

## Lockout/Tagout Program

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### **PURPOSE**

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

### **POLICY**

It is the policy of Loyola University Chicago to provide employees with a safe and healthful working environment. To this end, Loyola University has developed this Lockout/Tagout Program (LOTTO) in accordance with the U.S. Occupational Safety and Health Administration (OSHA) standards found in 29 CFR 1910.147, 1910.333 and 1926.417.

#### **1.0 Definitions**

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

**1.2 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.

**1.3 Other employees:** All employees who are or may be in an area where energy control procedures may be utilized.

**1.4 Capable of being locked out:** An energy-isolating device is considered capable of being locked out if it:

- Is designed with a hasp or other means of attachment to which a lock can be affixed.
- Has a locking mechanism built into it.
- Can be locked without dismantling, rebuilding, or replacing the energy-isolating device or permanently altering its energy control capability.

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

**1.6 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.

**1.7 Energy source:** Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

**1.8 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.

**1.9 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. **Never remove a lockout device that does not belong to you.**

**1.10 Normal production operations:** Utilization of a machine or equipment to perform its intended production function.

**1.11 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 energization or startup of the equipment or release of hazardous energy.

**1.12 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.

**1.13 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. **Never remove a tagout that does not belong to you.**

## **2.0 Responsibilities**

**2.1 Department Responsibilities:** Each affected department (i.e. Engineering, Maintenance) is required to develop their own specific written program that addresses each piece of machinery that falls under OSHA's LOTO Program regulations, 29 CFR 1910.147. Each affected department must establish an energy control program, consisting of energy control procedures, employee training, and periodic inspections to ensure that before service and maintenance is performed, machines and equipment that could unexpectedly startup, become energized, or release stored energy, are isolated from their energy source(s) and rendered safe.

**2.2 Training of Department Employees:** Appropriate employees must be instructed in the safety significance of the lockout (or tagout) procedure. Names/job titles of employees **authorized** to lockout or tagout must be kept on file in the Supervisor/Foreman's office and the Safety Office. Each new or transferred **affected** employee and other employees whose work operations are or may be in the area shall be instructed in the purpose and use of the lockout or tagout procedure.

**2.3 Required Survey:** Facilities Management supervisors must conduct a survey of the entire campuses to determine locations of all hazardous energy sources that their employees may be required to work with. These sources may include the following: Electricity, Pneumatic (air), Hydraulic, Mechanical, Springs, Water pressure, Chemical, Steam, Thermal and Nuclear.

**2.4 Accidental or unintended Operation:** Supervisors and staff will devise methods to control the unintended operation of machines or equipment being serviced or maintained.

**2.5 Establish Department & Unit Procedures:** Departments will establish procedures for affixing appropriate lockout or tagout devices, and to otherwise disable, machines or equipment to prevent unexpected energization, start-up, or release of stored energy in order to prevent injury to employees. This may also include blocking movable parts that may create a hazard.

## **3.0 Energy Control Devices**

**3.1 Sample of Devices:** Energy Control devices include, but are not limited to the following: Locks, Self-locking fasteners, Chains, Wedges, Key blocks, Adapter pins and Tags.

**3.2 Identification and use of Devices:** All lockout/tagout devices will be identified and used only for the purposes they are intended for. All devices must meet the minimum standards listed below:

1. Durable lockout/tagout devices shall be capable of withstanding the environment in which they are used.
2. Tags shall be capable of withstanding weather, damp locations, and corrosive environments.
3. All lockout/tagout devices will be uniform in color, shape, and/or size.

#### **4.0 Lockout/Tagout ( LOTO) Principles**

**4.1 Employee Compliance:** It is mandatory that all personnel comply with the restrictions and limitations of this lockout/tagout program and related procedures. No individual shall attempt to start, energize, use, or operate a piece of equipment that has been locked out and tagged out after the safe condition check has been completed.

**4.2 Control of Keys:** No individual other than the Authorized Employee who placed the device and tag shall attempt to remove it, except as noted in this policy. All locks and keys to be used will be stored in the appropriate shops with the exception of each Authorized Employee's personal lock, which will be controlled by him/her.

**4.3 Authorized Employee's Tag:** The personal lockout and "Danger- Do Not Operate" tag signifies that there is an Authorized Employee working on a component and it was installed by that Authorized Employee prior to starting work and will be removed by that Authorized Employee when their work is completed. The Authorized Employee "Danger – Do Not Operate" tag is reserved for the exclusive use of the authorized worker identified on that tag. The identifying markings shall be made in permanent form.

**4.4 Other Employees Compliance with Procedures:** No one shall authorize another person to ignore or violate this program and its procedures. No person shall remove a Lockout Device when an unsafe condition exists until they have corrected the condition or another person has installed a Lockout Device.

**4.5 Notification of Supervisor:** No Authorized Employee shall install a lockout/tagout on any system without first notifying their Supervisor. This is to ensure that operating personnel know the status of their equipment/systems.

**4.6 Outside Contractors:** Whenever an outside company is contracted to perform work, the appropriate supervisor/project manager will inform the contractor supervisor of the contents and requirements of this program. This is to ensure the safety of all employees. The contents of the outside contractor's LOTO program will be reviewed by the appropriate university supervisor/project manager to ensure that the program does not violate the requirements of the university's LOTO program and for the purpose of ensuring that employees are not exposed to any potential hazards that may be created by the outside firm's LOTO program. The outside contractor will follow their company's LOTO program using their own energy control devices and tags.

**4.7 Electrical Grounds:** When electrical system grounds need to be applied they shall be the last devices applied and the first devices removed in application of LOTO. Only qualified electrical personnel shall apply grounding devices

**4.8 Individual Training:** All employees shall receive the appropriate level of training based upon their LOTO duties (i.e., Authorized, Affected, or Other).

**4.9 Reporting Violations:** Any employee who observes any violation of this program or related procedures shall immediately notify their supervisor.

#### **5.0 Procedure**

**5.1 Detailed Lockout/Tagout Procedure:** A specific written procedure for all machines, equipment or system is developed and will be followed before beginning any servicing or maintenance work. The steps outlined in this section will serve as a guide in accomplishing this requirement.

**5.1.1 Determine Hazard Sources:** The Authorized Employee will determine all potential sources of hazardous energy (Computer generated and any other resources to properly identify all energy sources). The Authorized Employee will develop a specific written procedure for isolating the equipment if one does not already exist.

**5.1.2 Obtaining Locks/Tags:** The Authorized Employee will obtain a lock box from the appropriate supervisor. Some Lockout's might require the use of other lockout devices (valve covers, chains, breaker covers, etc.). Tags will have the name of the Authorized Employee performing the work.

**5.1.3 De-energizing Devices:** The Authorized Employee will go to each energy isolation device in the proper order listed on lockout/tagout procedure and de-energize that device using the locks from the lockbox. After removing each key from the lock, the Authorized Employee will keep the keys and place them into the lockbox that will prevent them from being lost or misplaced. Keys to all locks will be kept inside the lockbox. The Authorized Employee will then place his/her lock and tag on the lockbox and lock it with his/her personal key. The Authorized Employee's personal key will be kept with him/her. Also, a designated Supervisor may put his/her lock on the lockbox. This would only be completed in order to secure the lockbox if an employee left the jobsite and another employee took control of the job. The new employee would then be required to put his/her lock on the lockbox and proceed to follow all of the required LOTO procedures.

**5.1.4 Conducting Safety Checks of Devices:** When all energy isolation devices have been properly de-energized and locked/tagged out, the Authorized Employee will perform the necessary safe condition check(s) to ensure that all energy has been dissipated and controlled (Example: pushing local start buttons, throwing switches, etc.). The work can now begin.

**5.1.5 Final Check Prior to Returning Devices to Operation:** When all work on the system is complete, the Authorized Employee will make sure that all machines, equipment, systems, and areas are clear from personnel and equipment before energizing.

**5.1.6 Removal of Locks and Tags:** The Authorized Employees will remove their personal locks from the lockbox and then remove all locks and tags from all energy isolation devices. Upon completion, the Authorized Employees locks will be placed back into the lockbox. The system or equipment will be energized in the proper order noted on the LOTO procedure. The system will then be put back into service as necessary.

**5.2 Exceptions To Written Lockout/Tagout Procedures:** There are occasions where specific lockout/tagout procedures are not required. They are not required when all of the following elements exist:

- The machine or equipment has no potential for stored or residual energy or re-accumulation of stored energy after shut down which could endanger employees.
- The machine or equipment has a single energy source which can be readily identified and isolated
- The isolation and locking out of that energy source will completely de-energize and deactivate the machine or equipment.
- The machine or equipment is isolated from that energy source and locked out during servicing or maintenance.
- A single lockout device will achieve a locked-out condition
- The lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance.
- The servicing or maintenance does not create hazards for other employees
- There have been no accidents involving the unexpected activation or re-energization of the machine or equipment during servicing or maintenance.

**5.3 Outage Work:** It may be necessary during large distribution outages to have several crafts on one LOTO permit. In this case, it is permissible to have a group LOTO and the permit in the Appendix will be used.

**5.3.1 Authorized Employee:** An Authorized Employee will be chosen to put on an authorized lock on all energy isolation devices on the permit. He/she will have all of the duties of the authorized employee as previously stated and will have the responsibility as the Supervisor to ensure continuity of protection for all Authorized Employees and to coordinate affected crafts. The Supervisor will ensure all lock and tags are properly installed on the energy isolating devices by visually checking all energy isolation points.

**5.3.2 Supervisor's Duty:** The Supervisor will list all of the other Authorized Employees on the permit with which he/she is working.

**5.3.3 Locks and Tags:** Each Authorized Employee will put his/her own lock on the lockbox before beginning work.

**5.3.4 Removal of Locks and Tags:** The Supervisor cannot remove any locks or tags from the energy isolation devices unless all other Authorized Employees have first removed their locks and tags from the lockbox. If there is a need to remove a lock and tag from the lockbox because an Authorized Employee has left the site, then the procedures for removing locks tags of employees not on site will be followed.

## **6.0 Energy Isolation Devices Not Capable of Accepting a Lock**

**6.1 When Tagout Will Be Used:** If an energy isolation device is physically incapable of accepting a lock, a tagout system shall be used which will offer full employee protection similar to that of a lockout system.

**6.2 Requirements of Tagout System:** The tagout system will include all of the steps of the lockout program described above except the actual use of a lockout device on that particular energy isolation device. Additional means to be considered as a part of the demonstration of full employee protection shall include the implementation of additional safety measures such as the removal of an isolating circuit element, blocking of a controlling switch, opening of an extra disconnecting device, or the removal of a valve handle to reduce the likelihood of inadvertent energization.

## **7.0 Removal of Authorized Employee Locks and Tags When Off-site**

There may be times when the LOTO needs to be closed out to put equipment back into service when an Authorized Employee still on the LOTO is off-site and cannot be located. Removal of an Authorized Employee lock and tag without the Authorized Employee's signature will require a review by the Authorized Employee's direct Supervisor.

**7.1.1 Supervisor Responsibilities:** The Authorized Employee's Supervisor will attempt to reach the Authorized Employee to determine if the LOTO may be closed. If the Authorized Employee indicates that the LOTO may be closed, the Authorized Employee must return to the site to follow the normal LOTO removal procedure.

**7.1.2 Employee Cannot be Contacted:** If the Authorized Employee cannot be contacted or cannot return to the facility, the Authorized Employee's Supervisor may authorize removal of the Authorized Employee from the LOTO.

**7.1.3 Notifications:** If the Supervisor authorizes the removal of the Authorized Employee's lock(s) and tag(s) all potentially affected employees shall be notified.

**7.1.4 Return of Authorized employee:** The Authorized Employee will be contacted by his/her Supervisor immediately upon their return to work, to notify them that they have been removed from the LOTO.

## **7.0 Lockout/Tagout Review and Periodic Inspections**

**7.1 Annual Review:** Annually, the university shall perform a complete review of its energy control program and procedures for the purpose of ensuring that the LOTO procedures and requirements of 29 CFR 1910.147 are being met. A written report shall be made documenting inspection findings, results, and as appropriate any corrective actions taken for LOTO program deficiencies.

**7.2 Periodic Inspections:** Periodic inspections of energized equipment and systems and the individual device controls shall be scheduled and documented in writing.

**7.3 Conducting Inspection:** A representative trained as an Authorized Employee must perform the periodic inspection. The representative *may not review any Lockout/Tagout that they currently have responsibility for*. The representative must review the procedures being implemented by and under the control of other Authorized Employees. The inspection shall include a review of each Authorized Employee's responsibilities under the program and related procedures. Written documentation of findings shall be made and retained.

**7.4 Active LOTO Inspection:** Active LOTOs will be visually verified by the responsible supervisor, that all locks and tags are in place. The required LOTO documents will be verified to have been prepared in accordance with the department's LOTO program. Written documentation of findings shall be made and retained.

**7.5 Corrective Action:** If during an inspection a discrepancy or procedural inadequacy is found, steps shall be taken immediately to determine the reason for, and the corrective action necessary to remedy the discrepancy. Written documentation of findings shall be made and retained.

**7.6 Time Limit for Correcting Procedures:** If during the inspection a discrepancy or procedural inadequacy is found, steps shall be taken immediately to determine the reason for, and the corrective action necessary to remedy the discrepancy. Written documentation of findings shall be made and retained. All discrepancies or noncompliance with the department's program and procedures will be corrected as soon as possible but no later than 60 days from the date of identification. If a discrepancy or inadequacy is identified that involves staff training failure. The appropriate individuals shall receive additional training to address the deficiency. The training may include classroom or field training with a qualified person.

**7.7. Inspection Certification:** The Supervisor shall certify in writing that the periodic inspection has been performed. This certification shall identify and document the machine, equipment or system, on which the LOTO procedure was utilized, date of inspection, the employees (by name) covered by the inspection, and the individual performing the inspection.

## **8.0 Personnel LOTO Training**

Employees shall be trained so that they understand the purpose and function of the LOTO program and procedures. Employees shall also be trained so that they understand the purpose, contents and requirements of 29 CFR 1910.147, The Control of Hazardous Energy (Lockout/Tagout).

**8.1 Authorized Employees:** Authorized employees shall receive training in the recognition of sources of hazardous energy, the types and magnitude of hazardous energy and the means and methods of isolation and control.

**8.2 Affected Employees:** Affected Employees shall be instructed in the purpose and use of the Facility's LOTO program.

**8.3 Other Employees:** Other employees shall be instructed about their department's LOTO program and about the prohibition against attempting to restart equipment, machines or systems that have been locked and tagged out of service.

**8.4 Employees' Retraining:** Retraining will be conducted when there are changes in job assignment; machines, equipment or processes; or in the department's LOTO program and procedures. Retraining will also be conducted when a periodic inspection of the effectiveness of this procedure reveals inadequacies in employee knowledge or performance.

**8.5 Record Keeping:** A record of all training and retraining shall be maintained. The training record shall include the name of the employee, level of training, name of the instructor and the date of the training. The Safety Manager is responsible for documenting any and all formal training provided to employees. The Supervisor will keep a record of all training for their subordinate employees, to include remedial training provided in the field.

## **REFERENCES**

### **U.S. Department of Labor OSHA Standards for General Industry:**

OSHA has established the following standards for Lockout/Tagout.

29 CFR 1910.147 (a), (b), (c), (d), (e) & (f)

29 CFR 1910.333 (a), (b) & (c)

29 CFR 1926.417 (a), (b) & (c)

Attachments: Lockout Tagout Procedure Form for individual pieces of equipment.  
OSHA Lockout Tagout Handbook for Employees