Energy Control Program
(Lockout/Tagout)
This written program and attached procedures will be reviewed at a minimum annually per Colby College policy or as required under the Occupational Safety and Health Administration (OSHA) Hazardous Energy Control (Lockout/Tagout) Standard (29 CFR 1910.147). The program and procedures are amended as necessary to address workplace changes which affect lockout/tagout (LOTO) procedures, including but not limited to the following:

- Machine, equipment or process changes that present a new hazard;
- LOTO procedure changes and/or;
- Identified program or procedure deviations or inadequacies.

When possible, revisions to this written program are made in the same month as the annual LOTO training.

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<td>3/2015</td>
<td>Wade Behnke / Colby College</td>
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<td>Wade Behnke / Colby College</td>
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TABLE OF CONTENTS:
1.0 PURPOSE
2.0 SCOPE
3.0 REFERENCE DOCUMENTS
4.0 DEFINITIONS
5.0 RESPONSIBILITIES
6.0 PROCEDURES
7.0 RECORDS
8.0 ENFORCEMENT

APPENDICES:
Appendix A: Training Documentation Form
Appendix B: Training Quiz
Appendix C: LOTO Procedure Annual Inspection Form
Appendix D: LOTO Equipment Specific Procedures
1.0 PURPOSE
1.1 The purpose of this LOTO Program (Program) is to establish safe work procedures to protect Colby College employees and contractors from injuries related to the unexpected energization, start-up, or release of stored energy from machinery or equipment. The Program complies with the requirements of Occupational Safety and Health Administration (OSHA) Regulation 29 CFR 1910.147, The Control of Hazardous Energy (lockout/tagout) and OSHA Regulation 29 CFR 1910.333 Selection and Use of Work Practices (Electrical Standard).

2.0 SCOPE
2.1 The Program applies to all Colby College employees working in, on or around machines or equipment during repair, service, maintenance, installation, unguarded operation and inspection. The program applies to all Colby College employees and vendors who are required to service or maintain machines and equipment or are affected by the service work. The scope of this Program does not include employees operating equipment/machinery to perform the machineries intended function in normal production operations. The program also does not apply to the service and maintenance work at Colby College on cord and plug equipment when the plug remains under direct control of the employee conducting the service or repair.

3.0 REFERENCE DOCUMENTS
3.3 Training Documentation Form (Appendix A)
3.4 Training Quiz (Appendix B)
3.5 LOTO Procedure Annual Inspection Form (Appendix C)
3.6 LOTO Equipment Specific Procedures (Appendix D)

4.0 DEFINITIONS
4.1 **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.

4.2 **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 Program.

4.3 **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.

4.4 **Deenergized:** Isolated or disconnected from the energy source and all stored energy has been dissipated.

4.5 **Direct Control:** Within reach and under the control of the employee at all times.

4.6 **Dissipated:** The controlled release of restricted movement of all electrical, thermal, mechanical, hydraulic, pneumatic, chemical, gravitational or other stored energy.

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

4.8 **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.

4.9 **Energy source:** Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy which may pose a hazard to employees.

4.10 **Equipment/Machinery:** A general term used for an assembly of materials/parts used to transmit forces, motion, and energy in production operations as pertains to this procedure.

4.11 **Group Lockout Box:** A lockout device that allows multiple personnel to apply their locks to the same piece of equipment.

4.12 **Identifiable:** In terms of the LOTO Program relates to the specific locks, tags and devices which must be standardized and in at least one of following criteria; color, shape or size.

4.13 **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.

4.14 **Lockout device:** A LOTO specific (identifiable) 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.

4.15 **LOTO Hasp:** An energy isolation device which allows multiple employees space to apply padlocks.

4.16 **LOTO:** Lockout / tagout.

4.17 **LOTO Coordinator:** At Colby College the Steam Plant Engineer in Charge and the Supervisor of Mechanical and Electrical Services are the LOTO Coordinators (see Section 5.3 and 5.4 for additional details).

4.18 **Normal Production Operation:** The utilization of a machine or equipment to perform its intended production function with all guards and protective devices in place.
4.19 **Qualified Person**: An employee familiar with the construction and operation of the equipment and the hazards involved. "Qualified Persons" are intended to be only those who are well acquainted with and thoroughly conversant in the electric equipment and electrical hazards involved with the work being performed. Note, any service maintenance work where electrical guards are removed requires a qualified person.

4.20 **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.

4.21 **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.

4.22 **Tagout device**: A program specific (identifiable), 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.

5.0 **RESPONSIBILITIES**

5.1 Responsibilities for oversight and implementation of Colby College’s LOTO program are assigned below. Identified personnel may designate tasks assigned to them to a qualified employee or vendor, as appropriate.

5.2 **Environmental, Health, and Safety (EHS) Director**
- Provide as-needed assistance to the LOTO Coordinators;
- Provide classroom training to authorized and affected employees in accordance with this Program and the OSHA standard;
- Authorize and coordinate with contractors as deemed appropriate or as requested by the LOTO Coordinator;
- Maintain the written Program;
- Implement and oversee this Program.

5.3 **Steam Plant Engineer in Charge, LOTO Coordinator (Steam Plant Only)**
- Verify that Steam Plant employees have received LOTO training and provide on the job training as needed;
- Create equipment specific procedures for all applicable equipment in the Steam Plant;
- Maintain an adequate supply of LOTO specific (identifiable) padlocks, wall switch lockouts, various breaker lockouts, valve lockouts and tags for use each time a lockout process is performed;
- Conduct or delegate the completion of annual inspection of authorized steam plant employees, (Appendix C) as required by Section 6.10 of this program;
- Coordinate the LOTO Program requirements to applicable contracted personnel and ensure that all affected employees are informed and familiar with the contractor’s submitted LOTO procedure (Section 6.9);
- Coordinate and oversee group LOTO applications (Section 6.5);
- Coordinate and oversee the company removal of LOTO devices when the authorized Steam Plant employee who applied the device is not at the facility (Section 6.8);
- Implement and enforce this Program.

5.4 Supervisor of Mechanical and Electrical Services, LOTO Coordinator (All Authorized Colby Employees not working in the Steam Plant)
- Verify that PPD employees have received LOTO training and provide on the job training as needed;
- Create equipment specific procedures for all applicable equipment at Colby College not located in the Steam Plant;
- Maintain an adequate supply of LOTO specific (identifiable) padlocks, wall switch lockouts, various breaker lockouts, valve lockouts and tags for use each time a lockout process is performed;
- Conduct or delegate the completion of annual inspection, (Appendix C) as required by Section 6.10 of this program;
- Coordinate the LOTO Program requirements to applicable contracted personnel and ensure that all affected employees are informed and familiar with the contractor’s submitted LOTO procedure (Section 6.9);
- Coordinate and oversee group LOTO applications (Section 6.5);
- Coordinate and oversee the company removal of LOTO devices when the authorized employee who applied the device is not at the College (Section 6.8);
- Implement and enforce this Program.

5.5 Affected Employees
- Complete awareness training on the LOTO Program (Section 6.11);
- Never remove or interfere with a LOTO application or attempt to start equipment/machinery that has been LOTO;
- Comply with the requests of Supervision and Authorized Employees with regards to safety during the completion of LOTO procedures in affected work areas.

5.6 Authorized Employees
- Follow applicable equipment specific LOTO procedures to ensure the effectiveness of this Program during service and maintenance work;
- Attend and participate in LOTO training for authorized employees.

5.7 Outside Contractors
- When servicing Colby College operated equipment, the contractor will submit their energy control procedures, in writing, to either the EHS Director, LOTO Coordinator or Project Manager. Note, this applies only to equipment under
the control of Colby employees and would not apply to new construction that has not been turned over to the college;

- Comply at all times with all requirements of this Program and OSHA LOTO regulations (Reference 3.1 and 3.2).
- Comply with the safety requirements in Colby College’s Contractor Handbook.

6.0 PROCEDURE

6.1 Preparation for LOTO (authorized employees only)

- **Step #1**: Notify the LOTO Coordinator that LOTO is going to be utilized, and reason for the lockout;
- **Step #2**: Perform a survey of the area and machine/equipment which will be serviced;
- **Step #3**: If available, refer to the equipment-specific procedure, Attachment F, to check the type, magnitude, hazards of the energy and methods to lockout/tagout. Verify that the equipment specific procedure is up-to-date and all potential hazardous energy sources are addressed. If an equipment specific procedure has not been developed or is inaccurate, contact the LOTO Coordinator and do not attempt to work on the equipment until the procedure is drafted or modified; and
- **Step #4**: Obtain the sufficient number of locks, tags and devices to perform the job.

6.2 LOTO Application (authorized employees only)

- **Step #1**: Notify all affected employees in the general area that LOTO is going to be utilized, and reason for the lockout;
- **Step #2**: If the equipment is in operation shut it down by the normal stopping procedure (e.g. depress the stop button, open switch, etc.);
- **Step #4**: Deactivate the energy isolating device so that the machine/equipment is isolated from the energy source;
- **Step #5**: Apply the energy isolating devices, using assigned locks, applicable devices and danger tags. Note, tags must always be applied with the locks unless the lock is under the control of the mechanic and it is a short term maintenance activity;
- **Step #6**: Release, restrain, or dissipate (by repositioning, blocking, bleeding, etc.) any stored energy (such as in springs, elevated machine parts, hydraulic system, etc.);
- **Step #7**: Verify that energy isolation is complete, by first checking that no employee is exposed, then attempting to start the affected machinery or equipment in the normal manner. Note, when working on exposed electrical parts that operate at 50 or more volts a qualified person shall use an appropriately rated test meter and arcflash PPE to verify that all parts have been deenergized. If greater than 600 volts the meter will be checked for proper operation after use; and
Step #8: After testing, return all operation controls to the "neutral" or "off" positions.

6.3 Removal of LOTO Devices (authorized employees only)
- Step #1: After service or maintenance is complete, check the area to ensure that the components are operationally intact and employees are safely positioned or removed from the danger area;
- Step #2: Remove all tools and repair equipment;
- Step #3: Ensure that all guards have been replaced and all safety interlocks reactivated (if so equipped);
- Step #4: Verify that the operating controls are in the "off" or neutral position;
- Step #5: Notify affected employees of the completion of maintenance and that the equipment can be returned to normal operation;
- Step #6: Remove all lockout and tagout devices; and
- Step #7: Activate the energy isolation devices to restore energy.

6.4 Temporarily Removal of LOTO Devices for Testing of Equipment (authorized employees only)
- The LOTO device will be removed per Section 6.3 (Steps #1 through #7);
- Energize and test the equipment as needed; and
- Deenergize all systems and reapply LOTO per Section 6.2. (Step #1 to Step #8) if required.

6.5 Group LOTO
- When servicing and/or maintenance is performed simultaneously by more than one employee on the same piece of equipment, each employee shall follow the requirements listed in Sections 6.1, 6.2, 6.3 and 6.4 (if required) and affix individual locks and or tags to the energy isolating devices. In the event multiple LOTO devices will not fit on the isolating device, a multiple lock attachment hasp or group lockout box may be used.
- If more than one group will be engaged in simultaneous LOTO on the same equipment/machinery, the LOTO Coordinator will oversee the service/maintenance work to ensure continuity of LOTO protection.

6.6 Tagout Only Procedure
- At this time all equipment/machinery at Colby College can be fully locked out and the use of tags only is not permitted. In event of an equipment change and tag out only is required, all affected and authorized employees will be trained in on the limitations of tags.
- As a precaution, it is Colby policy that when servicing cord and plug equipment to tag the plug during the maintenance work. The plug, however, always remains under the control of the technician throughout the service work.

6.7 LOTO Procedure During Shift or Personnel Change
- Orderly transfer LOTO device protection between off-going and oncoming employees to ensure the continuity of LOTO protection;
- The departing workers must not remove their locks until the arriving workers have attached theirs.
Locks may be left in place overnight or weekends when no authorized personnel are working on the equipment.

6.8 Removal of LOTO Devices by the College

- Only the authorized employee who applied the LOTO devices will be permitted to remove them under normal service/maintenance LOTO operations.
- When the authorized employee who applied the LOTO devices is not available to remove it, that device may be removed under the direction of the LOTO Coordinators.
- The LOTO Coordinator or designee will verify that the employee who applied the LOTO devices is not at the facility.
- The LOTO Coordinator or designee will attempt to contact the employee who applied the LOTO devices to inform them that the LOTO device will be removed.
- If the employee cannot be contacted, the LOTO Coordinator or designee will ensure that the employee who applied the LOTO device is notified that the device has been removed before they resume work at the facility.

6.9 Application of LOTO by Outside Contractors

- Contractors may manage their own LOTO program provided that they meet the requirements listed in Section 5.7.
- In certain situations equipment will be locked out by the Colby College for outside contractors. If Colby must lockout equipment for a contractors, the LOTO Coordinator will complete the lockout following the procedures listed in this plan (Section 6.1 and .2). In addition the following steps will also be completed.
  - The key to the lock will be placed in a group lock box and a second lock will be placed in the group lock out slots by the LOTO Coordinator.
  - Following the initial lockout by the LOTO Coordinator, each contracted employee will apply their lock to the group box and verify absence of hazardous energy. At this point the LOTO Coordinator will not be able to reenergize the equipment until all contractor locks are removed.
  - When maintenance work is complete and all contractor locks have been removed from the group lockout box, the LOTO Coordinator will verify that all service work is done, return the equipment to service following the procedure in Section 6.3, and remove their lock.

- Contractors failing to adhere to these requirements or the provisions of the OSHA Hazardous Energy Control standard will be immediately asked to terminate their work until their program is brought into compliance.

6.10 LOTO Procedure Inspection and Review

- At least annually, each LOTO Coordinator or a qualified, authorized designee will verify the effectiveness of the LOTO Program. The inspection will be carried out through unannounced audits.
The inspector will review the Equipment Specific Procedure in Appendix D (if applicable) and observe the application of the LOTO procedure by all authorized employees involved during a single service/maintenance operation.

The authorized inspector must not be involved in the service/maintenance operation or LOTO application.

This inspection will be certified and documented by the inspector using a LOTO Program Inspection form. (Appendix C).

These inspections are to ensure that the LOTO procedures are being properly used, and to verify the continued adherence to the Program. The LOTO Coordinators will certify that the prescribed inspections have been performed. Any deficiencies must be corrected immediately, either by modification of the Program, or equipment specific procedure, retraining of employees, or a combination of both.

### 6.11 Training

- Colby College authorized employees receive LOTO training from the EHS Director.
- Affected employees will be trained by their primary supervisor.
- Both authorized and affected employees receive LOTO training on the following elements:
  - The basic requirements of the LOTO Standard; and
  - Hazards related to attempting to remove a LOTO device or restart or re-energize equipment that has been locked or tagged out and that doing so is prohibited.

- Authorized employees who perform machine/equipment service work and will be applying LOTO devices receive additional training on the following elements.
  - The recognition of applicable hazardous energy sources;
  - Colby College’s LOTO Program specifics;
  - Limitation of tags;
  - The type and magnitude of the energy available in the workplace; and
  - The methods and means necessary for energy isolation and control.

- Affected and Authorized Employees Training Frequency
  - Training is required annually per Colby College policy;
  - Whenever there are pertinent changes in the job assignments;
  - Whenever there are changes in the machine/equipment or processes that present a new energy hazard;
  - Whenever there are changes in the LOTO procedures; and
  - Whenever an employee’s knowledge or use of the LOTO procedures demonstrates deviations or inadequacies.

- Names of employees who have received appropriate LOTO training will be documented on the Training Documentation Form (Appendix A).
7.0 RECORDS

7.1 Current copies of this plan will be maintained by each LOTO Coordinator and the EHS Director.

7.2 Training records will be retained by the EHS Director until the next training is received by the employee (Appendix A, Training Documentation Form & Appendix B, Training Quiz).

7.3 The Annual LOTO Procedure Annual Inspection Form (Appendix C) will be maintained by the EHS Director for a minimum of three years.

8.0 ENFORCEMENT

8.1 Colby College employees who fail to follow the responsibilities and procedures described in this Program will be subject to disciplinary action.
APPENDIX A: TRAINING DOCUMENTATION FORM

This form should be completed during each LOTO training session delivered.
Purpose: This training was presented to the employees (listed below) of Colby College, Waterville, Maine facility for the purpose of understanding and implementing the requirements of:


Training Date and Location: This training program was presented on ____/____/____ at Colby College, Waterville, Maine.

Instructor:

<table>
<thead>
<tr>
<th>Employee Name</th>
<th>Department/Title</th>
<th>Signature</th>
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APPENDIX B: TRAINING QUIZ

The Training Quiz will be taken by all employees following the classroom training.
Control of Hazardous Energy (LOTO) Quiz
Name: _____________________________
Date: _____________________________

1) The purpose of the LOTO standard is to:
a. Prevent injuries from the unexpected start-up of equipment  
b. Prevent new employees from working on equipment until they have been trained  
c. Prevent locks and tags from getting rusty

2) Name a piece of equipment at Colby that requires a written equipment specific LOTO procedure.
___________________________________________________________________________________________

3) Where can you find the written equipment specific LOTO procedures?
___________________________________________________________________________________________

4) Which of the below is not an example of activities covered under the LOTO standard?
a. Repairing equipment  
b. Starting equipment at the beginning of the shift  
c. Unjamming objects during normal production operations that does not require special equipment or bypassing guards

5) True or False?
All Colby employees can perform lockout/tagout procedures.

6) What must an employee do prior to shutting down equipment?
a. Notify affected and other personnel about the shut down  
b. Become familiar with all energy sources  
c. Both A & B

7) An energy isolating device:
a. Determines the type of energy associated with a piece of equipment  
b. Prevents the flow of energy from the power source to the equipment  
c. Both A & B

8) True or False?
Only authorized employees can attach or remove locks and tags.

9) True or False?
One set of energy control procedures will work for all equipment
10) If you find a lock/tag on a piece of equipment you should
   a. Avoid it
   b. Remove it if you need to operate the equipment
   c. Both A & B

11) Which two of the following are requirements of LOTO devices?
   a. They should have standardized color, shape and size
   b. They should not be used for other purposes
   c. They should be identical for everyone

12) True or False?
   The use of tags instead of locks is not allowed at Colby College

13) After the LOTO procedure is complete, how can you verify the equipment is deenergized (safe)?
   a. Attempt to turn the equipment on.
   b. Place a tag on the equipment.
   c. Ask another employee to watch the process

14) Which two of the following should be done by authorized employees prior to removing locks and tags?
   a. Inform other employees
   b. Replace safety guards
   c. Turn the power back on

15) True or False?
   In a group lockout/tagout situation, the LOTO Coordinator is the only one required to lockout the equipment.
Control of Hazardous Energy (LOTO)

Answers to Quiz

1. A
2. _________________
3. _________________
4. B
5. False
6. C
7. B
8. True
9. False
10. A
11. A and B
12. True
13. A
14. A and B
15. False
APPENDIX C: LOTO PROCEDURE ANNUAL INSPECTION FORM

This form is used to document all the annual certified inspections of LOTO procedures.
# Annual Inspection Checklist of LOTO Procedures

<table>
<thead>
<tr>
<th>Location:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Equipment:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Name of Inspector:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Signature of Inspector:</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 A)</td>
<td>Has there been a change in job assignments, machines, equipment or processes?</td>
<td></td>
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</tr>
<tr>
<td>1 B)</td>
<td>If so, have employees been re-trained when job assignments, machines, equipment or processes have changed?</td>
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<tr>
<td>2</td>
<td>Are the locks uniquely identified, uniquely keyed, and only used for the purpose of LOTO?</td>
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<tr>
<td>3</td>
<td>Does the tag used with the lock identify the worker servicing the machine or equipment?</td>
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<tr>
<td>4</td>
<td>Has equipment and machine-specific LOTO procedures been documented in writing?</td>
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<tr>
<td>5</td>
<td>Does the employee know where the written LOTO procedures are located?</td>
<td></td>
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<tr>
<td>6</td>
<td>Does the employee notify affected employees and all other employees in the area before starting the LOTO procedure?</td>
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<tr>
<td>7</td>
<td>Can the employee identify all hazardous energy sources and associated hazards for the equipment or machine to be locked out?</td>
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<tr>
<td>8</td>
<td>Does the employee follow the proper LOTO procedures for de-energizing the equipment or machine?</td>
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<tr>
<td>9</td>
<td>Does the employee demonstrate the proper steps for the placement, removal and transfer of LOTO devices?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Does the employee use the proper methods to verify the equipment or machine was de-energized?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Before releasing the machine or equipment from LOTO, does the employee do the following:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A)</td>
<td>Inspect the machine or equipment to ensure it is operationally intact?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B)</td>
<td>Ensure that all employees are safely positioned?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C)</td>
<td>Notify affected employees and all other employees in the area that the LOTO devices have been removed?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>If you answered “No” to questions 2-11, has the employee been re-trained?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Annual Inspection Checklist of LOTO Procedures (Cont.)

Authorized Employees Observed (Print name)

<table>
<thead>
<tr>
<th>NAME</th>
<th>NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td>2)</td>
</tr>
<tr>
<td>3)</td>
<td>4)</td>
</tr>
<tr>
<td>5)</td>
<td>6)</td>
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<tr>
<td>7)</td>
<td>8)</td>
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<td>9)</td>
<td>10)</td>
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<td>11)</td>
<td>12)</td>
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<td>13)</td>
<td>14)</td>
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<td>15)</td>
<td>16)</td>
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<tr>
<td>17)</td>
<td>18)</td>
</tr>
<tr>
<td>19)</td>
<td>20)</td>
</tr>
</tbody>
</table>

Deficiencies Observed & Corrective Actions:
_________________________________________________________________________________________________________
_________________________________________________________________________________________________________
_________________________________________________________________________________________________________
_________________________________________________________________________________________________________
_________________________________________________________________________________________________________
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Submit copies of the completed inspection records to the EHS Director for review and filing.
APPENDIX D:  LOTO EQUIPMENT SPECIFIC PROCEDURES

The LOTO equipment list includes all equipment/machines for which LOTO procedures must be utilized during servicing or maintenance. The equipment specific procedures identify the type of hazardous energy and magnitude (if electrical) associated with each piece of equipment/machines and specific procedures for LOTO.
# LOTO Equipment Specific Inventory and Energy Audit For:

**Step 1 Describe the Machine or Equipment**

<table>
<thead>
<tr>
<th>Machine Name, Manufacturer, Model:</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Serial Number</th>
<th>Location</th>
</tr>
</thead>
</table>

**Step 2 Describe the Energy Sources**

<table>
<thead>
<tr>
<th>Electrical Energy</th>
<th>Volts</th>
<th>Phase</th>
<th>AC/DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source 4</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Potential Energy</th>
<th>Stored/ Residual</th>
<th>Dissipation Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pneumatic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hydraulic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gravity</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mechanical</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thermal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Step 3 Identify Potential Hazards**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Crushing Injury</td>
<td>Caught in Injury</td>
</tr>
<tr>
<td>Electrical Shock</td>
<td>Burns</td>
</tr>
<tr>
<td>Eye injury</td>
<td>Hearing Injury</td>
</tr>
<tr>
<td>Other:</td>
<td></td>
</tr>
</tbody>
</table>

**Step 4 Identify all Energy Isolating Devices/Disconnects**

<table>
<thead>
<tr>
<th>Type</th>
<th>Location</th>
<th>Operation</th>
<th>Lockout Capable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device 2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device 3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device 4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device 5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device 6</td>
<td></td>
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</tbody>
</table>

Insert Photos of equipment and Lockout points
A. **Shut Down Procedures:**
   1) **Notify** the LOTO Coordinator and all affected employees that LOTO is going to be utilized on the \(\text{equipment name}\), and explain why.
   2) **Shut down** the \(\text{equipment name}\) by \(\text{include narrative on how to shut down machine}\).
   3) **Isolate** the \(\text{equipment name}\) from the following energy sources and **apply** the following lockout devices.

<table>
<thead>
<tr>
<th>Device</th>
<th>Type</th>
<th>Location</th>
<th>Operation</th>
<th>Lockout Device</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device 2</td>
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<td>Device 3</td>
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<tr>
<td>Device 4</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Device 5</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

4) Complete the following to **dissipate** stored/residual hazardous energy (only if required):

<table>
<thead>
<tr>
<th>Energy Type (see page 1)</th>
<th>Method to dissipate or restrain</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5) **Check** that all potential hazardous energy sources are identified above. If additional hazards exist, contact the LOTO Coordinator before attempting to work on the equipment.
6) **Verify** that energy isolation is complete, by first checking that no employee is exposed, then attempt to operate the \(\text{equipment name}\).
7) **RETURN OPERATING CONTROLS TO THE OFF POSITION.**

B. **Restart Procedures:**
   1) After service or maintenance is complete, remove all tools and repair equipment, check the area to ensure that the components are operationally intact and employees are safely positioned or removed from the danger area.
   2) **Ensure** that all guards have been replaced and all safety interlocks reactivated (if so equipped).
   3) **Verify** that the operating controls are in the "off" position.
   4) **Remove** all lockout devices and reenergize.
   5) **Notify** affected employees of the completion of maintenance and that the Bead Blaster can be returned to normal operation.