




# LOCKOUT/TAGOUT PLAN

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## NORTHEAST COMMUNITY COLLEGE LOCKOUT/TAGOUT PLAN

Northeast Community College is committed to the safety and security of students, faculty, staff, and visitors. In order to support that commitment, Northeast Community College (Northeast) has established a comprehensive Lockout/Tagout Plan that outlines Northeast's directives relevant to practices and procedures to be followed when disabling equipment which require servicing or maintenance activities. The Lockout/Tagout Plan is an official plan of Northeast and coincides with the College's governing board policies and procedures. The plan supports ongoing training, practical exercises, and management of resources to provide a safe working and learning environment.



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3/24/23

Date



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28 March 2023

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**NORTHEAST COMMUNITY COLLEGE  
LOCKOUT/TAGOUT PLAN  
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## **1.0 General**

The purpose of the Lockout/Tagout (LOTO) Plan is for the protection of employees, students, contractors, service providers and visitors. Before any Northeast employee performs service/maintenance activities, he/she must understand and follow the proper procedures for energy control as outlined in this plan. The plan establishes a practical approach for the development of the entire LOTO program. The program elements include identification of hazardous energy sources, notification requirements, usage of energy isolating/dissipating devices, and proper equipment specific LOTO protocols, including shut down requirements, disconnection of all primary and secondary energy sources, verification of lockout, and bringing the equipment back on line whenever maintenance or servicing is done on machines or equipment.

The provisions of this plan apply to all College departments that service and/or maintain machines and equipment for which the unexpected energization, start up, or release of stored energy could result in injury or death to individuals.

### **1.1 Responsibility**

The employer is responsible for the following:

- Developing, implementing and enforcing an energy control program.
- Provide adequate LOTO devices.
- Ensure adequate training is provided to employees engaging in LOTO processes. Training must cover the employer's energy control program, elements of the energy control procedures, and incorporation of various manufacturer and industry specific requirements related to any form of energy release.
- Ensure new or repaired equipment is capable of being locked out.
- Develop, implement and enforce an effective tagout program if machines or equipment are not capable of being locked out.
- Develop, document, implement and enforce energy control procedures.
- Maintain upkeep of all written procedures.

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout devices and applicable procedures. Authorized employees are required to perform the lockout in accordance with applicable industry standards. All employees, upon observing a machine or piece of equipment that is locked out, shall not attempt to remove the LOTO device, start, energize, or use the machine or equipment until proper authorization has been given by the personnel engaged in performing the service or maintenance processes.

Instructors are responsible for ensuring that students are trained and follow LOTO procedures developed for their course work.



Contracted or service work employees are expected to follow all applicable standards and regulations specific to the industry requirements.

## **2.0 Identifying Hazards**

Prior to initiating maintenance, it must be determined whether the task can be accomplished safely with energy present or whether it is necessary to de-energize. Energy sources that may need to be locked out and tagged during equipment service or maintenance include, but are not limited to, the following:

- Mechanical, electric, thermal, or chemical reaction.
- Any powered machinery or electrical equipment that could move in a way that would endanger self or others.
- Equipment that could roll, fall, or move onto a person after being shut down (gravitational energy source).

Typical tasks requiring LOTO procedures include, but are not limited to:

- A task requiring an employee to place any part of his/her body into an area on a machine's point of operation.
- Repairing electrical circuits.
- Cleaning, repairing, lubricating, and maintaining machinery with moving parts.
- Clearing blocked or jammed mechanical equipment.
- Repairing mechanical or operational problems.
- Removing or by-passing a guard or other safety device.

## **2.1 Exemptions**

Work on an electrical cord and/or plug-connected electric equipment is exempt if exposure to the hazards of unexpected energization or start-up of the equipment is controlled by unplugging the equipment from the energy source, and if the plug is under the exclusive control of the employee performing the service or maintenance activity. Pneumatic tools may also fall into this category if they can be completely isolated from their energy source.

Service which involves minor tool changes, adjustments, and other minor servicing activities that take place during normal operations is exempt provided that such activities are routine, repetitive, follow manufacturer specifications, and are integral to the use of the equipment and the work being performed using alternative measures that provide effective personal protection.

Hot tap operations that involve transmission and distribution systems for electricity or substances (e.g., gas, steam, water, or petroleum products) are exempt if the supervisor can demonstrate:

- Continuity of service is essential.
- Shutdown of the system is impractical.
- Documented procedures are understood and followed by all affected personnel.
- Using special equipment that will provide proven, effective protection for employee(s).

### **3.0 Protection Against Hazards/Safety Procedures**

#### **3.1 Lockout/Tagout**

The key point of LOTO procedures is to identify hazardous energy sources, develop step-by-step instruction for the isolation/dissipation of those energy sources, as it relates to equipment operations, repair, maintenance, and cleaning. The following procedures must be implemented in the order listed below when locking or tagging out equipment. (*Refer to Appendix A for definitions*)

***Preparation for shutdown.*** Before an authorized or affected employee performs any maintenance work on equipment, the authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy. The employee must notify all affected personnel of the temporary shutdown of the equipment, prior to any work commencing.

***Machine or equipment shutdown.*** The machine or equipment shall be turned off or shut down using the procedures established within the written LOTO program for the machine or piece of equipment. An orderly shutdown process must be utilized to avoid any additional or increased hazard(s) to employees. See Appendix B for equipment specific LOTO template and instructions on how to complete the template for each piece of equipment.

***Machine or equipment isolation.*** All energy isolating/dissipating devices that need to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s). All primary and secondary energy sources will be identified and properly isolated/dissipated prior to commencement of work.

***Lockout/tagout device application.*** LOTO devices shall be affixed to each energy isolating/dissipation device by authorized employees. Lockout devices shall be affixed in a manner that will hold the energy isolating/dissipating devices in a "safe" or "off" position.



Where tagout devices are used with energy isolating/dissipating devices designed with the capability of being locked, the tag attachment shall be fastened at the same point at which the lock would have been attached.

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.

**Stored energy.** Following the application of lockout or tagout devices to energy isolating/dissipating devices, all primary and secondary energized components shall be relieved, disconnected, restrained, and otherwise rendered safe.

If there is a possibility of re-accumulation of stored energy to a hazardous level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

**Verification of isolation/dissipation.** Prior to starting work on machines or equipment that have been locked out/tagged out, the authorized employee shall verify that isolation/dissipation and de-energization of the machine or equipment have been accomplished. After locking out/tagging out the energy source, the employee will try and/or test the equipment to ensure that no unintended motion will occur to determine that the energy isolation has been effective.

### **3.2 Group Lockout**

When more than one person is required to LOTO equipment, each must place his/her own personal LOTO device on the energy isolating device(s).

When an energy isolating device cannot accept multiple locks/tags, the employee must use a LOTO device (hasp) which can accept multiple locks or use a single lock to lockout the machine or equipment, placing the key in a lockout box or cabinet which allows the use of multiple locks to secure it.

Each employee/user must use his/her own lock to secure the box or cabinet. When each person no longer needs to maintain his/her lockout protection, that person will remove his/her lock from the box or cabinet.

### **3.3 Use of Tags**

Tags may only be used when equipment cannot be physically altered to accept a lockout device. In this case, all other procedures consistent with the lockout program must be followed. Additional control measures must be taken to reinforce the tagout device (e.g., opening an extra disconnecting device, removal of a valve handle, or additional training). Tags must meet the following minimum guidelines:

- 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.
- Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
- Tags must contain warnings against energizing the equipment, such as DO NOT START, DO NOT OPEN, DO NOT CLOSE, DO NOT ENERGIZE, or DO NOT OPERATE.
- Tags must be able to indicate the identity of the employee applying the device.

Tags attached to energy isolating/dissipating devices shall be removed only by the person originally attaching them.

Tags must be attached to energy isolating/dissipating devices securely enough that they cannot be accidentally removed and must be in plain view and at the same location as the energy isolation/dissipation device. Tags cannot be bypassed, ignored, or otherwise defeated.

### **3.4 Restoring Equipment to Service**

When the servicing or maintenance is completed, the person who attached the lock or tag is responsible for promptly removing that device. Removal of LOTO devices will be accomplished by following the steps listed below:

- Check the machine and the immediate area to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact, and all safety guards are reinstalled.
- Check the work area to ensure that all employees have been safely positioned or removed from the area.
- Verify that the controls are in neutral.
- Remove the lockout devices and reenergize the machine or equipment. Note: The removal of some forms of blocking may require energization of the machine before safe removal.
- Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.



### 3.5 Emergency Safety Lock Removal

The Executive Director of Physical Plant or designee will be authorized to remove any employee's lock **ONLY UNDER THE FOLLOWING CONDITIONS:**

1. Verification that the authorized employee who applied the lock is not at the facility; (i.e., contact by phone).
2. Following the verification in step 1:
  - Inform the authorized employee(s) of the removal before the employee resumes work; and
  - Make certain that all of the requirements for restoring power are followed.

### 4.0 Program Inspection and Review

An inspection of the energy control procedures for equipment/machines involved in the LOTO program must be conducted according to best management principles to ensure that proper procedures are being followed. The inspection should be performed by an authorized employee other than the one(s) utilizing the LOTO procedure. The inspection should include a review between the inspector, authorized employees, and any other affected employees. Typical items covered in an inspection would include:

- A review of current energy control methods.
- Correct energy source identification.
- Proper lockout device usage.
- Methods used to release stored energies.
- A review of employee responsibilities and procedures used under those responsibilities, including following proper LOTO steps.
- Employee complaints regarding deficiencies in the LOTO Program.

#### 4.1 Recordkeeping

All Northeast LOTO program records will be maintained by the appropriate department, with a master copy located at the Physical Plant Department. The records must include:

- Employee attendance sheets and training summary.
- Specific LOTO procedures for equipment/machines covered by the program.

### 5.0 Training

Training will be provided 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 are acquired by employees. The training shall include the following:

- Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
- Each affected employee shall be instructed in the purpose and use of the energy control procedure.
- All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

### **5.1 Retraining**

Retraining shall 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.

Additional retraining shall be conducted whenever periodic inspections show employee deficiencies in energy control techniques.

Records will be kept by departments and at the Physical Plant Department showing training dates, times, attendance and items covered.

## Definitions

**Affected employee** – An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

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

**Capable of being locked out** – An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

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

**Energy isolating/dissipating device** – A mechanical device that physically prevents the transmission or release of energy, including, but not limited to, 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, a line valve; a block; pistons and dampers, friction, viscoelastic fluids; and any similar device used to block, isolate, or dissipate 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.

**Hot tap** – A procedure used in the repair, maintenance, and service which involves welding on a piece of equipment (pipelines, vessels, or tanks) under pressure in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

**Lockout** – The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.



## ***Appendix A Continued***

***Lockout device*** – A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Examples include blank flanges and bolted slip blinds.

***Normal production operations*** – The utilization of a machine or equipment to perform its intended production function.

***Servicing and/or maintenance*** – Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

***Setting up*** – Any work performed to prepare a machine or equipment to perform its normal production operation.

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

***Tagout device*** – A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy isolating device in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.



## LOCKOUT PROCEDURE

Date Prepared:	Date Audited:
Building:	Room #
Equipment:	Asset #
Department:	
Physical Location:	
LOTO Devices Required: Lock:                      Hasp:                      Cable: Ball Valve Cover:                      Inline Disconnect: Other:	Miscellaneous Devices:

Failure to utilize the lockout procedure will result in disciplinary action.

**LOCKOUT STEPS:**

1. Notify affected employees lockout will occur
2. Shut down the equipment by normal controls
3. Isolate equipment from hazardous energy sources
4. Restrain stored energy by blocking or banding
5. Apply all noted LOTO devices
6. Make sure the area is clear of people
7. Verify isolation (try to start the equipment)
8. Return operating control to neutral/off state

**RELEASE FROM LOCKOUT:**

1. Check area so no employees are exposed
2. Remove all tools and replace all guards
3. **Locks may only be removed by their owner**
4. Remove LOTO devices per instructions
5. Operate energy isolating devices (valves, etc.)
6. Notify all affected employees of start-up
7. Allow the start-up of the equipment using controls

\*\*When two or more people lock out equipment, each employee will use their own personal lock

**ENERGY SOURCES****CHEMICAL**

Room:  
Valve Loc:

**PNEUMATIC**

Room:  
Valve Loc:

**HYDRAULIC**

Room:  
Valve Loc:

**ELECTRICAL**

Room:  
Panel:  
Breaker:  
Fuse:  
Panel Room:

**NH3**

Room:  
Valve Loc:

**STEAM / HP**

Room:  
Valve Loc:

**WATER**

Room:  
Valve Loc:

[illegible]