



WESTERN CONNECTICUT STATE UNIVERSITY

LOCKOUT/TAGOUT

PROCEDURE [S-107](#)

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Please direct any questions or comments about the applicability of this document to
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1.0 INTRODUCTION

Lockout/tagout programs are designed to prevent the accidental start-up of machines and equipment and to prevent the release of stored energy during servicing or maintenance. Through the use of specific procedures that involve applying locks and/or tags, equipment is isolated from energy sources and injuries to workers are prevented.

2.0 PURPOSE

This chapter establishes the minimum requirements for the lockout/tagout of energy-isolating devices whenever machines or equipment are undergoing service, repair, or maintenance. It shall be used to ensure that a machine or equipment is stopped, isolated from all potentially hazardous energy and locked and tagged out before employees perform any servicing or maintenance where the unexpected energization, start-up of the machine or equipment or the release of stored energy could cause employee injury.

3.0 BACKGROUND

The unexpected energization or start up of the machine or equipment, or release of stored energy could cause injury to employees. The Occupational Safety and Health Administration 29 CFR 1910.147 has established requirements for the employer to have a Lockout/tagout Program to ensure the safety of all employees when machinery or equipment are being serviced.

4.0 RESPONSIBILITIES

Coordinator of Health, Safety and Environmental Affairs

The Coordinator of Health, Safety, and Environmental Affairs is responsible for monitoring the Lockout/Tagout Program to ensure all regulations are enforced and followed. The Coordinator of Health, Safety, and Environmental Affairs shall:

- a. Conduct an annual inspection to ensure compliance with lockout/tagout procedures.
- b. Certify periodic inspections by documentation that contains the following:
 1. Name or number of machine or equipment on which the energy control procedure is being utilized.
 2. The date of the inspection
 3. The employees included in the inspection
 4. The person doing the inspection
- c. Train personnel in identification of lockout/tagout
- d. Certify that personnel are trained

Supervisors

Supervisors are responsible for the implementation of the lockout/tagout Program and for the development, documentation and utilization of equipment-specific written procedures to control potentially hazardous energy when employees are engaged in activities covered by this policy. They are also responsible for the program maintenance and compliance to ensure the safety of all employees who may be affected by any energy source in the work environment.

- a. Ensure all applicable employees who may be affected by this standard or are involved with the actual operations of this program receive appropriate annual training.
- b. Ensure all employees comply with the standards set by this program.

- c. Ensure all qualified persons are trained to a level where they can demonstrate an ability to perform duties related to equipment to be used / repaired and accomplish it safely.
- d. Ensure qualified employees are trained in all facets of the program procedures.
- e. Ensure retraining is accomplished whenever there is a change in job assignments, machinery, equipment, or processes that present a new hazard or a change in energy control procedures.
- f. Train personnel annually or whenever there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.
- g. Ensure documentation of training is available.
- h. Implement the procedures of the Lockout/Tagout Program for securing an energy source.
- i. Periodically review lockout/tag-out during operations to ensure program procedures are followed without deviations.
- j. Control locks and tags daily with a log sign-out system.
- k. Ensure contractors are notified of the WCSU Lockout/Tagout Program to prevent possible accidental energizing of equipment or machinery.
- l. Ensure contractor has a written lockout tagout program that complies with 29 CFR 1910.147 OSHA Regulation, before awarded contract operations being.
- m. Monitor and prevent any violation of the Lockout/Tagout Program by contractors, i.e., circumventing lockout/tagout of energy sources.

Equipment-Specific Written Procedures

Equipment-specific written procedures shall, at minimum, include the following:

- a. The identification of machine/equipment specific hazardous energy.
- b. The location for and identification of applicable lockout/tagout devices.
- c. Specific procedural steps for shutting down, isolating, blocking and securing the machines or equipment to control hazardous energy.
- d. Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures.
- e. Specific procedural steps for the safe removal of lockout and tagout devices upon the completion the machine or equipment service, repair or maintenance.

Employees

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout/tagout. Only "authorized employees" may lockout/tagout equipment and shall ensure all procedures of this program are followed. They shall:

- a. Obtain, review and implement the equipment-specific written procedures on the machine/equipment being serviced, maintained or repaired.
- b. Obtain and use the required/appropriate lockout/tagout device(s).
- c. Never remove a lockout/tagout attached by others unless authorized.
- d. Inform supervisor of any discrepancies.
- e. Attend the WCSU Lockout/Tagout Training Course

5.0 General Lockout/Tagout Procedures

The following procedures shall be followed without any deviation due to the potential for injury or death. Any person not following or violating procedures shall be subject to an appropriate disciplinary action.

5.1 Preparation and Notification

- a. The authorized employee must determine if an equipment-specific written procedure is applicable to the task. If so, the authorized employee must obtain and follow the equipment-specific written procedure. If an equipment-specific written procedure has not been developed, the authorized employee must contact his/her supervisor and a lockout/tagout checklist is to be used whenever a lockout is performed. A sample lockout/tagout checklist can be found in Appendix C.
- b. Assess the energy type and magnitude. The authorized employee must locate and assess the type, magnitude, and hazards of the energy sources (electrical, hydraulic, pneumatic, mechanical, potential and kinetic energy, thermal extremes (including pressure build-up) to be controlled.
- c. Determine the methods of control. The authorized employee must determine the appropriate methods of controlling the hazardous energy; e.g., disconnect switch or valve (energy-isolating devices). Note: Push buttons, selector switches, interlock circuits, and other control type devices are not energy-isolating devices.
- d. Notify all affected personnel. The authorized employee must notify all affected employees of the pending shutdown and the reasons for it.

Questionable situations shall be resolved the immediate supervisor and/or the Department of Public Safety before proceeding.

5.2 Shutdown

- a. Verify that it is safe to shutdown the equipment. If the equipment is in operation, the authorized employee must verify that it is safe to shutdown the equipment.
- b. Perform normal equipment shutdown. If the equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.) Disconnect switches should never be pulled while under load, because the possibility of arcing or even explosion. Personnel knowledgeable of equipment operation should be involved with shut down or re-start procedures.

5.3 Machine/Equipment Isolation

The authorized employee must locate and operate the energy-isolating device(s) so that the machine, equipment or process is isolated from all forms of energy. Operate the switch, valve, or other energy-isolating devices so that the energy source(s) (electrical, mechanical, hydraulic, etc.) is (are) disconnected or isolated from the equipment. Stored energy, such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam or water pressure, etc., must be dissipated, disconnected, or restrained by methods of grounding, repositioning, blocking, bleeding-down, etc.

Caution: Intermittently operating equipment such as pumps, blowers, fans, and compressors may seem harmless when dormant. Don't assume that because equipment isn't functioning, it will stay that way.

5.4 Application of Lockout/Tagout Device

Enter required information on tag and apply with nylon cable tie. The authorized employee must complete all appropriate information on the tag. If the placement on the tag would compromise safety by obscuring indicator lights or controls, the tag must be located as close as safely as possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device. Where more than one authorized employee is involved and a

group lockout/tagout procedure is not required, each authorized employee must affix his/her own personal tag on a multiple lock hasp.

5.5 Verification of Isolation

After ensuring that no personnel can be exposed and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the machine or equipment will not operate. All operating controls used for verification must be returned to the off or neutral position. If there is a possibility of re-accumulation of stored energy to a hazardous level, verification of isolation shall continue until the maintenance or repair is completed, or until the possibility of such accumulation no longer exists. If the equipment is electrical, test for zero-energy state. The authorized employee must additionally test potential electrical energy sources using appropriate, approved instruments or testers. The authorized employee shall use test equipment to verify that the circuit elements and equipment parts are de-energized, and shall also determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed, though specific parts of the circuit have been deenergized and presumed to be safe. If the authorized employee is not qualified to test the energy being isolated, he/she must ensure that a qualified person tests the energy. The qualified tester, if other than the authorized employee, must be identified in the Remarks section on the tag. If the circuit to be tested is over 600 volts, nominal, the test equipment must be checked for proper operation before and immediately after this test. The equipment is now locked out.

5.7 Release from Lockout/Tagout

Before Lockout/tagout devices are removed and the energy is restored to the equipment, the authorized employee must follow the procedures below:

- a. Verify that it is safe to re-energize the machine or equipment being serviced, repaired or maintained.
- b. The authorized employee must verify that the work for which the lockout/tagout was applied has been completed and that it is safe to re-energize equipment.
- c. Clear all tools and personnel. The authorized employee must check the work area to ensure that all tools and personnel are at a safe distance from the equipment.
- d. Each lockout/tagout device shall be removed from each energy-isolating device by the employee who applied the device.
- e. Replace safety guards. The authorized employee must check the equipment to ensure that any removed guards are reinstalled.
- f. Notify all affected personnel. The authorized employee must notify all affected employees that the equipment is about to be placed back in service.
- g. Return the machine back into service.

6.0 Temporary Removal of Lockout/Tagout Devices

When lockout/tagout devices must be temporarily removed from the energy-isolating devices for testing or repositioning and before energy is restored to equipment, the authorized employee must take the following actions:

- a. Notify and remove all personnel from the area.
- b. Clear the machine, equipment or process of tools and materials.
- c. Remove the necessary lockout/tagout devices and return all vents and valves to their normal operating positions.

- d. Re-energize the machine, equipment or process and proceed with the testing or re-positioning.
- e. De-energize all systems and reapply the lockout/tagout measures to continue the servicing, maintenance, or modification of the equipment in accordance with Section ...

7.0 Emergency Removal of Lockout/Tagout Devices

When the authorized employee who applied a lockout/tagout device is not available, the supervisor may remove the device. This is considered to be an emergency procedure to be taken in extreme circumstances. Extreme care must be taken and the following steps must be performed:

- a. The supervisor must verify that the authorized employee is not at the facility. The supervisor must physically attempt to locate the employee. Verbal confirmation from others that the employee has left the facility is not acceptable. It is not permitted to leave written messages placed in a work area or verbal messages on automated answering machines (telephone or computers) as a positive means of communicating with the employee. Direct, uninterrupted communication is the only acceptable means of communication.
- b. The supervisor must make every reasonable effort to contact the authorized employee. This may include a telephone call to the employee's home or other location.
- c. If the employee cannot be located or contacted; no further action shall be taken.
- d. If the employee is contacted, the supervisor must inform the employee that his/her lockout/tagout device(s) is/are being removed and the reason(s) for the emergency removal.
- e. The supervisor must verify that it is safe to remove the lockout/ device(s).
- f. The supervisor may then use the emergency key to remove the lockout/tagout device(s), or the lock may be cut off if the key is not available.
- g. The supervisor must ensure that the authorized employee is presented with the removed lock immediately upon returning to work, and is informed of the reasons for the emergency removal (if not discussed prior to removal of the device(s)).
- h. The emergency procedure must be duly recorded in the department's lockout/tagout records and signed by both the supervisor and the authorized employee.

8.0 Shift Changes

To ensure the continuity of lockout/tagout protection during shift or personnel changes, if work is to be continued by an oncoming shift, an orderly transfer of lockout/tagout devices between authorized employees from the offgoing and oncoming shifts must be performed. The authorized employees from both shifts must both be present at the lockout device. The offgoing-authorized employee must remove his/her lock and tag, and the oncoming authorized employee must immediately place his/her lock and tag on the group lockout/tagout device.

8.1 Gaps Between Shifts

If the orderly transfer of lockout/tagout devices is not possible because of a gap in shifts, a procedure must be implemented to provide continuity of lockout/tagout protection.

- a. If the authorized employees from both shifts cannot be present simultaneously at the lockout device because there is a gap between their shifts, the authorized

employee of the offgoing shift may acknowledge, by a written logbook entry, prior consent to remove his/her lockout/tagout devices during the oncoming shift. The supervisor of the authorized employee must make a corresponding logbook entry. The logbook entries must include the authorized employee's and supervisor's printed names and signatures, the equipment identification, maintenance procedure being performed, and all other pertinent safety information regarding the equipment and/or procedure.

- b. The supervisor of the oncoming shift must read and understand the logbook entries, and is authorized to remove the lockout/tagout device of the authorized employee from the offgoing shift.
- c. The authorized employee on the oncoming shift must apply his/her lockout/tagout devices.
- d. Both oncoming authorized employee and his/her supervisor must make logbook entries acknowledging the performance of this special procedure.
- e. All subsequent lockout/tagout actions must conform to the standard lockout/tagout policy and procedure.
- f. Before resuming work, the authorized employee who gave prior consent for removal of his/her lockout/tagout devices must be personally informed by the supervisor that the authorized employee's devices have been removed. This authorized employee and supervisor must make confirming logbook entries, and the supervisor must then return the lockout/tagout devices back to the employee.

9.0 Group Lockout/Tagout Procedures

When a crew performs servicing, maintenance, repairs, or modification, the supervisor may determine that the use of a group lockout/tagout procedure is appropriate. This determination must be made only if the size of the crew and the nature of work preclude the feasibility of individual lockout and tagout, and if the level of the protection provided by the group lockout/tagout procedure is equivalent to that of individual lockout/tagout.

9.1 Procedure/Application of Group Lockout/Tagout

- a. The supervisor must determine that a group lockout/tagout is appropriate.
- b. The supervisor must convene a meeting of all members of the group to be covered under the procedure.
- c. The supervisor must describe the tasks to be performed, using the equipment-specific written lockout/tagout procedures.
- d. The supervisor must delegate primary responsibility to a designated authorized employee for a specified group of employees working under the protection of the group's lockout/tagout.
- e. The structure of the group, the names of all group members and the designated authorized employee, and the reasons for the group lockout/tagout must be documented in the lockout/tagout logbook.
- f. Each member of the specified group must be trained and authorized.
- g. The designated authorized employee is responsible for ensuring that each step of the general or equipment-specific written procedure is followed.

- h. The designated authorized employee must apply his/her personal lockout/tagout lock(s) and tag(s) to the energy-control device(s) and indicate on the tag that a "group lockout" is in effect.
- i. The designated authorized employee must communicate to each person in the crew that a lockout/tagout is in place and work may commence. If the makeup of the crew changes while work is in progress, the designated employee must inform any new group member that a group lockout is in place and communicate to him/her all the information relating to the group lockout. The new names of the new group members must be added to the log.
- j. Anyone leaving the group before servicing, maintenance, or modification is completed must notify the designated authorized employee. The group member leaving must communicate the status of his/her activities to the designated authorized employee. The designated authorized employee must make a logbook entry indicating the date and time of each group membership change.

10.0 Tagout Only

If a device is incapable of being locked out, a "tagout only" procedure may be employed. Any energy-isolating device capable of being locked out must be locked out without exception.

To conduct a tagout only procedure, the authorized employee must follow all steps outlined in the equipment-specific written procedure. The placement of the lock normally listed in the equipment-specific written procedure must be omitted. Instead, the authorized employee must utilize, list, and describe a second means of isolating the hazardous energy. Removal of an isolating circuit element, blocking of a controlling switch, opening of an extra disconnect device, or removal of a valve handle are all examples of secondary measures.

The second means of isolating must be identified on the tag, and tags must be affixed to both the energy-isolating device and at the point of the second means of isolations.

It is WCSU's policy to design energy-isolating devices to accept a lockout device whenever machines or equipment undergo major repair, renovation or modification.

11.0 Recordkeeping Requirements

Each lockout/tagout event must be fully documented in the department log. The following information must be documented:

- a. Name of authorized employee who performed the lockout/tagout.
- b. Date and time lockout/tagout was applied.
- c. Equipment and circuit identification.
- d. Reason for the lockout/tagout.
- e. Date and time the lockout/tagout was removed.
- f. Name of authorized employee who removed the lockout/tagout device if different from the authorized employee who initiated the lockout/tagout.

Records should be maintained for two years.

SPECIFIC EQUIPMENT SHUTDOWN AND LOCKOUT/TAGOUT SYSTEM

CAUTION: Servicing or maintenance is not permitted unless this equipment is isolated from all hazardous energy sources. This is the exclusive responsibility of designated “Authorized Employees” (**see listing below) who must follow the complete WCSU “Lockout/Tagout” procedure. This sheet identifies the types of energy supplied to the particular equipment, isolating devices, and the types of required control devices.

Equipment Name / Number Location # _____

Equipment Description: _____

Hazardous Energy		Isolating Devices		Control Devices			
Type	Magnitude	Type	Location	Lock	Tag	Both	*Additional Safety

*Additional Safety Measures (refer to table above)

**Authorized Employees: Only the following individuals are authorized to perform maintenance on this piece of equipment and undertake lockout/tagout procedures

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Prepared by: _____ Date: _____ Phone: _____