), remove all lockout/tagout devices.

IMPORTANT NOTES:

1. If the authorized employee is not available to remove the lockout/tagout device(s), the device(s) may only be removed by or under the direction of the supervisor who completes and documents the following: (a) identity of the authorized employee whose device is being removed; (b) describes all reasonable efforts to locate the employee; (c) describes the action taken to ensure that, prior to their resumption of work, the employee knows that their device was removed; and (d) signs and dates to certify that above steps were taken (Attachment 3).
2. If more than one authorized employee is required to remove a lockout/tagout device, the designated group coordinator must have each employee who removes a device write the date and time lock/tag was removed (Attachment 2).
3. Operate the devices to restore energy to the machine/equipment.

Temporary Removal of Lockout/Tagout Devices

When testing, the positioning of machines/equipment, or other requirements demand the temporary removal of lockout/tagout device(s), the authorized employee or supervisor must: (a) follow the steps in “**Restoring Machines or Equipment to Normal Production Operations**”; (b) conduct the tests or position the equipment;

and (c) de-energize all systems and reapply energy control measures in accordance with “**Sequence of Lockout/Tagout System**”.

Group Lockout/Tagout

When group lockout/tagout is required and when more than one group is involved, a group coordinator must be designated by supervision. The designated group coordinator must seek agreement from the other authorized employees and must ensure that each authorized employee: (a) places their personal lockout/tagout device on the energy isolating device(s); or (b) places the device on a multiple lockout/tagout device (hasp), if the device cannot accept multiple locks/tags; or (c) secures the personal lock to a multiple-lock lockout box or cabinet which holds the key to the single lock on the energy isolating device; and (d) documents the name, job title, and date and time affixed and removed the device (Attachment 2).

Information & Training

Each employee must be thoroughly trained with respect to lockout/tagout procedures by the university. Each employee must know that lockout/tagout is used to protect employees against hazardous energy from inadvertent operation of equipment or machinery. Each employee must understand that they are never to attempt to operate an energy-isolating device when it is locked and tagged out. Each employee must be retrained if there is:

1. A change in the employee’s job assignment
2. A change in machinery or equipment that presents a new hazard
3. A change in energy control procedures
4. Management considers that retraining is necessary

Training and retraining must include:

- How to recognize hazardous energy sources
- Type and magnitude of energy used
- Purpose of the lockout/tagout procedure
- Steps for shutting down, isolating, blocking, and securing equipment to which the employee will be exposed
- Steps for placement, removal, and transfer of lockout/tagout devices and the division of responsibility for accomplishing those tasks
- Requirements for testing to determine and verify effectiveness of lockout/tagout devices

Recordkeeping

The **EHS Officer / Professional** will:

- Provide LOTO training and retraining and be responsible for maintaining training records. Records will include names of the individuals trained, type of training, date of training, and name of the trainer.
- Assist authorized employee’s complete energy control procedures. Procedures will be maintained by the maintenance supervisors and a copy with EHS.

Annual Review

The Lockout/Tagout Program will be reviewed by the **EHS Officer / Professional**. The annual review will include current training and any documents associated with this program. When new tasks, procedures, and/or

positions are added or modified/revised which affect LOTO, this program will be updated immediately to reflect these changes.



Energy Control Procedure Form

Purpose: To protect authorized employees against unexpected or unplanned activation of equipment / machinery or energy while servicing equipment.

Scope: Utilize this procedure for all repairs and scheduled service and maintenance task that requires you to place your body in harm’s way of the equipment, or if you have to leave the area while the equipment is in service.

Enforcement: Failure to properly follow lockout/tagout procedure may result in disciplinary actions and retraining.

Building Name:			Machine / Equipment Location:		
Machine / Equipment Name:			Machine / Equipment Serial #:		
Energy Source (e.g. Electrical, Mechanical, Hydraulic, Pneumatic, Fluids & Gases, Chemical, Thermal, Gravitational)	Magnitude (e.g. v, hp, psi, °F)	Hazards (e.g. Electrocutation, Injection, Inhalation, Burn, Crush, Cut, Laceration, Amputation, body part fracture)	Energy Isolation		Verification (Write steps ensuring energy source is truly isolated)
			Device (e.g. Circuit Breaker, Electrical Switches, Ball, Gate, & Butterfly Valve, & Padlock)	Location of Device (Write where & how to install)	

Completed by: _____ Date: _____ Inspected by: _____ Date: _____

Shutdown, Lockout/Tagout, & Test Sequence		
#	Step	Description
1	<i>Notify Employees</i>	Notify all affected employees that servicing, or maintenance is required on a machine or equipment, and that it must be shut down and locked/tagged out to perform the servicing or maintenance.
2	<i>Complete/ Review Procedure</i>	The authorized employee shall complete or refer to the energy control 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.
3	<i>Shutdown Equipment</i>	If the machine or equipment is operating, shut it down by the normal stopping procedure. Refer to machine operating procedure for shutdown.
4	<i>Isolate Energy</i>	Follow the energy control procedure form from top to bottom to de-activate the energy sources and affix the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s). NOTE: It may be necessary to dissipate the non-lockable energy sources before isolating the lockable energy sources.
5	<i>Lockout Energy</i>	Lockout & tagout as required the energy isolating device(s) with assigned individual lock(s) and tag(s).
6	<i>Dissipate Energy</i>	Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, as well as air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.
7	<i>Attempt Restart</i>	Ensure that the equipment is disconnected from the energy sources by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating controls or by testing to make certain the equipment will not operate. Caution: Return operating controls to neutral or "off" position after verifying the isolation of the equipment. (EQUIPMENT IS NOW READY FOR SERVICE, MAINTENANCE, OR REPAIR)
Restore to Service Sequence		
1	<i>Check Machine</i>	Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
2	<i>Check Area</i>	Check the work area to ensure that all employees have been safely positioned or removed from the area.
3	<i>Verify Machine</i>	Verify that the controls are in neutral position.
4	<i>Remove Lockout</i>	Remove the locks, tags, and lockout devices and re-energize the machine or equipment. In reverse order, follow all the steps from the energy control procedure found on the previous page. Note: The removal of some forms of blocking may require re-energization of the machine before safe removal.
5	<i>Notify Employees</i>	Notify affected employees that the servicing or maintenance is completed, and that it is ready for use.



Energy Control Procedure for Group Lockout/Tagout

Building Name:			Machine / Equipment Location:			
Machine / Equipment Name:			Machine / Equipment Serial #:			
Authorized Employees Name	Authorized Employee Job Title	Date Lock Affixed	Time Lock Affixed	Date Lock Removed	Time Lock Removed	



Energy Control Procedure for Lockout/Tagout Device(s) Removal

Supervisors will need to complete this form if the authorized employee is not available to remove their lockout/tagout device(s).

1. Name of authorized employee whose lockout/tagout device(s) need to be removed:

2. Describe reasonable efforts which have been made to locate the employee?

3. Describe actions taken to ensure that, prior to returning to work, the employee knew that their lockout/tagout device(s) was removed.

4. Name: _____ Signature: _____ Date: _____