

# Safety Manual

Subject: Lockout and Tagout Program	Number: 5-1
Date: May 1, 2017	Amends: None
Supersedes: January 9, 2014	Page 1 of 6 Pages
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## Lockout and Tagout Program

### Purpose

This program establishes the minimum requirements for the lockout and tagout of energy isolating devices. It shall be used to ensure that the machine or equipment is isolated from all potential hazardous energy, and locked out and tagged out before employees perform any servicing or maintenance activities where the unexpected energization start-up or release of stored energy could cause injury.

### Responsibilities

A. Supervisors and Managers have the primary responsibility for enforcement and compliance with the lockout and tagout program. They are responsible for:

1. Assuring training of employees.
2. Assuring issuing of locks and tags to designated employees.
3. Maintaining record of employee lockout and tagout training in the employee's personnel folder.

B. Administrator, Safety and Environmental are responsible for interpretation of this instruction, and for auditing compliance.

### Basic Rules for Using Lockout and Tag out System Procedures

All equipment not required to be energized for trouble shooting shall be de-energized and locked out and tagged out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, or other energy isolating device when it is locked out and tagged out.

### Training Requirements

A. Appropriate employees shall receive training in the recognition of hazardous energy sources, the use of adequate methods and means for energy isolation and control, and the lockout and tagout procedure. The name, job title and date of training shall be placed in the employee's personnel folder.

B. Affected employees shall be instructed in the purpose and use of the energy control procedure.

C. All other employees whose work operations are or may be affected by the energy control procedure shall be instructed about the procedure and how it affects their work operations.

D. Periodic retaining shall be provided for all authorized and affected employees whenever a periodic inspection reveals, or whenever the plant has reason to believe, that there are deviations from or inadequacies in the energy control procedure. The retraining shall reestablish

employee proficiency and introduce new or revised control methods and procedures, as necessary.

E. The plant shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain the employee's name, job title and dates of training.

### **Energy Isolating Devices**

Energy isolating devices that are used for the control of potentially hazardous energy sources, including valves, shall be marked or labeled to identify the equipment supplied and the type and magnitude of the energy being controlled, unless they are so positioned and arranged that those elements are evident.

A. Values for machines or equipment shall be permanently marked or labeled.

B. Values for pipeline network process operations shall be:

1. Permanently marked or labeled, or
2. Temporarily marked or labeled prior to each instance of initiation of work on the line.

Energy isolating devices shall be operated only by authorized employees or under the direct supervision of authorized employees.

### **Preparation for Lockout and Tag out**

Make a survey to locate and identify all isolating devices to be certain which switch(es), valves or other energy isolating devices apply to the equipment to be locked out and tagged out. More than one energy source (electrical, mechanical, or others) may be involved.

### **Sequence of Lockout and Tag out System Procedure**

- A. The authorized employee shall note the type and magnitude of energy that the machine or equipment utilizes and shall understand the hazards thereof before initiating the lockout and tagout procedure.
- B. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.)
- C. Operate the switch, valve, or other energy isolating devices so that the equipment is isolated from its energy source(s). Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as repositioning, blocking, bleeding, etc.
- D. Lockout and tagout the energy isolating devices with assigned individual lock(s) and tag(s).
- E. After ensuring that no personnel are exposed, and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate.

**CAUTION:** Return operating control(s) to "neutral" or "off" position after the test.

F. The equipment is now locked out.

- G. Place tag along side lock, blanking mechanism or etc. Tag will contain the name of employee, date and time placed employee's supervisors name, equipment and reason for locking and tagging out.

### **Restoring Machines or Equipment to Normal Production Operations**

(1) After the servicing and/or maintenance are complete and equipment is ready for normal production operations, check the area around the machine or equipment to ensure that no one is exposed.

(2) After all tools have been removed from the machine or equipment, guards have been reinstalled and employees are in the clear, remove all lockout and tag out devices. Operate the energy isolating devices to restore energy to the machine or equipment.

### **Procedure Involving More Than One Person**

In the preceding steps, if more than one individual is required to lockout and tagout equipment, each shall place his/her own personal lockout and tag out device on the energy isolating device(s). When an energy isolating device cannot accept multiple locks or tags, a multiple lockout device (hasp) may be used. A single lock may be used to lockout the machine or equipment.

### **Locks Left on Equipment**

When an employee leaves a lock and/or tag on machinery or equipment and leaves the plant, it is often necessary to remove the safety lock and/or tag prior to his/her next scheduled shift. The lock and or tag may be removed after it is determined that the employee is not in the plant and that the equipment is safe. Then the employee's immediate supervisor may secure the duplicate key from Facilities.

It is anticipated that there should be few safety locks and/or tags to remove if proper employee training is conducted.

### **Departmental Safety Locks and/or Tags and Shift Change Procedure**

Departmental safety locks and/or tags are available to lock and tagout machinery and equipment that is unsafe to operate while no one is working on it such as end of shift, awaiting parts, employee assigned to another repair, etc.

### **Facilities Departmental Safety Lock Procedures**

(1) At shift change, or when a repair becomes inactive, such as waiting on parts or manpower, the repairman will replace his personnel safety lock and tag with a Facilities Department safety lock and tag.

(2) At the start of shift, the Facilities Supervisor, or his designated representative, will go to each machine and remove the department lock and tag so the oncoming repairman can put his personal safety lock and/or tag on.

(3) The department safety lock and tag will not be removed if the repairman is not at the job site to place his personal safety lock and tag on the equipment.

(4) At the end of the shift, the Facilities Supervisor, or his designated representative will issue departmental locks and tags for equipment that is to be locked and tagged out.

## **Tags**

Tags will be placed anywhere a circuit breaker is thrown, locks placed, pipes blanked or equipment de-energized by any means. The tags contain the date, employee's name, employee's supervisor's name, equipment being de-energized and reason for placing the tag.

## **Lock Out/Tag out Hardware**

Equipment necessary for isolating, securing, or blocking of machines or equipment by authorized employees shall be supplied by their immediate supervisor. Only issued lockout/tagout devices shall be used for energy control.

The following equipment has been designated for the lockout/tagout program

Lockout Tagout kit Brady #65289

Brady safety padlocks 51389

Electrical Shop padlocks are Red and HVAC shop padlocks are black. **Keep this or omit?**

Please contact EHS to order a kit for any new employees. **Through us or Steve?**

## **Specific Equipment or Machinery Procedures Documentation**

A procedure shall be developed for all machinery or equipment that has the potential for inadvertent start-up or release of stored energy during maintenance servicing, or cleaning. Please see attachment titled "Lockout/Tagout Procedure" as a template. Immediate supervisors and authorized employees shall know how to readily access the Lockout/tagout procedures. Employees who perform maintenance, servicing, or cleaning and who may be exposed to hazardous energy sources shall have access to these forms.

When equipment is modified, changed, or replaced, the lockout/tagout procedures shall be updated. Procedures shall also be developed when new equipment is installed.

<b>NORTH CAROLINA A&amp;T STATE UNIVERSITY</b> <b>MACHINE SPECIFIC ENERGY CONTROL PROCEDURES (LOCKOUT/TAGOUT) FOR</b>		
<b>Machine/Equipment</b>		
<b>Equipment Identification</b>		
<b>Operator Controls</b>		
<b>Energy Sources:</b> <input type="checkbox"/> <b>Electrical</b> <input type="checkbox"/> <b>Steam</b> <input type="checkbox"/> <b>Pneumatic</b> <input type="checkbox"/> <b>Flywheel</b> <input type="checkbox"/> <b>Engine</b> <input type="checkbox"/> <b>Motor</b> <input type="checkbox"/> <b>Natural Gas</b> <input type="checkbox"/> <b>Hydraulic</b> <input type="checkbox"/> <b>Motor</b> <input type="checkbox"/> <b>Chemical</b> <input type="checkbox"/> <b>Stored Energy Source –</b> <input type="checkbox"/> <b>Other</b>		
<b>Identify Energy Source/Location</b> Electrical Water Steam	<b>Lockable</b> Yes Yes Yes	<b>Type Device Required</b> Padlock Padlock Padlock
<b>Shutdown Procedures:</b>		
1. Notify all affected employees of lockout		
<b>Lock Type &amp; Procedure: (example)</b>  1. Notify Production Supervisor and ALL affected personnel. 2. After completing Step 1, Shut down equipment, if running, as trained. If you are not sure how, contact your supervisor for instructions. 3. Lockout the equipment following the lockout procedure at the WET TRANSFER ON ROLLS cabinet local disconnect on the north wall. This equipment can also be locked out at MCC 19 ROW B bucket 01 in the OLD BOILER ROOM.  Note: Turn off the MAIN Air supply on the North wall to right of the ON ROLL control cabinet and lock the cover. Then isolate both surge tanks under the crossover walkway. Close and tag the ball valves before each tank. Push and lock out Dump Valves numbers 4 and 5. LOCK OUT the CROSSBELT #1 at the Crossover walkway local disconnect.  Test the equipment at the "WET END Control Panel" located on the North wall by pushing the "Green Board Transfer start" pushbutton. You can also test this equipment from the crossover pushbutton station at the WET Transfer station by pushing the START SYSTEM pushbutton.  4. After ALL previous steps have been completed, begin your work assignment. 5. After completion of the work, assure that your work area is clean, clear of ALL debris and that ALL guards are secured in place. 6. Notify the Production Supervisor and ALL affected personnel that the equipment is operational and that removal of the lock-outs will occur. 7. Remove ALL locks and tags following the Lock-Out I Tag-Out Program instructions. 8. Prior to start-up of the equipment, inspect the area to ensure that ALL employees, contractors and any other personnel are safely positioned. 9. When production is ready, verify that equipment is operating correctly. 10. Close out any applicable permit/s and return them to your supervisor.		
<b>De-energized &amp; Verified (How):</b>		

Startup Procedure	
1.	