Northwestern
Control of Hazardous Energy Program
(Lockout/tagout)
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I. Purpose
Northwestern’s Hazardous Energy Control Program, also known as lockout/tagout (LOTO), outlines the required steps to prevent injuries resulting from the unexpected startup or release of stored energy when working on equipment or machinery.

II. Scope
This program applies to Northwestern staff and contractors who perform service or maintenance on machines and/or equipment.

III. Exemptions
As outlined by OSHA, certain, specific tasks are exempt from lockout/tagout and are defined as follows:

A. Work on cord and plug connected electric equipment;
   a. Startup of the equipment is controlled by the unplugging of the equipment.
   b. The plug must be under the exclusive control of the employee performing the work.

B. Electrical utility work (including related equipment for utility communication or metering).

C. Working on live electrical equipment or conductors.

IV. Roles and Responsibilities

A. Risk Management
   a. Maintain and update Northwestern’s lockout/tagout program
   b. Review and approve lockout/tagout procedures.
   c. Provide or coordinate lockout/tagout training to Northwestern faculty, staff, and students.

B. Facilities Management Supervisors
   a. Ensure staff are adequately trained to safely perform lockout/tagout.
   b. Provide the necessary resources to ensure staff have necessary lockout/tagout hardware
   c. Ensure all employees attend the appropriate LOTO training
   d. Ensure all employees carry out LOTO procedures as periodic inspections

C. Authorized Employees
   a. Perform service or maintenance on machinery and equipment.
   b. Develop energy control procedures for the machinery and equipment that you perform service and maintenance on.
   c. Conduct and document annual inspections of all energy control procedures, and update when necessary.
   d. Attend training.

D. Affected Employees
   a. Develop an awareness of machinery and equipment within each employee’s respective work area(s) that is subject to energy control procedures.
b. Do not remove or tamper with any locks or tags on machinery or equipment under the control of lockout/tagout.
c. Attend training.

E. Contractors
   a. Prior to beginning work on any machine that requires lockout/tagout, ask your Northwestern contact for Northwestern’s lockout/tagout program and procedure(s) for review.
   b. All lockout/tagout activities involving contractors shall be completed in the form of group lockout/tagout. Northwestern staff will shut down machines and equipment prior to any work beginning, then all parties will apply their locks.
   c. Contractors are responsible for supplying their own locks and tags. These devices must meet the requirements outlined in section VI of this program.

V. Hazardous Energy Control Procedures
Northwestern is required to develop, document, and utilize energy control procedures where machinery or equipment poses a risk for injury due to the accidental energization or release of energy, to its employees. There is an energy control procedure template (Appendix A) which can be found on Risk Management’s website.

Energy control procedures must, at a minimum, include the following information:

   A. A statement of the intended use of the procedure;
   B. Procedural steps for shutting down, isolating, blocking and securing machines or equipment;
   C. Procedural steps for the placement, removal and transfer of lockout devices or tagout devices and the responsibility for them; and
   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.

VI. Lockout/Tagout Devices and Hardware
Northwestern is required to provide locks, tags and all other hardware necessary to isolate, secure, and block machines or equipment from energy sources. The hardware provided by Northwestern must be durable, standardized, substantial, and identifiable.

   A. Durable
      a. Capable of withstanding the environment to which they are exposed for as long as the exposure is expected.
      b. Tags must be constructed and printed so that exposure to weather or wet/damp locations will not cause deterioration or the text illegible.
      c. Tags must not deteriorate when used in corrosive environments (i.e. acids or alkali chemical storage/use).

   B. Standardized
Devices shall be standardized within the facility in at least one of the following criteria: color, shape, or size. Additionally, tags must have a standardized print and format.
C. Substantial
   a. Lockout devices shall be substantial enough to prevent removal without the use of excessive force or unusual techniques (i.e. bolt cutters).
   b. Tagout devices, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal.
   c. Tagout device attachment means shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds (i.e. cable ties).

D. Identifiable
   a. Devices shall indicate the identity of the employee applying the device(s).
   b. Tagout devices shall warn against hazardous conditions (i.e. “Do not start”).

VII. Periodic Inspections
Each energy control procedure must be evaluated, at least annually, by authorized employees. The purpose of periodic inspections is to validate employee knowledge and procedure effectiveness. In the inspection process, authorized employees should identify deviations from the procedural steps, and any steps needed to be edited, added, or removed. Once the inspection has been completed, certification must identify the machine or equipment being used, the date of inspection, name of the observed employee, and the name of the inspector.

VIII. Group Lockout/Tagout
If maintenance or servicing of a machine or piece of equipment is performed by a group, or crew each authorized employee shall follow the individual lockout/tagout instructions.

   a. The primary (initiator) authorized employee shall be designated and responsible for the number of employees working under the protection of the group lockout device.
   b. The primary (initiator) authorized employee will be responsible for notifying affected employees before and after lockout procedures are performed.
   c. Each authorized employee shall affix a personal lockout or tagout device to the group box or hasp before work begins.
   d. When servicing or maintenance has been complete, each authorized employee will be responsible for removing their individual lockout or tagout device.

IX. Shift or Personnel Changes
To maintain continuity in the protection provided for those involved in the lockout/tagout procedures, and for the orderly transfer of the lockout/tagout devices, the steps below are necessary during personnel or shift changes.

- **Personnel changes.** The arriving authorized employee’s lock and tag should be applied before the departing authorized employees lock and tag are removed. The departing personnel will inform the arriving personnel of the status of the equipment and the work in progress.
• **Group Lockout Tagout Shift Changes.** The lock and tag of at least one authorized employee on the arriving shift should be applied before the last group member of the departing group removes their lock. The departing group will inform the arriving group of the status of equipment and the work in progress.

X. **Forcible Removal of Locks or Tags**

If a personal lock is left on a piece of equipment and the owner of that lock is not present --- only a member of a management/supervision may remove the lock by following these steps:

- The supervisor verifies that the locks owner is not on campus.
- The supervisor has made a reasonable attempt to contact the employee.
- The supervisor has thoroughly inspected the equipment to determine whether it is safe to re-energize.
- The supervisor notifies the locks owner of the removal upon his or her return to work.

XI. **Training**

Department leadership is required to ensure that their direct reports receive training to certify the understanding of the purpose and function of the energy control program, the knowledge and skills required for safe application of lockout/tagout, and the usage/removal of controls. Training records must be kept and include employee names and corresponding training date(s). OSHA defines three different levels of training; authorized, affected, and other.

A. **Authorized employees**

Authorized employees perform service or maintenance on machinery or equipment around campus. It is required that training for authorized employees covers the following:

- Recognition of applicable hazardous energy sources.
- Type and magnitude of the energy available.
- Methods and means necessary for energy isolation and control.
- Steps for placement and removal of lockout/tagout devices.
- Instruction on how to verify energy isolation.

B. **Affected and Other Employees**

Affected and other employees work in or occupy an area in which lockout/tagout procedures may be used. This group of employees must be instructed about lockout/tagout procedures in their area and taught that it is prohibited to attempt to restart/energize machines or equipment which are de-energized.

C. **Retraining**

Retraining must be provided to all authorized or affected employees whenever there is a change in job assignment, machines/equipment, processes, or it is identified that the employee’s knowledge or use of the energy control procedures is lacking. The re-training must reestablish the appropriate level of knowledge needed to work safely and the trainer is required to certify and document the employee name and training date.
XII. Regulatory Authority
This program details the minimum requirements necessary to comply with the OSHA General Industry Standard 29 CFR 1910.147 (Subpart J) – The Control of Hazardous Energy (lockout/tagout).

XIII. Contact
For additional information and questions, visit the Office of Risk Management’s website, or contact Gwen Butler at gwen.butler@northwestern.edu | (847) 491-4936.