# UNH Control of Hazardous Energy

## Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>II. SCOPE AND APPLICATION</td>
<td>1</td>
</tr>
<tr>
<td>III. DEFINITIONS</td>
<td>2</td>
</tr>
<tr>
<td>IV. RESPONSIBILITIES</td>
<td>4</td>
</tr>
<tr>
<td>A. Office of Environmental Health and Safety</td>
<td>4</td>
</tr>
<tr>
<td>B. Principal Authorized Employee</td>
<td>4</td>
</tr>
<tr>
<td>C. Authorized Employees</td>
<td>5</td>
</tr>
<tr>
<td>D. Affected Employees</td>
<td>6</td>
</tr>
<tr>
<td>E. Outside Contractors</td>
<td>6</td>
</tr>
<tr>
<td>V. GENERAL REQUIREMENTS</td>
<td>6</td>
</tr>
<tr>
<td>A. Equipment Evaluation and Hazard Assessments</td>
<td>7</td>
</tr>
<tr>
<td>B. Energy Control/Isolation Devices</td>
<td>7</td>
</tr>
<tr>
<td>VI. LOCKOUT/TAGOUT PROCEDURES</td>
<td>9</td>
</tr>
<tr>
<td>A. General Lockout/Tagout Procedures</td>
<td>9</td>
</tr>
<tr>
<td>B. Restoring Equipment or Machinery to Service</td>
<td>10</td>
</tr>
<tr>
<td>C. Testing Equipment and Machinery (Temporary Removal)</td>
<td>10</td>
</tr>
<tr>
<td>D. Group Lockout/Tagout Procedures</td>
<td>11</td>
</tr>
<tr>
<td>E. Shift or Personnel Changes (Lockout Device Transfer)</td>
<td>11</td>
</tr>
<tr>
<td>F. Emergency Removal</td>
<td>12</td>
</tr>
<tr>
<td>G. Contractor Requirements</td>
<td>13</td>
</tr>
<tr>
<td>H. Out of Service</td>
<td>13</td>
</tr>
<tr>
<td>VII. TRAINING</td>
<td>13</td>
</tr>
<tr>
<td>A. Authorized Employees</td>
<td>13</td>
</tr>
<tr>
<td>B. Affected Employees</td>
<td>14</td>
</tr>
<tr>
<td>C. Retraining</td>
<td>14</td>
</tr>
<tr>
<td>VIII. PROGRAM REVIEW AND INSPECTIONS</td>
<td>14</td>
</tr>
<tr>
<td>IX. RECORDKEEPING</td>
<td>15</td>
</tr>
</tbody>
</table>

## Appendices

- Appendix A: LOTO Equipment Specific Hazard Assessment/Procedure Form
- Appendix B: Emergency Lock Removal Form
I. INTRODUCTION

The University of New Hampshire (UNH) Control of Hazardous Energy (Lockout/Tagout) program establishes the minimum requirements for controlling energy-isolating devices to prevent the unexpected release of hazardous energy during equipment servicing or maintenance activities. It shall be utilized to ensure that the affected equipment or machinery are isolated from all potential hazardous energy sources and that those sources are locked and tagged out prior to any authorized employee conducting required servicing or maintenance.

The Lockout/Tagout (LOTO) procedures described herein must be adhered to when it is necessary to work on any equipment or machinery that could release any form of hazardous energy. This program shall be used in conjunction with, and not a substitute for, other UNH established safety programs, such as Confined Space Entry and the Laboratory Ventilation Management Plan, to ensure a safe and healthful working environment for employees.

The LOTO procedures outlined in this program are based on the Occupational Safety and Health Administration (OSHA) General Industry Standard, 29 CFR 1910.147, the Control of Hazardous Energy. The standard is designed to prevent injuries caused by the inadvertent start-up of equipment or machinery or the release of stored energy.

II. SCOPE AND APPLICATION

The UNH LOTO program is applicable to all UNH employees, work conducted under the authority of UNH, and to all equipment and property managed by UNH. For those selected UNH contractors, the LOTO program is applicable through contract clauses in conformance with applicable regulatory requirements. In addition, the UNH LOTO program applies to the servicing or maintenance activities under normal operations that include:

- LOTO of equipment;
- The removal or bypass of a guard or other safety device; and
- Any activity that requires a person to place any part of his/her body into an area of equipment/machinery where work is being performed or where an associated danger zone exists during its operation.

Hazardous energy sources that must be identified and controlled while conducting servicing or maintenance activities include, but are not limited to:

- Electrical;
- Hydraulic;
- Pneumatic;
- Mechanical;
- Gravitational;
- Thermal;
• Chemical;
• Fluids and gasses;
• Water under pressure; and/or
• Steam

The LOTO program does not apply to:
• Minor tool changes, adjustments, and other minor servicing activities that take place during normal operations provided that such activities are routine, repetitive, and integral to the use of the equipment and the work is performed utilizing alternative measures that provide effective personal protection.
• Work on cord and plug-connected electric equipment if exposure to the hazards of unexpected startup of the equipment is controlled by unplugging the equipment from the energy source (outlet/receptacle) and the plug remains under the exclusive control of the employee performing servicing or maintenance activities.
• Hot-tap operations that involve the transmission and distribution systems for electricity or substances (e.g., gas, steam, water, or petroleum products) when these activities are performed on energized electrical systems or pressurized pipelines, provided that each of the following can be demonstrated:
  o Continuity of services are essential (critical life safety);
  o Shutdown of the system is impractical; and
  o Documented procedures are followed and special equipment that will provide proven, effective protection for employees is used.
• In addition, LOTO does not apply to those applications where it is absolutely necessary to leave the equipment or machinery energized for set-up or adjustments, or for troubleshooting purposes. For the purpose of this program, the troubleshooting process will be considered ended when the particular problem that requires servicing or maintenance is identified. Once the problem has been identified, LOTO will be implemented.

III. 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 LOTO, 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 those employees’ duties include performing servicing or maintenance covered by the provisions of this program.
**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.

**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 used to control the operation of a machine.

**Hot Tap:** A procedure used in the repair, maintenance, and servicing activities which involves welding on a piece of equipment (pipeline, vessels or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

**Lockout:** The placement of a locking 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 locking 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.

**Normal Production Operations:** The utilization of a machine or equipment to perform its intended production function.

**Principal Authorized Employee:** Operations (Ops) Managers, Managers, Supervisors, Trade Supervisors, Shift Supervisors, Project Managers that are authorized employees who oversee or lead a group of service/maintenance personnel (e.g., plumbers, carpenters, electricians, metal workers, mechanics, outside contractors, etc…).

**Servicing and/or Maintenance:** Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining or servicing equipment or machines. These activities include lubrication, cleaning, un-jamming equipment or machines, and making adjustment or tool changes where the employee may be exposed to the unexpected energization or start-up 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.

**IV. RESPONSIBILITIES**

To ensure the LOTO program effectiveness, all affected individuals must clearly understand and take an active role in meeting their responsibilities. Due to the potential hazards associated with servicing or maintenance activities and the potential severity of consequences associated with failure to comply with the LOTO requirements, the specific responsibilities outlined below must be followed.

**A. Office of Environmental Health and Safety**

The Office of Environmental Health and Safety (OEHS) is responsible for providing applicable technical support to those impacted departments covered by the scope of the UNH LOTO program. Responsibilities of the OEHS include:

- Performing and/or coordinating an annual review of the LOTO program;
- Evaluating and updating the UNH LOTO program on an annual basis, or more frequently as procedures or conditions change;
- Performing periodic field audits, soliciting feedback, and reporting to key shareholders any findings that warrant corrective actions;
- Providing regulatory and safety expertise on LOTO to those Ops Managers, Managers, Supervisors, affected employees, and/or other UNH community members as necessary; and
- Providing and/or coordinating training for affected and authorized employees.

**B. Principal Authorized Employee**

Principal Authorized Employees are responsible for the day-to-day implementation of the UNH LOTO program for their individual department. The Principal Authorized Employee responsibilities will include:

- Ensuring that Equipment Specific Hazard Assessment/Procedure forms are, or have been completed for equipment or machinery prior to the initiation of servicing or maintenance;
- Ensuring that authorized employees under their direction implement the appropriate LOTO procedures for assigned tasks;
• Coordinating and/or conducting annual inspections of LOTO procedures;
• Ensuring that all affected and authorized employees under their direction receive the appropriate LOTO training;
• Ensuring that an adequate amount of control devices, locks, and tags are available to authorized employees under their direction;
• Ensuring that equipment and machinery under their direction are equipped with an approved means for hazardous energy disconnect;
• Coordinating LOTO operations with outside contractors and communicating scheduled LOTO activities with affected employees and, as necessary, the Facilities Control Center; and
• Logging onto FAMIS and, as necessary, running a LOTO report for the day prior to the start of their shift to provide information on any pending LOTO devices not cleared from the previous shift.

C. Authorized Employees

Authorized employees are those employees that are responsible for implementing the appropriate LOTO procedures for the tasks they have been assigned. Authorized employees shall attend all required training and demonstrate competence in LOTO procedures. Authorized employees will be responsible for the following:

• Performing LOTO procedures in accordance with the UNH LOTO program;
• Coordinating their activities with other employees and/or contractors when utilizing group LOTO procedures, and when transferring locks and tags during shift changes;
• Referring to, or completing the applicable LOTO Equipment Specific Hazard Assessment/Procedure form to assist in identifying the type and magnitude of energy sources and the applicable isolation devices as necessary;
• Understanding the hazards of the energy sources they may encounter and the consequences of failing to follow the applicable LOTO procedures;
• Participating in the periodic and/or annual inspection of LOTO procedures;
• Participating as necessary, in any investigation following a failure of an established LOTO procedure;
• Notifying all affected employees and the Facilities Call Center prior to the initiation of LOTO activities; and
• Posting “Do Not Use” signs on affected fume hoods or other engineering controls (e.g. gas cabinets, canopy exhaust, venting biosafety cabinets) when maintenance or servicing work requires shutting off system fans, electrical service to control systems or flow sensors, or other system components that may affect safe use.
D. Affected Employees

Since equipment and machinery are locked and tagged out to prevent the inadvertent injury to those required to work on them, affected employees must not attempt to operate any switch, device, or any energy isolating device that is locked and tagged out. Affected employees shall become aware of the LOTO procedures they could encounter and will be responsible for the following:

- Never attempting to defeat or bypass an applied LOTO device;
- Never attempting to operate any equipment or machinery that has an applied lock and tag;
- Obtaining the applicable training for affected employees; and
- Complying with all requirements as established for affected employees.

E. Outside Contractors

Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of the UNH LOTO program, it will be the responsibility of the UNH contracting representative/project manager and the outside contractor to inform each other of their respective LOTO procedures. At a minimum each outside contractor will be responsible for the following:

- Developing and implementing a LOTO program consistent with the requirements as outlined in the OSHA standard;
- Complying with the requirements for multi-employer worksites, and providing advance communication to UNH contract representatives/project managers prior to conducting LOTO activities;
- Ensuring the proper use of their own locks, tags, and any other required energy isolating equipment; and
- Ensuring the proper training of their authorized and affected employees in accordance with the applicable OSHA standards.
- Posting a “Do Not Use” sign on affected fume hoods or other engineering controls (e.g. gas cabinets, canopy exhausts, venting biosafety cabinets) when a project requires shutting off system fans, electrical service to control systems or flow sensors, or other system components that may affect safe use.

V. GENERAL REQUIREMENTS

The authorized employee conducting servicing or maintenance on equipment or machinery shall lock and tag out each hazardous energy source prior to the initiation of work activities [for LOTO operations involving more than one employee, refer to Group LOTO procedures in section VI (D)].

LOTO devices will only be removed by the authorized employee who applied them. Should an emergency arise where it is necessary to remove an applied LOTO device, the procedures in section VI (F) will be followed.
A. Equipment Evaluation and Hazard Assessments

A hazard assessment will be conducted prior to any UNH personnel conducting servicing or maintenance activities on equipment or machinery. The assessment shall identify if there is a potential for the sudden or inadvertent release of hazardous energy and include the type and magnitude of energy present and the methods to control and dissipate. Information collected during the assessment will be documented on the LOTO Equipment Specific Hazard Assessment/Procedure form located in Appendix A. All completed forms shall be maintained by the Principal Authorized Employee for their respective department and be available for all authorized employee use.

Deviations from a procedure as specified on an Equipment Specific Hazard Assessment/Procedure form will be documented and maintained as specified above. The Principal Authorized Employee will review and approve all deviations to determine if changes to an established procedure are necessary.

B. Energy Control/Isolation Devices

Lockout/tagout devices will consist of locks, tags, shackles, chains, plastic covers, or other forms of devices that will securely maintain an applied lock and tag and ensure the isolation of hazardous energy.

Those authorized employees required to conduct servicing or maintenance activities will be issued a LOTO tool box kit that will contain, or have access to, the necessary items to effectively isolate hazardous energy sources they may encounter.

LOTO tool box kits will be provided to authorized employees by their respective department. Each issued kit will be the responsibility of the authorized employee to maintain. Should an authorized employee retire, leave UNH, or transfer, the kit will be returned to the department. Any LOTO devices lost or intentionally made non-functional will be replaced at the cost of the employee. Each authorized employee receiving a LOTO tool box kit should inventory the kit on an annual basis to ensure all the issued components are present and in good condition. Departments may also maintain additional devices to assist should they be required.

In lieu of issued LOTO kits, departments may maintain, as necessary, an adequate supply of devices to allow for LOTO by their respective authorized employees, to ensure the isolation of hazardous energy sources during servicing or maintenance.

1. Locks

Locks used for LOTO purposes covered by the scope of this program will be provided to, and be available for each authorized employee through the UNH Lock Shop. All locks will be standardized and readily identifiable as a LOTO lock. All locks will be serialized prior to assignment to an authorized employee. Each authorized employee will be issued uniquely keyed locks, shall maintain the keys to their assigned locks, and will be unable to unlock another authorized employees locks. The Lock Shop will maintain the master set of
keys for the locks assigned to the authorized employees. Under no circumstance will any Authorized or Principal Authorized Employee utilize a master key to remove a lock without following the procedures for emergency removal specified in section VI (F). Should additional locks be necessary to accomplish the appropriate lockout operation the authorized employee will request additional locks prior to the start of work activities. If necessary, all extra locks issued for a specific operation will be returned upon completion of servicing or maintenance activities.

2. Tags

Tags will be utilized along with locks to alert affected employees of LOTO operations within their work area. Tags will be provided in additional languages as deemed necessary by each individual department. Tags will be distributed along with the LOTO tool box kits and will be available within each department.

Tags will be placed on each energy isolation device along with a lock to provide a clear reminder and warning to those affected employees that LOTO operations are taking place. Each tag will be made of durable construction and be able to withstand the environmental conditions within the area in which it is placed. The authorized employee conducting LOTO operations will ensure each tag placed on an isolation device contains the following:

- Authorized employee name;
- Telephone number (cell phone if applicable);
- Date of application;
- Estimated completion date; and
- Work request number, if applicable.

3. Energy-Isolating Devices

An energy isolating device is that mechanism that physically prevents the transmission or release of energy. Each equipment or machine must have a means of isolating it from its energy source(s). These include electrical disconnects, circuit breakers, and valves. Most energy isolating devices can be controlled by the application of a control device which is secured with a lock and tag, while some isolation devices are designed with a control device as an integral part. If an energy source is not equipped with a lockable energy isolating device one of the following will be implemented:

- Have a qualified person install a suitable lockout attachment on the energy-isolating device, then proceed with the LOTO process;
- Track back and locate a lockable energy-isolation device (e.g., panel board or switchboard feeding the un-lockable device) that will effectively isolate the energy source, properly isolate, lock, and tag out prior to servicing or maintenance; or
• Open (or close) and tag the energy-isolating device; assign a safety monitor to ensure that the energy remains isolated for the duration of the service or maintenance, then conduct the necessary work. The person assigned as the safety monitor shall have no other duties, nor shall he/she leave his/her station for any reason, except when formally relieved from the safety monitor duty by the authorized person conducting the servicing or maintenance.

In those circumstances where a safety monitor is used as described above, upon completion of work activities, the installation or modification of the isolation device to accept a lock will be coordinated. Non-lockable isolating devices shall be designed or modified to accept lockout devices whenever equipment is replaced, new equipment is installed, or a major modification is performed.

VI. LOCKOUT/TAGOUT PROCEDURES

A. General Lockout/Tagout Procedures

The following general procedures will be implemented during all LOTO activities.

• The authorized employee will prepare for LOTO operations by completing or reviewing the Equipment Specific Hazard Assessment/Procedure Form. The authorized employee will survey the work area and identify each of the energy-isolating device(s) that apply to the system(s) requiring isolation. Should the authorized employee be unsure of any of the energy source(s) or isolating device(s), the authorized employee will consult with the Principal Authorized Employee for the work to be conducted.

• The authorized employee will notify each affected employee of the scheduled servicing or maintenance activity and required LOTO.

• The authorized employee will contact the Facilities Control Center as necessary and provide the following information; name, system to be isolated and serviced, locks used, work request number if applicable, and any other information deemed necessary.

• The equipment or machinery will be shut down following its normal stop/shut down procedure (this will be documented on the Equipment Specific Hazard Assessment/Procedure form).

• Isolate each hazardous energy source by closing or opening the applicable isolation device. With electrical systems it may be necessary to complement LOTO with the temporary removal of fuses, circuit breakers, and/or wiring. Valves will be opened or closed, whichever is appropriate to isolate and dissipate energy within a line or piping system.

• Potential stored energy (such as residual air pressure, hydraulic pressure, energy associated with springs, elevated systems, residual chemical materials, heat, gas, etc…) will be dissipated and controlled. This can be accomplished by ensuring chemicals lines are drained and the materials contained, hydraulic and pneumatic systems are brought to 0 psi,
residual energy associated with the release of hydraulic, pneumatic, gravity, or protection from mechanical energy such as springs must be blocked in position.

- Secure each energy isolation device with an assigned lock and tag.
- Once each hazardous energy source has been identified, controlled, and all residual energy dissipated, the authorized employee will verify the effectiveness of LOTO efforts by attempting to start or operate the equipment or machinery. This will be performed by operating the controls and attempting to energize. In addition it may require the testing of electrical circuits to ensure electrical service(s) have been properly isolated. Once verification of isolation is complete, the authorized employee must ensure that all operating controls are placed back to “neutral” or “off” positions.

**B. Restoring Equipment or Machinery to Service**

When work on equipment or machinery is complete and ready for normal operations the following steps will be conducted:

- The authorized employee will reinstall any and all safety guards and devices.
- The work area will be inspected to ensure that all non-essential personnel and items have been removed from the work area and that the equipment or machine components are operationally intact.
- After all safety guard and devices have been reinstalled and all tools and non-essential personnel removed from the work area, the authorized employee will remove their applied locks and tags.
- Upon removal of each lock and tag, each isolation device will be activated to energize the equipment or machinery.
- The authorized employee will then operate the equipment or machinery to ensure its proper operation.
- The authorized employee will notify each affected employee of the completion of LOTO activities and the return to service of the equipment or machinery.
- The authorized employee will notify the Facilities Control Center as necessary on the completion of LOTO activities.

**C. Testing Equipment and Machinery (Temporary Removal)**

Under those circumstances where a lock and tag must be temporarily removed from an energy isolating device(s) and the equipment or machine energized to test or position, the following sequence of actions shall be followed:

- Clear the equipment or machine of tools and materials and have all non-essential personnel leave the work area.
- Remove the necessary locks and tags from the energy isolation devices.
- Energize the equipment or machinery and proceed with testing or repositioning.
• Upon completion of testing or repositioning, de-energize all systems which have been temporarily activated, reinstall locks and tags, drain any residual energy, and continue with servicing or maintenance.

D. Group Lockout/Tagout Procedures

When service or maintenance is performed by a crew, department, or other groups working together, the procedures used shall afford those personnel a level of protection equivalent to that provided by individual LOTO operations. Group LOTO procedures shall adhere to the following requirements.

• In situations where more than one authorized employee is involved in a LOTO operation, a designated authorized employee will be selected and will be responsible for the identification of hazardous energy sources, their isolation, and the verification of the shutdown. The designated authorized employee will provide each authorized employee participating in the group LOTO effort the opportunity to review and confirm the identification, isolation, and verification of the shutdown prior to servicing or maintenance. The designated authorized employee will also ensure that all authorized employees have removed their locks and tags from the group LOTO device and the equipment is clear prior to re-energization and start-up.

• Once identified and isolated, each authorized employee will place one of their locks and tags on each of the isolation devices. Multi-lock hasps may be necessary to accommodate multiple locks and tags.

• When an energy isolating device is not capable of accepting multiple locks and tags, a lock-box shall be utilized. Each energy isolating device will be locked out by a designated authorized employee and the key will be placed into the lock-box. Each authorized employee conducting servicing or maintenance on the isolated equipment or machinery will then secure their lock on the lock-box, securing the key(s) for the applied lock(s). As each authorized employee is no longer required to maintain their lock as part of the servicing or maintenance activity, they will remove their lock from the lock-box. When servicing or maintenance is complete, the designated authorized employee will remove their lock from the lock box, remove the key from the lock-box, and proceed to energize the equipment or machinery in accordance with the Restoring Equipment or Machinery to Service procedure as outlined in section VI (B).

E. Shift or Personnel Changes (Lockout Device Transfer)

Should an authorized employee partially complete their LOTO operation and their shift come to an end, they will leave the equipment or machinery under LOTO conditions until they return the next day to complete the assigned servicing or maintenance. Should it be determined that the work will continue and be transferred to another authorized employee, LOTO continuity will be maintained. To maintain LOTO continuity, an orderly sequential transfer of locks and tags shall be performed.

• During personnel changes the on-coming authorized employee will apply their lock(s) and tag(s) onto each isolation device prior to the off-going authorized employee removing their
lock(s) and tag(s). This will ensure that LOTO continuity is maintained during the shift change. In addition, the off-going authorized employee must inform the on-coming authorized employee of the status of the servicing or maintenance. The on-coming authorized employee will, if necessary, contact the Facilities Control Center and inform them of the change of status for the LOTO operation.

- As part of the shift change, on-coming Principal Authorized Employees will log onto FAMIS and, as necessary, run a LOTO report for the day. This will provide them with information of any LOTO operations in progress or pending that will take place during their shift.

**F. Emergency Removal**

Applied locks and tags shall only be removed from an energy isolation device by the authorized employee that applied them. However, under emergency conditions the following procedure may be applied.

- Should it be determined that an applied lock(s) and tag(s) must be removed, all efforts to contact the authorized employee who applied them will be made by the Principal Authorized Employee. If the authorized employee is contacted, the Principal Authorized Employee may remove the lock(s) and tag(s) only after it is determined it can be performed safely after consultation and approval by the authorized employee who initially applied them.

- Should the authorized employee who applied the lock(s) and tag(s) not be available, the Principal Authorized Employee will review options for leaving the equipment or machinery under LOTO conditions until the authorized employee who installed the lock(s) and tag(s) returns for their next scheduled shift. Should it be determined that the lock(s) and tag(s) must be removed, the Principal Authorized Employee will review the equipment or machinery and the servicing or maintenance status with any individuals (e.g., operators, other facilities or trade personnel) necessary to determine if their removal can be performed safely. If it cannot be determined, the equipment or machinery will remain under LOTO conditions until the authorized employee returns or is contacted. If it is determined that removal of the applied lock(s) and tag(s) can be done safely, it will be conducted by another authorized employee under the direction of the Principal Authorized Employee. All emergency removals will be documented on the Emergency Lock Removal Form located in Appendix B. The form will be completed with a copy forwarded to OEHS. These will be used as part of the annual review of the LOTO program. If additional work is to be conducted, lock(s) and tag(s) will be applied by the new authorized employee conducting the servicing or maintenance.

- The Principal Authorized Employee will, if necessary, contact the Facilities Control Center and inform them of the change in LOTO status.
G. Contractor Requirements

Outside contractors that engage in activities covered by the scope of the UNH LOTO program shall be responsible for the application of their own locks and tags on equipment or machinery for which they have been retained to perform servicing or maintenance activities.

The UNH contracting representative and the outside contractor will inform each other of their respective LOTO program and procedures. The UNH contracting representative shall ensure that all affected employees impacted by an outside contractor’s LOTO operations are notified of the scheduled activities. In addition should outside contractors scope of work involve impacting laboratory ventilation systems the UNH contracting representative will post a “Do Not Use” sign on an affected fume hood or other engineering control (e.g. gas cabinet, canopy exhaust, venting biosafety cabinet) when work requires shutting off system fans, electrical service to control systems or flow sensors, or other system components that may affect safe use.

The outside contractor will ensure that their employees understand and comply with the restriction and prohibitions of their LOTO program and understand the provision of the requirements outlined in the UNH LOTO program.

Outside contractors that do not have a LOTO program shall not be permitted to work on equipment or machinery that is subject to the OSHA Lockout/Tagout standard.

Should work conducted by an outside contractor involve UNH personnel, the provisions outlined in Section VI (D), Group Lockout/Tagout Procedures will be adhered to.

H. Out of Service

Any equipment or machine that is to be isolated for an extended period of time will be removed from service. This will be accomplished by physically disconnecting it from all hazardous energy sources and placing an “Out of Service” tag on the equipment or machinery.

VII. TRAINING

Training will be provided for those UNH authorized and affected employees. Training will be provided prior to those employees covered by the scope of the UNH LOTO program initiating work activities that would require the need for LOTO, or be exposed to servicing or maintenance activities where LOTO may take place.

A. Authorized Employees

Authorized employees will receive training prior to being assigned servicing or maintenance activities that could potentially expose them to hazardous energy sources. The training will be a combination of classroom lecture and/or hands on exercises to ensure those required to perform LOTO activities can affectively recognize, isolate, control, and verify hazardous energy sources. Training for authorized employees will include, but not be limited to the following:
• Purpose and function of the UNH LOTO program;
• Review of the OSHA LOTO standard;
• Recognition of hazardous energy sources to include type and magnitude;
• Methods and means to control hazardous energy sources; and
• The requirements and procedures for effective LOTO as specified in the UNH LOTO program.

B. Affected Employees

Affected employees will be instructed on the purpose and use of LOTO procedures used within their areas.

All other employees that work in an area where LOTO procedures may be used will be instructed on the purpose of LOTO, the procedures used, and about the prohibitions related to attempts to bypass an applied LOTO device, or attempts to restart/reenergize equipment or machinery while locked and tagged out.

Training for affected and other employees will be provided through live classroom instruction or web based training modules.

C. Retraining

Retraining will be conducted whenever there are changes in job assignments, new equipment or machinery installed, changes in LOTO procedures, or if there is reason to suspect employees do not fully understand the LOTO procedures.

VIII. PROGRAM REVIEW AND INSPECTIONS

At a minimum an annual inspection of the energy control procedure will be conducted to ensure that the energy control procedure is appropriate, provides an assurance for the shutdown of equipment or machinery and the identification and control of hazardous energy sources, and that Authorized Employees are complying with the provisions of the program. Inspections will include the following:

• An authorized employee other than the one(s) utilizing the energy control procedure shall perform the inspection.
• The inspector shall inspect and verify the effectiveness of the energy control procedures.
• The inspection shall include a review between the inspector and the authorized employee of their responsibilities under the LOTO procedure being inspected.
• Where tagout is used exclusively, the inspector shall review the energy control procedures with all affected and authorized employees to assess its effectiveness.
Deficiencies identified during the inspection shall be documented by the inspector and forwarded to the Principal Authorized Employee and OEHS. All deficiencies shall be corrected and, as necessary, the UNH LOTO program amended.

Records of all inspections will be maintained on file with OEHS with copies forwarded to the Principal Authorized Employee.

IX. RECORDKEEPING

Completed Emergency Lock Removal and Equipment Specific Hazard Assessment/Procedure Forms will be maintained by the originating department. A copy of each shall be forwarded to OEHS for retention and use during program reviews and training.

Documentation of the annual review will be maintained by the Principal Authorized Employee conducting or coordinating the review, with copies forwarded to OEHS.

Attendance records for employee initial and any subsequent training shall be preserved and maintained in OEHS.
Appendix A
Equipment Specific Hazard Assessment/Procedure Form
Appendix B
Emergency Lock Removal Form