New Paltz STATE UNIVERSITY OF NEW YORK **POLICIES AND PROCEDURES**	
DEPARTMENT: ENVIRONMENTAL HEALTH & SAFETY **SUBJECT: HAZARDOUS ENERGIES SAFETY LOCKOUT/TAGOUT (LOTO) PROCEDURE**	

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PURPOSE:

To outline the procedure for deactivating HAZARDOUS ENERGIES circuits during maintenance and preventing accidental reactivation.

REFERENCE:

OSHA; 1910.147; 1910.333 New York State Codes and Standards.

RESPONSIBILITIES

The Office of Environmental Health and Safety (EH&S):

EH&S will monitor implementation of this procedure for compliance. Non-compliance will be reported to responsible supervision for appropriate action. EH&S shall perform a periodic reviews of departmental energy control programs/practices/Periodic Inspection forms to ensure that requirements of this procedure are being followed. Non-compliance will be noted in a written report to the Department head. EH&S will develop a training module to assist Department heads and supervisors in the training of employees.

Employee:

Employees performing work tasks covered by this Lock-out/Tag-out procedure are required to comply with the requirements set forth in this procedure and training provided

Supervisors/Dept Heads:

The Supervisors of Authorized Employees have the responsibility and authority for the lockout procedure. These responsibilities include identification of equipment; selection and acquisition of lockout devices; documenting of specific instructions of Lockout tagout procedures for equipment as defined in Appendix A, design of lockout and verification procedures; designation of responsible, affected, and authorized for group lockout employees; training; and annual evaluation of program effectiveness through completion of documented periodic inspections (Appendix B).

POLICY:

A. All employees involved in the maintenance activity is personally responsible for deactivating that circuit or other hazardous energy (such as steam, chemicals, etc) padlocking and tagging the valve, breaker, knife switch etc. it is to prevent its reactivation.

B. All persons involved with the task that requires lockout/tagout are individually responsible for placing his personal lockout tag on the deactivating device.

C. Each employee working on equipment fed by the circuit places his or her personal padlock and lockout tag on the deactivated energy source before performing any work on the equipment.

D. No person may use another person's padlock unless sole control of key for said padlock is under their own control.

E. No employee may remove another employee's padlock or lockout tag (Only Supervisors in cases where original employee who affixed lock and tag has left and there is no danger associated with removal).

F. No employee may ever permit someone other than himself to remove his padlock or lockout tag.

G. No work is to be performed on equipment until tested to ensure the deactivation of the equipment via lockout tagout to ensure that equipment cannot be energized and potential energy sources secured. This should be done by:

1. Checking that no personnel are exposed;

2. Verifying the isolation of equipment by operating the push button or other normal operating controls. Secure all switches to prevent movement to the "on" or "start" position;

3. Checking pressure gauges to ensure de-pressurization of lines; and

4. Inspecting electrical circuits to confirm zero voltage.

H. No circuit may be reactivated until each employee who originally padlocked it has personally removed his padlock and lockout tag and the work area has been inspected to ensure that no one will be endangered when the circuit breaker is turned on or the equipment on the circuit is started.

I. Push-button switches may not be used as a substitute for the lockout procedure.

J. Violations of any part of this lockout procedure constitute grounds for disciplinary action.

*Generic LOCKOUT TAGOUT PROCEDURE

*for equipment with a single recognizable source of hazardous energy (more complicated equipment require specific instructions to be accessible and employee doing said maintenance has read and understood specific procedures, (see appendix A for specific Lockout/tag procedure instruction form to

be completed for these):

1. Turn off the circuit breaker, disconnect, valve, or block.

2. Secure the deactivated circuit breaker, disconnect or chemical/steam/water valve with your personal padlock adapter and padlock.

3. Release stored or residual energy, such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems and pressurized systems (air, gas, steam, or water). If energy is incapable of being released, the employee shall reposition, block or utilize some other protective measure to prevent the release of residual energy while service is in progress. Such as blocking or blanking.

4. Place your personal lockout lock and tag on the deactivated circuit breaker, disconnect, or valve.

5. Verify that the equipment is safely locked out by ensuring hazardous energies are not still supplied to equipment by best safety means such as Test the deactivation of the equipment to ensure that equipment cannot be energized and potential energy sources secured. This should be done by:

   a) Checking that no personnel are exposed;

   b) Verify the isolation of equipment by operating the push button or other normal operating controls. Secure all switches to prevent movement to the "on" or "start" position;

   c) Check pressure gauges to ensure de-pressurization of lines; and

   d) Inspect electrical circuits to confirm zero voltage.

AFTER COMPLETION OF WORK

1. When your work on the affected equipment or circuit has been completed, remove your, and only your, padlock and lockout tag.

2. If any employee who has placed his padlock and/or lockout tag on a circuit breaker or disconnect cannot be located, contact a Supervisor must remove lock/tag.

3. Reactivate the circuit only after each employee has personally removed his padlock and lockout tag (or a Supervisor has removed another employee's padlock) and the work area has been inspected to ensure that no one will be endangered when the energy source turned on or the equipment on the circuit is started.

4. If you lose your padlock or lockout tag, report the loss to your Supervisor immediately and obtain a new padlock or tag from him/her.

Note: **Specific instructions** (see template Appendix A) shall be developed for the locking and tagging of

machinery or equipment under the following conditions:

a. When the machine being serviced has the potential for stored or residual energy, or the re-accumulation of stored energy after shut down;

b. When the machine has multiple energy sources;

c. When the isolation and locking of the machine will not completely deactivate it;

d. When the machine cannot be locked out;

e. When a single lockout device will not achieve a lockout condition; or

f. When the lockout device will not be under the exclusive control of the authorized employee performing the service.

Periodic Inspection

To ensure that the energy control procedures continue to be implemented properly, that the employees are familiar with their responsibilities, and that any deviations or procedural inadequacies that are observed are corrected. At least annually an authorized employee not involved in the energy control procedure being inspected shall perform and document a periodic inspection of a LOTO procedure.

The documented periodic inspection shall include:

- Identify machine on which the procedure was utilized.
- Date of inspection
- Identify the employees included in inspection.
- Identify person who performed the inspection.
- The employer must identify any deficiencies or deviations and correct them.
- Where lockout is used, the inspector must review each authorized employee's responsibilities under the procedure with that employee (group meetings are acceptable).
- Where tagout is used, the inspector must review both the authorized and affected employee's responsibilities with those employees for the energy control procedure being inspected, and the employee is adequately trained to perform the tag out application.
- The employer must certify that the periodic inspections have been performed.

NOTE: Attached to this document is the Periodic Inspection Form (Appendix B) to be used to document the periodic inspection

TRAINING AND COMMUNICATION

All authorized (performs lockout) and affected (uses equipment) employees shall be trained in the purpose and function of the energy control program. Authorized employees will be given the knowledge and skills required for the safe application, usage, and removal of energy controls. In

addition, all other employees who may be in an area where energy controls are being used will be instructed on the procedure and about the prohibitions relating to re-starting or re-energizing locked out or tagged out equipment. When tagout systems are used, employees will also be trained in the limitations of tags. Records will be kept by the Department Head or Lead Mechanic. Retraining will be provided when personnel changes, machine changes, process or energy control procedure changes occur, or if the employer suspects or the program review indicates inadequacies in employee knowledge or skills as indicated by the annual periodic inspection of employees (appendix B).

DEFINITIONS:

1. AFFECTED EMPLOYEE – An employee whose job required him/her to operate of use a machine or equipment on which servicing is being performed under the lock-out/tag-out program, or whose job requires him/her to work in an area where such servicing is being performed.

2. AUTHORIZED EMPLOYEE – A person who locks or tags out machines or equipment in order to perform work on that machine or equipment.

3. LOCKOUT - Condition in which the electrical power or other energy source (steam, chemical, stored energy, gravity etc) is disconnected to equipment that has been turned off, and each employee working on the deactivated equipment has placed their personal padlock and lockout tag on the switch or control.

4. PADLOCK - Device placed on a deactivated energy source that makes the reconnection or activation of the energy impossible. This Lock shall be used solely for Lockout/Tagout and for no other purpose. The lock type must be easily recognized by shape, size and color.

5. LOCKOUT TAG - Tag attached to an energy source defeat containing the name of the employee working on the equipment and the nature of the work being performed. The Lockout tag shall say “DANGER Do Not Operate” (or equivalent). The tag shall be durable as well. The Lockout tag shall be used in conjunction with padlock, exceptions to this requirement must be documented to EH&S.

6. BLOCKS - Suitable blocks are another important safety device for making a piece of equipment safe to be repaired or serviced. Blocks must be placed under raised dies, lifts, or any equipment (such as fans during v-belt changes) that might inadvertently move by sliding, falling or rolling. Blocks, special brackets, or special stands such as those commonly used under raised vehicles, must be available and always used. Another form of blocking is the placement of a blind. A blind is a disk of metal placed in a pipe to ensure that point if the system is accidentally activated.

Before installing blinds or blocks, bleed down steam, air, or hydraulic lines to get rid of any pressure.

Coiled springs, spring-loaded devices, or suspended loads must also be released so that their stored energy will not result in inadvertent movement.

APPENDIX A

Template for specific Lockout tag instructions for equipment – (Page 1of 2)

This template is to be filled out for the locking and tagging of machinery or equipment under the following conditions:

- When the machine being serviced has the potential for stored or residual energy, or the re-accumulation of stored energy after shut down;
- When the machine has multiple energy sources;
- When the isolation and locking of the machine will not completely deactivate it;
- When the machine cannot be locked out;

Specific Instructions for Hazardous Machinery

Part I
MachineName:_____
Machine Serial
Number:_____
Department Name: _____
Approved by: _____
Date:_____

Part II
a. What types of hazardous energy may be present?
Circle all that apply.

Electrical Chemical Pneumatic Hydraulic Thermal Other:
_____

b. Complete Energy Check List (second page of this form)

c. Special Locking and Tagging instructions or substitute for Lockout/Tagout:
_____
____
_____
____
_____
____

Part III
Attach a diagram or photo identifying lock and tag locations:

Appendix A – Template for specific Lockout tag instructions for equipment continued – (Page 2 of 2)

II. Energy Checklists- circle that which applies

Energy Type	Hazard	Magnitude	Control Method
Electrical	Shock Burn Fire _____	110 VAC 220 VAC 208 VAC/30 ___V____A	Main Switch Plug Control Fuse Blocks Shielding
Pneumatic	Mechanical/ Pinch Points Crush Laceration Flying Debris	Moderate Slight High ___lb Force	Air Line Valve Gas Cylinder Valve Gas Line Valve _____
Chemical (Gas)	Flammable Corrosive Toxic Reactive	Slight Moderate High	Cylinder Valve Gas Line Valve
Chemical (Liquid)	Flammable Corrosive Toxic Reactive	Slight Moderate High	Valve Flange Plate
Mechanical	Shaft in Motion Moving Parts Crushing Laceration Impalement	Slight Moderate High ____ft-lb ____hp	Main Electrical Switch Plug Control Shielding Blocking Anti-Motion Pin
UV	Skin and Eye Burns	Slight Moderate High ___W/cm²@___ %	Shielding Main Switch Plug Control Circuit Breaker
Electro Magnet	Strong Field	Slight Moderate High ____Gauss	Main Switch Plug Control Circuit Breaker
Thermal	Burns	Moderate Temperature High Temperature Cryogenic ____°C	Main Switch Plug Control Steam Valve Fluid Line Valve

APPENDIX B

ANNUAL PERIODIC INSPECTION FORM

Lockout/Tagout Periodic Inspection Form Date of inspection: _____
Shop/Area: _____
Name of Equipment or Process and Procedure Reviewed: _____

Name of Employee(s) Being Reviewed (use additional sheets if necessary):

1. _____	6._____	11._____
2. _____	7._____	12._____
3. _____	8._____	13._____
4. _____	9._____	14._____
5. _____ _	10._____	15._____

Inspection Items – Review the Energy Control Procedure and employee responsibilities with the involved employees and complete the following:

	Yes	No
1. Are the steps in the energy control procedure being followed? (If no, provide a detailed description of the problem below, along with a description of any corrective action taken or planned.)		
2. Do the involved employees understand their responsibilities under the procedure? (If no, provide a detailed description of the problem and any corrective action needed below.)		
3. Are there any inadequacies in any employee's knowledge, abilities, or use of the procedures? (If yes, provide a detailed description of the problem and any corrective action needed below.)		
4. Is the procedure adequate to provide the necessary protection? (If no, provide a detailed description of the problem and any corrective action needed below.)		

Corrective Action – Use the space provided below to describe any problems identified during the inspection, along with a description of any corrective action needed. Appropriate action must be taken to ensure that the deficiencies are corrected. This may involve making changes to the procedure, providing retraining to employees, and/or taking additional steps to ensure compliance.

_____
_____
_____
_____
_____
_____

Person Conducting the Inspection:
_____

Name (Print): Signature: _____Title/Department: _____

(Keep a copy in auditable department records send a copy to EH&S)