UNMC Lockout Tagout

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University of Nebraska Medical Center

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University of Nebraska Medical Center (UNMC)
Lockout Tagout

Policy

It is the policy of Nebraska Medicine (Nebraska Medical Center, Bellevue Medical Center) and the University of Nebraska Medicine Center (UNMC) pursuant to **Title 29 (CFR) 1910.147** and **29 (CFR) 1910.333** to assure employees' protection from unintended machine motion or unintended release of energy which could cause injury when they set up, adjust, repair, service, install or perform maintenance work on equipment, machinery, or processes. This procedure applies to all employees performing any of the tasks mentioned above. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources, and locked out before employees perform any servicing or maintenance where the unexpected energization or startup of the machine or equipment or release of stored energy could cause injury.

Definitions

Potential – The energy available in any mechanism, system, or device, i.e., electrical potential, steam, water pressure, air pressure, stored gas pressure, etc.

Authorized employee - A person authorized by the Manager/ Lead/ or Supervisor, trained and competent to lockout, tagout, and isolate installations, plant, or equipment for cleaning, maintenance, servicing, repairing, or alteration.

Affected employee - An employee who is required to use machines or equipment on which servicing is performed under the Lockout/Tagout (LOTO) standard or performs other job responsibilities in an area where such servicing is performed.

Lockout - The act of locking off the dangerous potential to electrical, mechanical, hydraulic, pneumatic, chemical, thermal, and other energy sources (i.e., switches or equipment controls to prevent activation or operation of equipment. As well as gate, bypass, and control valves.) by using a lockout device.

Lockout Device - Any device that uses positive means, such as a lock, either key or combination type, to hold an energy-isolating device in a safe position and prevent the energizing of a machine or equipment. Blank flanges and bolted slip blinds with a tag may be used if a lock is not applicable.

Management - is the person responsible for oversight of the work and those performing the work, i. e., director, supervisor, facilities manager, facilities lead, etc.

Danger Tag - devices used to warn against hazardous conditions if the machine or equipment is energized and must include appropriate warnings such as: ***Do Not Start, Do Not Open, Do Not Close, Do Not Energize, and Do Not Operate.*** The tag must identify the person placing them by name, contact information (personal phone number or pager number); they must not be used for a purpose other than controlling hazardous energy sources.

Out of Service Tag - A yellow tag with black writing clearly stating, "Out of service "or "Do not operate." It indicates that the installation, plant, or equipment is faulty and currently out of service. The defect of the equipment is written on the tag with indelible and legible ink.

Risk Assessment/ Job Safety Assessment – A review of the task associated with the job to determine the risk and what steps to take to minimize or eliminate the risk. It includes identifying the PPE needed and the lockout/tagout steps. An inspection of equipment, systems, drawings, and the environment to

provide the information needed, such as identifying energy sources, alternate feeds, and the potential for stored energy to determine the required energy control procedures to perform maintenance and installation and repair safely.

Scope

This procedure also applies when:

1. An employee is required to remove or bypass a guard or other safety device; or

2. An employee is required to place any part of their body into an area or piece of equipment where an associated danger zone exists during a machine operating cycle.

3. The LOTO requirements of this policy do not apply in the following situations:

    a. Work on cord and plug connected electric equipment when unplugging the equipment controls the hazardous energy entirely and when the plug is under the exclusive control, in sight and within arm's reach of the LOTO authorized employee performing work. Exception: Machines connected to a power source over 110 volts by a plug-in cord shall have a locking device applied to the plug attached to the power cord, locking out the machine.

    b. Hot tap operations involving piping or equipment pressurized with substances such as gas, steam, water, or petroleum product provided the following conditions apply: 1) continuity of service is essential; 2) shutdown of the system is impractical; and 3) documented procedures are followed, and special equipment is used which will provide proven effective protection for the employee.

        Note: Hot tap activities can be hazardous and must not be performed unless coordinated and approved by the manager/supervisor.

4. Work on electric systems operating at 50 volts or more must follow the Enterprise Electrical Safety Program guidelines in conjunction with follow the guidelines stated in the current version of NFPA 70E Standard for Electrical Safety in the Workplace. These activities are subject to specific energy isolation requirements and work practice controls covered by OSHA 29 (CFR) 1910.333.

Procedures

1. Procedures for specific equipment lockout/tagout must be documented by the operating department and include equipment identification, department number, type and magnitude of energy, type and location of energy isolation devices, type of stored energy, and methods to dissipate or restrain it. While departmental equipment procedures must be detailed and specific, they are not required for every piece of equipment. Similar design equipment (using the same type and magnitude of energy) with similar types of control can be covered with a single procedure (water conditioning systems, HVAC systems, etc.). Equipment numbers and names must be listed for the applicable standard procedures.

2. Procedures must be reviewed by the employees assigned to the job as a part of the Risk Assessment/Job Safety Analysis. If the procedures are not current, the employee needs to inform their supervisor so the procedure can be updated. The equipment specific procedures will be written and maintained by the department to which the equipment is assigned. These procedures must be kept current and accessible to those servicing the equipment.

3. Lockout tagout operations for repair or maintenance

Per OSHA Title 29 (CFR) 1910.147**,** a lockout tagout device shall be used to service, repair, and maintain machines, equipment, and systems where the unexpected energization or startup of the machines or equipment or release of stored energy could cause injury to employees. It shall not be used to for tamper control of systems such as medical gases, fire suppression, etc.

Hardware

1. Lockout devices must indicate the identity, department, and contact number of the employee who attaches the device. It is imperative that the Lockout safety locks be readily identified to all departments on campus and must be different for other locks. The lockout safety locks must not be used for other purposes.

   a. For equipment and system lockout tagout processes, employees shall use a red lock and a lockout tag similar to image 1 with their name and contact information on the tag.

   b. For tamper control for fire sprinkler systems and other energy sources not covered in this procedure or the standard, including equipment and systems to be decommissioned, employees shall use a blue lock and a tag similar to image 2.

   c. Employees shall use a yellow lock and tag similar to image 2 for medical gas systems energy control.

   d. Tags must be durable, so that they are capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.

TAGS

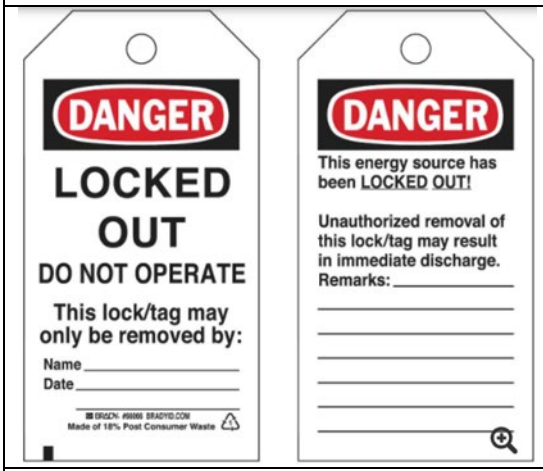

Image 2 - Brady Lockout tag

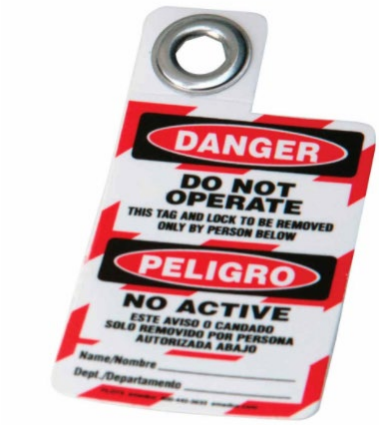

Image 2 - Brady tag for tamper control and decommissioning

2. Safety locks are for the personal protection of the employees and are only to be used to lockout equipment for repair or service. Equipment and systems to be discontinued or abandoned must be locked and tagged utilizing an “Out of Service Tag.”

3. The respective zone lead can obtain safety locks, adapters, and danger tags. Locks, adapters, and tags are the property of the organization.

4. Employees will be assigned a lock for use during lockout tagout procedures. This lock must be labeled with the employee’s name and contact number.

5. One key of every lock issued shall be retained by the employee to whom it was given. The authorized supervisor shall keep the only other key to this lock in a secure place.

Responsibilities

1. Management

a. Each Supervisor/Lead shall effectively enforce compliance with the lockout procedure. The use of corrective disciplinary action will be exercised appropriately.

b. Each Supervisor/Lead shall ensure the locks and devices required for compliance with the lockout procedure are provided to employees.

c. Before setting up, adjusting, repairing, servicing, installing, or performing maintenance work on equipment, machinery, or processes, the employee/or employees who will be doing the work shall complete a Risk Assessment/Job Safety Analysis on the specific equipment to protect personnel and property. This process should include identifying all energy sources or stored energy that must be blocked, locked out, and isolated before work can begin. It is designed to ensure employees are not exposed to injury due to unintended machine motion or release of energy.

d. Communications for the lockout tagout must include notifications of areas or departments affected (affected employees) during the lockout tagout process, including notification of others if the work extends beyond the shift.

e. Coordination with offsite contractors will be completed and documented to ensure lockout tagout procedures are being maintained.

2. Facilities Lead responsibilities

a. The Facilities Lead or their designee shall coordinate training of new employees and periodically instruct department employees regarding provisions and requirements of the lockout procedure.

b. Coordinate the completion and documentation of random LOTO inspections with employees. Provide and complete annual training.

c. Acquire and maintain an inventory of LOTO equipment and complete coordination with interdepartmental staffing on compliance issues with the policy.

d. Assist as needed completing the Risk Assessment/Job Safety Analysis.

3. Employee responsibilities

a. Employees shall comply with the lockout procedure.

b. Employees shall consult with the Facilities Lead whenever there is any question regarding lockout procedures.

c. Employees shall obtain and care for the lock and other devices required to comply with the lockout procedure.

d. Employees shall request assistance from the Manager/Lead/Supervisor. If there are questions or they do not know where or how to lockout equipment.

e. Employees shall complete a Risk Assessment/Job Safety Analysis for equipment before performing work to ensure they know all the energy sources and where to lock out the equipment.

Proper Sequence of Lockout

Only LOTO authorized employees may perform LOTO, and they must perform LOTO following the general steps listed below. A simple reminder of the most critical steps of LOTO is "Lock, Tag, and Try."

1. **Preparation for Shutdown** - Conduct a Risk Assessment/Job Safety Analysis and review the equipment-specific LOTO procedure if unfamiliar with the process.

   a. The Risk Assessment/Job Safety Analysis must identify and control stored energy: mechanical, electrical, hydraulic, pneumatic, gravity, chemical, thermal and identify proper lockout locations - disconnect main or circuit power sources, not on/off switches, interlocks, emergency stops or selector switches.

   b. If no equipment specific LOTO procedures exist, one must be developed as a part of the Risk Assessment/Job Safety Analysis. Notify all affected employees (working on or around the equipment) that LOTO is being applied.

2. **Machine or Equipment Shutdown**

   Shut down the equipment using the normal stopping procedure (i.e., depress stop button, switch, etc.). The machine or equipment must be shut down per established procedures in an orderly fashion to avoid any additional or increased hazard(s) to others.

3. **Apply Lockout /Tagout Devices (Lock and Tag)**

   a. Locate and deactivate energy isolating devices to isolate all energy sources.

   b. Attach locks, tags, and LOTO devices to each energy-isolating device (e.g., attach to disconnects, valves, valve covers, stands, hoists, etc.) to hold the energy isolating devices in a "safe" or "off" position.

   c. Suppose a tag cannot be attached directly to an energy isolating or control device. In that case, it must 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 or remove it.

   d. The keys to locks must remain in the secure possession of the LOTO authorized employee who applied them. They must not be left in the lock, placed on an operator stand, etc.

   e. When two or more people work on the same equipment, each person is responsible for attaching their lock to a lockout hasp. It can be accomplished by using hasps, daisy-chaining the locks (by placing your lock through the holes in an extended skirt of the lock), or a lockbox. It also applies to group lockout procedures involving outsourced contractors.

   f. Upon arrival at an assigned job, an employee who finds an Equipment Lock, Adapter, or Danger Tag affixed to the equipment shall take the following action:

i. Determine who placed the equipment out of service and contact all parties who have locks on the equipment to determine if the assignment to be performed would affect their safety. The work will only proceed if it is safe to do so with all parties involved.

ii. Affix their assigned safety lockout lock to the Equipment Adapter/ Lockout Hasp.

iii. Assure that no one is working on the equipment and then try the controls to ensure no unintended motion occurs before starting work. Qualified personnel shall test the equipment, machine, or process using appropriate test equipment to determine that the energy isolation has been effective. (Such testing equipment is only employed by trained, qualified personnel).

4. Relieve, Disconnect or Restrain Potential and Stored Energy

a. After applying lockout and/or Tagout devices, all potentially hazardous stored or residual energy must be relieved, disconnected, restrained, or otherwise made safe. Dissipate or restrain by methods such as grounding, repositioning, blocking, and bleeding down stored or residual energy from capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and any pressurized pipes or vessels, etc.

b. Any parts of machinery or equipment which could move due to gravity (e.g., elevated dumpers, elevators, etc.) must be blocked, and a Tagout device must be attached.

5. Verification of isolation (Try)

a. First, check that all employees are safely positioned or removed and remove all tools, materials, and nonessential items from the machine or equipment to ensure the operational area is intact.

b. Attempt to energize or activate (TRY) the machine or equipment using the normal starting procedure to make sure the equipment will not operate. It may require re-engaging be the same device(s) used to isolate the energy, such as a valve or electrical disconnect. In this case, ensure the lockout device will not move by attempting to re-engage the isolating device.

c. After attempting to energize or activate (TRY) the equipment, verify the operating controls are once again placed in the OFF or neutral position.

6. Release from Lockout or Tagout

a. Inspect the machine to ensure all tools and nonessential materials have been removed.

b. Ensure all machine or equipment components are in place and securely attached (this includes ensuring that any safety guarding or safety devices that have been removed are placed back on the machine or equipment before the equipment is started).

c. Remove all tools, materials, and nonessential items from the machine or equipment to ensure the operational area is intact.

d. Check the work area to ensure all employees have been safely positioned or removed.

7. Finish safely

a. After service and maintenance work is complete, notify affected employees that the energy control procedures will be removed.

b. Ensure all affected employees are safely positioned or removed from the area.

c. Remove the locks, tags, and LOTO devices and reenergize the equipment following the equipment specific LOTO procedure. Each person must remove their lock.

d. Inform affected employees the LOTO devices have been removed, and the equipment is ready for use.

Special Conditions

1. **Contractors -** Contractor personnel must be aware of this lockout procedure and applicable procedures. The scope of this procedure will be communicated to contract personnel by the facilities project manager or the facilities supervisor if construction services are not involved with the project. Contractors should also provide to Facilities supervisors their energy control procedure, i.e., types of locks and tags used in their lockout procedure.

2. **Lock Removal -** If the employee who placed a lock on the equipment is not present, the lock may be removed by following the steps below:

   a. The supervisor will attempt to contact the employee to verify they are no longer at the facility and determine the status of the work and the reason the lock was left at the job site.

   b. The supervisor is responsible for making all reasonable efforts to contact the authorized employee to inform them that their Lockout or Tagout device has been removed.

   c. The supervisor is responsible for ensuring that the employee knows their lock was removed before they resume work at that facility.

   d. A manager/lead/ or authorized employee shall be permitted to remove an employee' lock under the following conditions:

      i. After completing and signing the lock removal form, the forms shall state why the employee cannot remove their lock. A copy of this documentation will be provided to the manager and filed for record,

      ii. A new Risk Assessment/Job Safety Analysis by the manager, lead, or authorized employee shall be completed and filed for record, and

      iii. After making certain, all the requirements for restoring power are followed. See Proper Sequence of Lockout #6 *Release from Lockout or Tagout.*

Keeping the Lockout in Force

When the lockout and tagout work extends beyond a shift and those without:

- If no one on subsequent shifts will be continuing work on the machine or equipment the personal lock/tag of the authorized employee who will resume the work upon their return can remain in place. A review of the Risk Assessment/Job Safety Analysis should take place prior to others placing their locks on the equipment and before work resumes.

- If work on the machine or equipment will continues by others beyond on the next shift, a transfer of the lockout or tagout device protection to an authorized employee(s) continuing the work will occur. The transfer should include a review of the Risk Assessment/Job Safety Analysis.

Temporary Energization

In situations in which lockout or tagout devices must be temporarily removed from the energy isolation device to energize a machine, equipment, or component under LOTO for testing, troubleshooting, or positioning it before completing service, maintenance, or repair, the following sequence of actions shall be followed:

1. Clear the machine or equipment of tools and materials and ensure the machine or equipment components are operationally intact.

2. Remove employees from the machine or equipment area and ensure all people are safely positioned.

3. Remove the lockout or tagout devices. They must be removed by the employee who applied the device.

4. Energize and proceed with testing or positioning.

5. Deenergize all systems and reapply energy control measures as previously described in Proper Sequence of Lockout.

STAFF ACCOUNTABILITY:

Facilities Director
Facilities Manager
Facilities Supervisors
Facilities Leads
Facilities Electrician Lead
Facilities Sr. Technicians
Facilities Technicians