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## LOYOLA UNIVERSITY CHICAGO LOGOUT TAGOUT STANDARD OPERATING PROCEDURE

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### **PURPOSE:**

This standard operating procedure is to help ensure that staff follow the steps necessary to promote a safe work environment to ensure machines and/or equipment are isolated from all potential hazardous energy and locked out-tagged out before staff members perform any service or maintenance activities.

### **REGULATORY:**

Occupational Safety and Health Administration (OSHA) Lockout Tagout Standard 29 CFR 1910.147.

[1910.147 - The control of hazardous energy \(lockout/tagout\). | Occupational Safety and Health Administration \(osha.gov\)](https://www.osha.gov/SLHC/OSHA-1910.147)

**Note:** The Standard does not cover electrical hazards from work on, near, or with conductors or equipment in electric utilization (premise wiring) installations, which are outlined by 29 CFR Part 1910 Subpart S.

American National Standards Institute/American Society of Safety Professionals (ANSI/ASSP) Z244.1-2016 (R2020) -The Control of Hazardous Energy Lockout, Tagout and Alternative Methods.

### **Additional References:**

Two other OSHA standards also contain energy control provisions: 29 CFR 1910.269 and 29 CFR 1910.333.

29 CFR 1910.269 - controlling hazardous energy in installations for the exclusive purpose of power generation, transmission, and distribution, including related equipment for communication or metering.

29 CFR 1910.333 - specific lockout and tagout provisions for electrical shock and burn hazards.

### **TRAINING:**

Staff members shall be trained per OSHA 29 CFR 1910.147.

### **DEFINITIONS:**

**Logout Tagout (LOTO):** A safety procedure to prevent the unexpected energization or startup of machinery and equipment or the release of hazardous energy during service or maintenance activities.

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**LOYOLA UNIVERSITY CHICAGO  
LOGOUT TAGOUT  
STANDARD OPERATING PROCEDURE**

---

LOTO requires that hazardous energy sources be "isolated and rendered inoperative" before work is started on the equipment in question. The isolated power sources are then locked and a tag is placed on the lock identifying the worker and reason the lockout tagout is placed on it. The worker then holds the key for the lock, ensuring that only they can remove the lock and start the equipment. This prevents accidental startup of equipment while it is in a hazardous state or while a worker is in direct contact with it.

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

**Energy control program:** A program consisting of energy control procedures, employee training and periodic inspections to ensure that before any employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, start up or release of stored energy could occur and cause injury, the machine or equipment shall be isolated from the energy source, and rendered inoperative.

**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:** A device that utilizes a 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.

**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.

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**LOYOLA UNIVERSITY CHICAGO  
LOGOUT TAGOUT  
STANDARD OPERATING PROCEDURE**

---

**LOCKOUT TAGOUT PROCEDURES:**

Lockout/tagout procedures involve several steps and it's important to complete them in the correct order as this helps ensure the safety of everyone involved. While the details of each step may vary for each type of equipment or machine, the general steps remain the same.

- 1. Identify the procedure to use:** Locate the correct lockout/tagout procedure for the machine or equipment. The procedure should provide information about the specific equipment parts which will be worked on and step-by-step instructions for safely shutting down and restarting the equipment.
- 2. Prepare for the shutdown:** Review all aspects of the procedure carefully before any work begins. Determine which employees and equipment are necessary for the shutdown and ensure all employees have the proper training for participating in the shutdown. The employee shall have lockout tagout training to prepare for shutdown, topics they were trained on should include:
  - Hazards associated with the energy related to the equipment.
  - Means and/or methods of controlling the energy.
  - Type and magnitude of energy present.

It's important to reach a shared understanding among the team when preparing for the shutdown. Ensure each person understands what they will be responsible for during the shutdown and what sources of energy are present. Determine what methods of control the team will use and complete necessary instructions related to locking and tagging-out a system before the process begins.

- 3. If applicable, notify all affected employees:** Notify all potentially affected employees about the upcoming maintenance. Tell them when the work will occur, what equipment it will affect, and how long completing the maintenance will require. Ensure affected employees know what alternative processes to use during maintenance. It's also important to provide affected employees with the name(s) of the staff member(s) who is/are responsible for the lockout/tagout procedure and to contact them if they need more information.
- 4. Shut down the equipment:** Follow the details provided in the lockout/tagout procedure for the equipment. Many machines and equipment have complex, multistep shutdown processes, so it's important to follow the directions exactly as the procedure lists them. Ensure all moving parts, such as flywheels, gears, spindles, etc. stop moving, and verify all controls are in the off position.
- 5. Isolate the equipment:** Once the equipment is shut down, it's important to isolate the equipment from all energy sources. This includes turning off all types of energy sources on the equipment and sources via circuit breaker boxes. Types of energy sources to be shut off may include: chemical, electrical, hydraulic, mechanical, pneumatic, or thermal.

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## LOYOLA UNIVERSITY CHICAGO LOGOUT TAGOUT STANDARD OPERATING PROCEDURE

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Use an energy isolating device to help ensure the equipment is shut down. An energy isolating device is a mechanical device that physically prevents the transmission or release of hazardous energy. Energy isolating devices do not include push buttons, selector switches, and other control circuit type devices. Examples of energy isolating devices are:

- manually operated electrical circuit breaker
- disconnect switch
- manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and no pole can be operated independently
- line valve

The details of this step will vary for each equipment type, but the lockout/tagout procedure should include details regarding the energy sources to address. However, ensure that every type of energy is neutralized at the appropriate sources. Block movable parts to prevent errors. If there is a possibility of re-accumulation of such energy to a hazardous level, continue verifying isolation until servicing is completed.

- 6. Place individual locks on the equipment:** A lockout device is a device that utilizes a positive means to hold an energy isolating device in a safe position and prevents the energization of equipment and machinery. A tagout device is a prominent warning device that can be securely fastened to an energy isolating device and indicates that both the equipment and the energy isolating device cannot be operated.

Place the special lockout/tagout devices that each team member involved has to the power sources. Use locks to lock out the power sources and add tags to items such as machine controls, pressure lines, starter switches, etc. These tags should not be removed except by the owner of the lock/tag. LOTO devices should be uniform in color, shape, or size. LOTO devices should be capable of withstanding the environment (ie: weather, wet conditions, corrosive environments, etc.) in which they are used.

It's important for each tag to include specific information. Each tag should have the date and time someone tagged it and the reason the person locked it out. Additionally, the tag needs to include personal information related to the person who tagged it, including:

- Department
- Name
- Contact Information
- Date and Time
- Reason for the equipment being locked out

## **LOYOLA UNIVERSITY CHICAGO LOGOUT TAGOUT STANDARD OPERATING PROCEDURE**

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### **GROUP LOCKOUT:**

When two or more people are working on the same or different parts of a larger overall system, there must be multiple holes to lock the device. To expand the number of available holes, the lockout device is secured with a folding scissors clamp that has many pairs of padlock holes capable of keeping it closed. Each worker applies their own padlock to the clamp. A LOTO box may also be used when equipment has several isolation points that need to be secured (with each point having their own energy isolating, lockout, or a group isolation).

A lock selected by color, shape or size, such as a red padlock, is used to designate a standard safety device, locking and securing hazardous energy. No two keys or locks should ever be the same.

Although OSHA has not yet provided a standardized color coding system for lockout locks and tags, typical color codes are as follows:

- Red tag - Personal Danger Tag (PDT)
- Orange tag - group isolation or lockbox tag
- Yellow tag - Out of Service Tag (OOS)
- Blue tag - commissioning and test tag
- Red lock - used by an authorized employee to lockout equipment during servicing
- Orange lock - used by a group isolator to indicate that servicing is safe to perform
- Yellow lock - used by an affected employee to lockout equipment before servicing
- Blue lock - used instead of an orange lock for lockboxes with more than 6 isolation points

After completing a LOTO procedure on an isolation point, the employee will place the key to the lockout device in the lockbox and then attach their own personal padlock to the lockbox. After all personal padlocks have been attached to the lockbox, the group isolator will then place an orange or blue lock and an orange tag on equipment to indicate that all isolation points have been secured.

A person's lock and tag must only be removed by the individual who installed the lock and tag unless removal is accomplished under the direction of the Supervisor. When a lock or tag is accidentally left on a device that must be reactivated, the Supervisor may have the lockout or tagout device removed by someone other than the authorized employee who applied it if all of the following conditions are met:

- The energy control program has documented, specific procedures and training for this situation; *and*
- It can be shown that the specific procedures used are as safe as having the device removed by the authorized employee who applied it.

## **LOYOLA UNIVERSITY CHICAGO LOGOUT TAGOUT STANDARD OPERATING PROCEDURE**

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The specific procedures will include at least the following:

- Verifying the authorized employee who applied the device is not at the facility.
  - Making all reasonable efforts to contact and inform the authorized employee that the lockout or tagout device is being removed.
  - Making sure the authorized employee is informed, before resuming work at the facility, that the lockout or tagout device has been removed.
- 7. Check for stored energy:** Check for residual stored energy in areas such as capacitors, elevated machine members, hydraulic systems, etc. Also, check for stored energy as air, gas, steam, or water pressure. It's important to relieve, disconnect, restrain, dissipate or make non-hazardous any hazardous energy that remains through means like bleeding down, blocking, grounding, or repositioning.
- 8. Verify the isolation of the equipment:** Verify the completion of the lockout/tagout process. Ensure the system is no longer connected to any energy sources. Visually inspect the area for any sources you may have missed.

Test the equipment to verify your shutdown. This may include pressing buttons, flipping switches, testing gauges or operating other controls. However, it's important to clear the area of any other personnel before doing so to prevent interacting with hazards.

- 9. Shut off controls:** A test should be completed to ensure the equipment or machine is off or in a neutral position. This will complete the lockout/tagout procedure for the equipment or machine and staff may begin working on the maintenance.
- 10. Return equipment to service:** Once maintenance is completed, the machine or equipment may be returned to service. The process should begin by removing all nonessential items from the area and all operational components of the machine or equipment are intact. It's important for all employees to be in safe positions or removed from the area.

Staff should verify that the controls are in the neutral position. Lockout and tag-out devices may be removed and equipment/machines may be re-energized. It's important to know some machines and equipment require the system to be re-energized prior to removing lockout devices (The lockout/tagout procedure for the equipment/machine should specify this). Once complete, notify all affected employees that the maintenance has been completed and the machine or equipment is available for use.

### **AUDITING:**

This procedure shall be reviewed annually by the Occupational Health & Safety office.

# LOYOLA UNIVERSITY CHICAGO LOGOUT TAGOUT STANDARD OPERATING PROCEDURE

## APPENDIX A

### Locks and tags:

