



NORTHEAST STATE

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LOCKOUT/TAGOUT PLAN

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Office of Safety, Security and Plant
Operations 423-354-5224

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Purpose & Intended Use

In accordance with OSHA standard 29 CFR 1910.147, Northeast State strives to create a safe working environment by implementing sound lockout/tagout procedures. These procedures are designed to prevent injury or death to personnel by requiring that certain precautions are taken before servicing or repairing any powered equipment or performing work on utility systems. Applicable energy sources include, but are not limited to, electrical, thermal, mechanical, hydraulic, pneumatic and chemical.

A. Types of Energy Sources

- Electrical
- Mechanical
- Hydraulic
- Pneumatic
- Steam
- Hot water
- Compressed air
- Gravity

B. Activities Requiring Lockout/Tagout Procedures

- Installing
- Repairing
- Adjusting
- Cleaning
- Inspecting
- Erecting
- Servicing
- Unjamming
- Part replacement
- Renovation

C. Scope

This procedure applies to:

- All employees whose duties require them to service, repair, or perform work on power equipment or utility systems.
- All contractors performing service, repair, or other work on power equipment or utility systems.

EXEMPTIONS:

1. Minor servicing activities taking place during normal operations that are routine, repetitive and integral to the use of machines or equipment provided that:

- a) There is no bypass or removal of guards or other safety devices;
- b) Employees are not required to place any part of their bodies into a point of operation, or where
- c) other associated dangers exist
- d) Extensive disassembly of equipment is not required to perform the servicing; and
- e) Effective alternate protection measures are used which allow an employee to perform minor servicing without being exposed to the unexpected release of hazardous energy.

2. Cord and plug connected electrical equipment that, when unplugged, contains no stored energy and cannot be unexpectedly energized. The plug must be under the exclusive control of the **authorized employee** working on the equipment.

(Note: a plug is in exclusive control of an employee if it is physically in the employee's possession, or within arm's reach and in the line of sight of the employee.)

3. Service on pressurized gas, steam, water, and petroleum products systems where continued operation is essential, shutdown is impractical, and special equipment is used which provides proven effective protection for employees.

DEFINITIONS:

Authorized employee: An employee who locks or tags machines or equipment in order to perform servicing or maintenance.

Affected employee: An employee who is required to use machines or equipment on which servicing is performed under the lockout/tagout standard or who performs other job responsibilities in an area where such servicing is performed.

Energized: Machines and equipment are energized when they are connected to an energy source or they contain residual or stored energy.

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: 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.

Lockout device: Any device that uses positive means, such as a lock, blank flanges and bolted slip blinds, to hold an energy-isolating device in a safe position, thereby preventing the energizing of machinery or equipment.

Servicing and/or maintenance: Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, maintaining and/or servicing machines or equipment, including lubrication, cleaning or unjamming of machines or equipment, and making adjustments or tool changes, where employees could be exposed to the unexpected energizing or startup of the equipment or release of hazardous energy.

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: Any prominent warning device, such as a tag and a means of attachment that can be securely fastened to an energy-isolating device to indicate that the machine or equipment to which it is attached may not be operated until the tagout device is removed.

D. General Application

Northeast State recognizes its responsibility to establish a safety policy on lockout/tagout procedures to assist in preventing accidents. This policy includes:

- Responsibilities
- Rules and Regulations
- Employee Training

All employees of Northeast State, contractors, and students will follow these safety lockout/tagout procedures where applicable. Whenever major repairs, replacement, or modification of equipment, machines, or utility

systems is performed and when new equipment, machines, or utility systems are installed, energy isolation devices must be designed to accept lockout and tagout devices.

E. Responsibilities

The Director of Plant Operations, Dean of Technical Education, Supervisors in conjunction with the Safety, Security and Plant Operations Office will develop written procedures and obtain supplies that, at a minimum, incorporate the following guidelines:

- Educate employees on an annual basis.
- Educate students the beginning of each semester.
- Provide the necessary equipment to implement this policy.
- Keep an inventory of lockout/tagout equipment.
- Ensure training is conducted and documented in accordance with the procedures outlined below.
- Retain the master key to remove locks under certain conditions.
- Issue locks and/or tags to designated personnel and verify a written monthly audit is conducted.

F. Procedures – Establishing Lockout Tagout

GENERAL LOCKOUT / TAGOUT PROCEDURES for DEENERGIZING EQUIPMENT

The following procedures apply in situations where **only one** energy source exists for machinery or equipment.

To properly DE energize and eliminate all sources of potential hazardous energy during servicing and maintenance operations and to prevent an employee from omitting an important step in the energy control procedure, **authorized employees** must follow the following Shutdown and Restart procedures:

A. SHUTDOWN PROCEDURES—ESTABLISHING LOCKOUT/TAGOUT

1. *Prepare for Shutdown - Locate and Identify*

Survey the work area to locate and identify all energy isolating devices to be certain which switch(s) and valve(s) apply to the machine or equipment to be locked out. *(If more than one energy source is involved, the Machine-Specific Lockout/tagout Procedures must be followed).*

2. *Notify*

Notify all affected employees that a lockout/tagout is about to take place, the reason for the lockout/tagout, and the specific machinery or equipment affected.

3. *Shut Down*

If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.).

4. *Isolate*

Operate the disconnect switch, circuit breaker, valve or other energy isolating device to isolate (disconnect) the machine or equipment from its energy source.

5. *Lockout and Tagout*

Apply individually assigned lockout and tagout devices to the energy isolating device.

6. *Relieve/Restrain Stored Energy*

Stored energy such as that in rotating flywheels, hydraulic systems, springs, etc. must be *d i s s i p a t e d* or restrained by grounding, locking, bleeding down, etc.

7. **Clear the Area and Test**

Clear the area around the machine or equipment. Make sure that all personnel are safely positioned or removed from the area. Then test all the operating controls by putting them in the "on" position to ensure that the energy source has been successfully disconnected.

CAUTION: Return the operating control(s) to the neutral or off position before proceeding with servicing or maintenance work.

8. **LOCKOUT/TAGOUT IS NOW COMPLETE - the authorized employee may proceed with servicing or maintenance work.**

B. RESTART PROCEDURES—REMOVAL OF LOCKS AND TAGS

1. **Check Machine/Equipment**

Check the machine/equipment and surrounding area to ensure that nonessential objects have been removed, guards have been reinstalled and that the machine/equipment is operationally intact.

2. **Verify**

Verify controls on the machine/equipment are in the "neutral" or "off" position and that all the employees are safely positioned or removed from the area.

3. **Remove Locks and Tags**

Remove lockout and tagout devices and reenergize.

4. **Notify Affected Employees**

Before restarting machinery/equipment, notify **affected employees** that the servicing or maintenance is complete and that locks and tags have been removed.

SPECIAL CIRCUMSTANCES

A. LOCKOUT/TAGOUT PROCEDURE INVOLVING MORE THAN ONE PERSON (GROUP LOCKOUT/TAGOUT)

If more than one **authorized employee** is required to Lockout or Tagout equipment, each person shall place their own personal Lockout device or Tagout device on the energy isolating device(s). When an energy-isolating device cannot accept multiple locks, a multiple lockout hasp will be used. As each person no longer needs to maintain their lockout protection, that person will remove his/her lock from the hasp. Employees must NEVER depend upon someone else's lockout device, and must ALWAYS use their individually assigned lockout device.

B. TAGOUT ONLY PROCEDURE

Tagout without a lock is allowed ONLY when machinery or equipment is incapable of being locked out. Tagout may be implemented ONLY with the prior knowledge and approval of the appropriate supervisor, using the following procedures.

1. The **authorized employee** will advise the supervisor that lockout is not possible.
2. The **authorized employee** and supervisor will determine if other equally effective controls can be implemented, such as the removal of a valve stem, isolating a circuit element, or by blocking a controlling switch.
3. Supervisors must provide training to the **authorized** and **affected employees** involved in the tagout operation at the time tagout is to be conducted.
4. The **authorized employee** will follow the applicable Lockout/tagout Procedures outlined in this policy, omitting lockout.

5. The **authorized employee** will securely attach his/her tagout device to the energy isolating device where a lockout device would have been attached, if possible.

C. SHIFT CHANGES

When equipment and machinery must be serviced by more than one shift, a procedure must be established for the orderly transfer of responsibility from one shift to another. In developing this procedure, the following must be taken into account:

1. Each **authorized employee** must ensure that equipment he/she is working on is locked and tagged out with his/her individually assigned lockout and tagout device. Employees must NEVER depend on someone else's lockout device for protection.
2. **Authorized employees** must remove their individually assigned lockout and tagout devices once service or maintenance work is completed.
3. Lockout/tagout devices must NEVER be left on beyond an **authorized employee's** work shift without supervisor approval.

D. EQUIPMENT-SPECIFIC LOCKOUT / TAGOUT PROCEDURES

If servicing or maintenance work requires controlling more than one energy source on a machine, written lockout/tagout Procedures must be developed for each specific machine. If the methods to control energy sources are identical for a group of machines, then one set of procedures may be developed for the group. Health and Safety is available to assist in developing machine-specific procedures.

E. REMOVING LOCKOUT AND TAGOUT DEVICES

The key to each lockout device must be in the sole possession of the employee to which it was assigned. Only the **authorized employee** who applied the lockout or tagout device may remove it, except as noted below.

EXCEPTION: When the **authorized employee** who applied a lockout or tagout device is not available to remove it, the device may be removed **ONLY under the direction of TWO supervisors** provided that:

1. Absolute verification has been made that the employee is not on college grounds or otherwise available.
2. Every reasonable effort has been made to contact the employee to notify him/her that his/her lockout/tagout device has been removed.
3. The employee is informed before returning to work that his/her lockout/tagout device has been removed.

G. Audits

The Director of Plant Operations, Assistant Director of Plant Operations, Dean of Technical Education, Supervisors or their designee will review any lockout/tagout permits issued monthly and spot check jobs during the month to ensure the above procedures are being followed. A log will be maintained of spot checks conducted and the completed permits retained for two years. The Office of Safety, Security and Plant Operations will assure compliance with audit procedures.

H. Training of Personnel

Training will be provided by the office of Safety, Security and Plant Operations in conjunction with appropriate directors / assistant directors and supervisors / lead Employees. The following training is required:

1. All authorized employees will receive initial training prior to performing Lockout/tagout operations.
2. Affected employees will be instructed in the purpose, use and restrictions of lockout/tagout and how to recognize that lockout / tagout is being implemented.
3. Employees who perform lockout/tagout will receive refresher training on an annual basis.
4. Refresher training will be provided for all authorized and affected employees whenever there is a change in their job assignments, change in machines, equipment or processes that present a new hazard, or if there is a change in the energy control procedures.
5. Training records will be maintained on all employees for five years after employment with Northeast State.