1. **Purpose**

This program establishes minimum requirements for lockout and tagout (LOTO) of energy isolation devices. It shall help to ensure that machines and equipment are isolated from all potentially hazardous energy before University of Alaska Anchorage (UAA) employees, student workers, faculty, staff, and outside contractors perform any servicing or maintenance activities where unexpected energizing, start up, or release of stored energy could cause employee injury.

2. **Objective**

UAA, in its continuing effort to provide employees with safe, healthful working conditions, and to comply with the Occupational Safety and Health Act is implementing the following program for LOTO to protect people working at the University, by helping employees, student workers, faculty, staff, and outside contractors better understand the associated hazards and methods to control hazardous energy.

3. **Scope**

This policy applies to UAA employees, students, faculty, staff, and outside contractors who work in areas where potential exposures to any machine where parts, functions, or processes may cause an injury.

4. **Definitions**

   **Affected Employee** - An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

   **Authorized Employee** - A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section and they have received the proper training in LOTO.

   **Capable of Being Locked Out** - An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

   **Danger Tag** - A tag that says “Danger: Do Not Operate” that is affixed with the lock being utilized. This tag contains important information about the lock.
Energized - Connected to an energy source or containing 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 - A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

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.

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. The fastener is required to withstand 50 lbs. of force to prevent the tag from being removed.

5. Authority and Responsibilities

In addition to the roles and responsibilities outlined in the UAA Training Program, the following apply to the Lockout Tagout Program.
EHS/RM

- Assists departments to determine proper LOTO equipment and procedures are implemented for each department’s work activities
- Create, track, and/or conduct inspections on LOTO where applicable with this standard

 Supervisor

- Ensure procedures for the safe de-energization of equipment in the department are available to employees responsible for LOTO operations
- Conduct periodic inspections of LOTO activities in their department to ensure integrity
- Assist in the determination of safe methods to shut down and isolate equipment prior to work being performed
- Ensure employees are properly trained in this Lockout Tagout program

Department Safety Coordinator

- Assist in the determination of equipment requiring LOTO
- Conduct periodic inspections of LOTO in their department to ensure compliance
- Assist in the determination of safe methods and procedures for the shutdown and isolation of equipment when required
- Ensure affected employees are trained on the LOTO Program
- Conduct machine inspections to ensure there are proper LOTO procedures

Employees

- Assist in creation of LOTO procedures
- Ensure equipment is properly isolated using appropriate procedures prior to working on equipment
- Alerts department supervisor when equipment/guards require replacement before using equipment
- Assesses work to determine if additional guarding is required
Outside Contractors

- Perform all work in compliance with UAA’s approved LOTO program, which will be reviewed and approved by the EHS/RM department.
- If the contracted company does not have a program, they shall comply with this program

6. Engineering Controls

Engineering controls are design plans or changes to the working environment to prevent or reduce employee exposure to energized equipment hazards. The following example of engineering controls should be considered in area design to reduce risk:

- Lockout is an engineering control. It is a means to prevent inadvertent energization of a system when operating the system may cause harm.
- Where feasible, design the facility, equipment, or process with LOTO principles in mind, including appropriate hasps to ensure the system can remain de-energized during repair and maintenance operations.

7. Administrative Controls

Administrative controls are safe work practices and procedures designed to reduce the risks associated with energized equipment. Examples of administrative controls include the following:

- Tagout is an Administrative control because it does not physically prevent a device from being energized.
- Train employees on equipment use and LOTO procedures prior to work with machinery
- Conduct routine inspections of LOTO procedures to ensure they are adequate
- Provide employees with the tools and equipment safely lock out equipment

8. Procedures

An energy isolating device will be capable of being locked out if it's designed with a hasp, other attachment; or integral part to which, or through which, a lock can be affixed; or if it has a locking mechanism built into it. Other energy isolating devices will also be capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device.

Lockout is the placement of a locking device on an energy source ensuring that the equipment cannot be operated until the locking device is removed. A “Danger Do Not Operate” tag must be
placed in conjunction with the lock. The tag can usually be placed on the lock hasp.

The following information shall be included on the Danger Tag:

- Name and contact info of person placing the tag
- Date the tag was placed in the field
- Tagged Position (on/off, open/closed, etc.)
- Location (isolating device on which the tag is placed)

Locks must be of a specific design or color which are only used for Lockout Tagout activities. At UAA, red individually keyed padlocks will be used for LOTO purposes. Red locks will not be used for any other purpose on campus, such as locks on lockers or gates, and if discovered must be replaced with a different type of lock immediately.

**Remember: ONE PERSON - ONE LOCK - ONE TAG - ONE KEY**

**General LOTO Procedure**

- Employees in an area where machinery or equipment is to be shut down, shall be notified by their supervisor or an authorized person. Notification shall be given prior to shut down and again before start-up.
- Only an authorized employee with the knowledge of the type and magnitude of energy, the hazards of the energy to be controlled and the method or means to isolate that energy, shall be allowed to lockout and/or tagout machinery or equipment.
- Identify energy sources which must be lockout and/or tagout; i.e., electrical, compression, hydraulic, pneumatic, chemical, gravitational, etc.

**General Electrical Procedure**

- Shut down machines and/or equipment as normal.
- Shut down electrical disconnects for machine, or equipment, that is being worked on.
- **NOTE:** When shutting down or restarting power disconnect to the "off" (open), or "on" (closed) position, stand to the side of the disconnect, face turned away, before disengaging, or engaging, switch lever.
- Place lockout and/or tagout device on disconnect. If more than one employee will be working on the machine, or equipment, each must place their own lockout or tagout device on the machine, or equipment. It might be necessary to use a multi-lock hasp to accommodate multiple locks.
● Test the controls of the machine or equipment to be sure that all power has been disconnected.

**General Spring Compression Procedure**

● Release energy from springs that may still be compressed, then lockout or tagout.

**General Hydraulic and/or Pneumatic Procedure**

● Locate sources of energy for hydraulic and/or pneumatic equipment.

● Bleed off energy by opening valves, closing air lines, then lockout and tagout each valve supplying this energy.

**General Chemical Hazard Procedure**

● Locate valves supplying chemicals to machinery or equipment, shut them off, and place lockout or tagout devices on valves.

**NOTE:** When working with chemical supplied equipment, purge the system so adequate ventilation is provided.

**General Gravitational Hazard Procedure**

● Secure all parts of machinery or equipment.

● Use a die block at the point of operations to prevent the ram from falling.

**Transfer of Lockout/Tagout to Another Worker:**

● Upon completion of work prior to the end of the shift, the employee shall proceed with the procedure for startup.

● If the employee cannot complete their work by the end of the shift and the work is transferred to a second employee, the second employee should place their lockout/tagout devices in place of the first employee’s devices.

● If the employee cannot complete their work by the end of the shift and the work is to be transferred to another employee that is not present, a supervisor can use their lockout/tagout devices in place of the original employee’s devices. The supervisor will then work with the supervisor of the next shift to transfer the lockout/tagout devices with the next employee.

● In the event that a single employee is working on a multi-shift assignment, lockout tagout devices should be left on the device until the work is completed. The supervisor in charge of the site should be informed that the lockout tagout devices will remain on the equipment during off-hours.
Never Leave an Energy Source Unlocked or Untagged Unless Work Has Been Completed And Re-Start Procedures Implemented.

Tagout without a Lock

OSHA has approved tag out devices, in the place of lockout devices, on machines and equipment which are incapable of accepting a lock. If tagout is to be used instead of lockout, additional safety precautions must be implemented.

- Tag out devices must be installed with wire and/or nylon straps, which will withstand a 50-pound pull test.
- Tagout devices SHALL NOT be used on machines or equipment unless authorization is obtained from EHS&RM prior to tagging out.
- Tagout devices shall be signed and include a legend, such as: DO NOT START, DO NOT OPEN, DO NOT ENERGIZE, DO NOT OPERATE, etc.
- Tagout devices shall be attached at the same location that the lockout device is normally placed. Where the tag cannot be directly affixed, it must be as close as possible and in such a position that it will be obvious to what isolating device the tag applies.
- When a lock cannot be used to isolate the device, every attempt must be made where two separate unrelated actions must be required to defeat the isolation (for example, removing the handle from a ball valve or using a Cable Tie of sufficient strength (50 lb. strength) on the locking mechanism integral to a valve).

Plug or Cord connected Equipment

A device preventing a plug from being inserted into an outlet must be placed around the plug, and individual locks or hasps affixed prior to work on the equipment.

This program does not apply to small electronics (office fans, computer cords, small handheld tools, etc.) for which the plug of equipment is removed from the energy source and is in the possession of the employee performing the work.

Group Lockout Tagout

In the event multiple employees will be working on the same equipment or system the following procedure will be followed

If multiple employees are working on single piece of equipment with a single isolating device:

- Employees will de-energize the equipment by normal means.
- Employees will place a lockout hasp in the device in place of an individual lock.
● Each employee will place their individual lock and tag on the lockout hasp.

● If the hasp has only one open spot to affix a lock, a second hasp will be placed in the hole, and additional locks placed on the new lockout hasp

If multiple employees are working on equipment or a system requiring multiple locks for isolation, employee will utilize a lock box as follows:

● Employees will lock out the equipment or system following the lockout tagout procedure.

● Locks will be placed on each isolating device

● Keys for the locks will be placed in a group lock box designed so that individuals can place a lock on the box, preventing access to the keys inside

● The procedure detailing the system isolation and location of the locks will be placed with the lockbox

● Each employee working on the system will review the lockout procedure, and if they agree with the isolation will affix their individual lock and tag on the group lock box

● Each employee using a group lock box has the right to have an employee knowledgeable in the lockout procedure walk them through the lockout tagout performed and show them each isolation if requested

● Keys cannot be removed from the group lock box for any reason unless each employee with a lock on the box removes their lock, the procedure is updated and clearly communicated with all affected employees

**Vendor Owned Systems**

● The vendor or contractor is responsible for compliance with OSHA LOTO and UAA requirements for equipment that they own and operate, and which is independent of UAA processes unless approved by the EHS/RM.

● Vendor owned systems must conform to UAA standards, unless reviewed and approved by the EHS/RM.

● If connected to a UAA process, the vendor must follow UAA LOTO standards.

**Procedure if Lock Left on Device After Service is Complete**

If an individual has failed to release the lock and/or remove locks and/or tags on a completed job and the system must be put back in service, the lock removal permit (Appendix A) must be completed before the locks/tags can be cut / removed.

1. Verify that the individual is not on-site.
2. If on-site, have them properly “release” the system.

3. Make every reasonable attempt to contact the individual (through their supervisor) and have them return to site to release the system.

4. If there is no way for the individual to return, obtain a verbal “Release.”

5. If workers are not available for verbal release, verify system status and complete a Lock Removal Permit and obtain the appropriate authorization before cutting/removing the locks and tags.

6. All attempts must be made to inform the employee that his lock/tag have been removed prior to the employee returning to work to prevent them from working on the system they believe they have locked out.

**Long Term Lockout**

If equipment or systems will need to be locked out for a period of longer than 90 days the system should be reviewed to determine if a more permanent isolation is feasible. If the equipment or system must remain unlocked, the department supervisor will put his lock and tag on the system and keys kept in a secure location. A list of long term isolations should be kept and reviewed at least annually to confirm the integrity of the isolation.

9. **Inspections**

To ensure energy control procedures are implemented properly and any program inadequacies can be observed and corrected, Supervisors whose employees perform LOTO must perform two periodic inspections each year. Supervisors should do the inspection during a lockout using the Periodic Lockout Tagout Inspection Form (Appendix B). Representatives from the EHS/RM department can provide assistance if requested.

When complete, forms shall be submitted to the EHS/RM department for review. These forms will be used during the annual Lockout Tagout program evaluation.

10. **Training**

Training in the LOTO Program is required to ensure that employees utilizing LOTO understand the elements of this program and how to implement it in the field. The supervisor will ensure that authorized employees have acquired the necessary practical skills required for safe LOTO operations. ESH/RM will assist in the determination of suitable trainers to the department for LOTO training.
All employees who will be required to perform LOTO must receive training covering the LOTO Program and the function of the energy control procedures are understood. Departments must provide this training upon initial assignment and at least annually thereafter. Topics for the training shall include:

- Job specific retraining of authorized employees/users;
- Instruction to affected employees/users in the purpose and procedure of energy control;
- Instruction of all other employees/users who work in the area in the procedure and the prohibitions for attempting to restart equipment that has been locked out and/or tagged out; and
- Instruction of all other employees/users in the use and limitations of the tagout system.

Retraining will be provided when the following occur:

- There is a change in assignment that involves using a different machine
- There is a change in the machine, equipment or processes that presents new hazards
- The supervisor has reason to believe an employee lacks sufficient knowledge of the LOTO procedures

11. Program Evaluation

The LOTO Program shall be evaluated on an annual basis utilizing the protocols set forth by EHS/RM. The evaluation team will consist of a department safety coordinator and a designee from EHS/RM. EHS/RM will define the scope of the evaluation. The review will include any new LOTO procedures or equipment, facility layout changes, and the cost and frequency of energy isolation related injuries. The final report will be developed by the EHS/RM utilizing the information received during the evaluation. The deficiencies determined in the report will be documented and corrective action plans will be developed.

All LOTO procedures and methods will be reviewed annually by the department supervisor and safety coordinator. If any inadequacies are identified, they will take all necessary steps to update the procedure or safeguarding method.

12. References

OSHA regulations that apply to LOTO are included below.

- OSHA 29 CFR 1910.147
- OSHA 29 CFR 1910.333
13. Revision History

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<th>Description of Change</th>
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<th>Approved By</th>
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<td>VC Shuford</td>
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<td>05/07/2021</td>
<td>Updates</td>
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Appendix A: Lock Removal Permit

This permit is to be used for the non-routine removal of a lock/tag by anyone other than the person who applied the lock/tag.

Issue Date: ___________________________ Time: ___________________________

Department/Area: ________________________________________________________

Equipment Affected: __________________________________________________________

Name of Person who affixed Lock/Tag: __________________________________________

Reason to Remove the Lock/Tag: __________________________________________________

Employee Removing the Lock/Tag: _______________________________________________

Date/Time  Initial (Initial as each planned item is completed. Fill in all blanks – use “N/A” where applicable

1. Contacted the person who affixed the lock/tag? ☐ Yes ☐ No

2. If impossible to contact, why?

3. If the person whose lock/tag was removed is not notified, describe (below) the method used to inform him or her that the lock/tag has been removed.

4. Equipment inspected for work in progress

5. All affected personnel notified

6. Equipment/area double checked before removing lock/tag

7. Lock/Tag removed and equipment in the appropriate start-up position

Required Approvals

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<thead>
<tr>
<th>Approver Title</th>
<th>Approver Signature</th>
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<tr>
<td>1. Employee</td>
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<td>2. Supervisor</td>
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A copy of this form must be sent to the Employee’s Supervisor to serve as notification that the employee did not release the lockout. Another copy should be given to the employee who had their lock and tag removed to inform them of the lock removal.
### Appendix B: Periodic Lockout/Tagout Inspection Form

**Directions:**
- Conduct periodic inspections at least annually
- Use one form for each machine or equipment that has a written Lockout/Tagout Procedure
- Keep the original, completed form **on file** and send a copy to the **Safety Officer**.

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<th>Machine/Equipment Inspected:</th>
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<th>Employees included in the inspection</th>
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**Employees included in the inspection:**
Review the **Lockout/Tagout Procedures and employee responsibilities** with the authorized employees and complete the following:

1. **Do the employees understand the Lockout/Tagout Procedures and their responsibilities under the Lockout/Tagout Policy?**
   - [ ] YES [ ] NO If no, indicate corrective action taken:

   

2. **Do the employees follow the Lockout/Tagout Procedures?**
   - [ ] YES [ ] NO If no, indicate corrective action taken:

   

3. **Are the established Lockout/Tagout Procedures effective to provide full protection?**
   - [ ] YES [ ] NO If no, indicate corrective action taken:

   

4. **Other Problems noted and corrective actions taken:**

   

**Person(s) Conducting Inspection:**

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<tr>
<th>Name:</th>
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