

**Randolph Community College  
629 Industrial Park Avenue  
Asheboro, NC 27205**

**Control of Hazardous Energy  
Lockout/Tag-out Plan**

November 2022

## **1.0 PURPOSE**

The purpose of this program is to ensure that machines, equipment, and circuitry are isolated from potentially hazardous energy, whether it is thermal, electrical, mechanical, hydraulic, or chemical to provide a safe working environment for College employees. The Control of the Hazardous Energy Plan describes the necessary protection from risks posed by uncontrolled energy during servicing and/or maintenance of machines and equipment. All College personnel must comply with the requirements outlined in this document.

### **1.1 CONTROL OF HAZARDOUS ENERGY OVERVIEW**

When working on systems that could accidentally be activated, the system shall be locked out or tagged out by use of a safety lockout device and padlock. In addition, a tag shall be used to identify the purpose of the shutdown, the employee involved, the date the unit was removed from service, and when the system may operate again. Lockout or tag-out must occur before employees perform service, maintenance, or renovation. This is important where unexpected start-up could cause personal injury, fire, or equipment damage. All equipment shall be locked out where possible. Where such control is not possible, equipment may be tagged out-of-service. In all instances, equipment shall be made inoperable to protect against possible operation where such operation may cause personal injury or damage. Employees must not attempt to operate any switch, valve, or source of energy that is locked out or tagged out.

## **2.0 STANDARD OPERATING PROCEDURES**

Lockout is required on all systems where possible. A tag-out is only an acceptable means of protection on systems that are less hazardous, or if there is absolutely no way that a lock can be installed. If more than one source of energy is present, all such sources must be locked out or tagged out. Special procedures must be followed to ensure that the equipment is disconnected from an energy management system or emergency generator system that may start or energize the equipment.

If more than one person is involved in the repair, each person shall install a lock and/or tag to the equipment energy source. An employee may not use the tag or lock of another employee. The employee's supervisor shall have the only duplicate key and is the only other employee authorized to remove a lock or tag of another person.

### **2.1 APPLICATION OF CONTROL PROCEDURE**

Energy isolation and lockout/tag out are to be applied only by trained employees who understand the hazards and are authorized to perform service or maintenance. The goal of this control procedure is to achieve "Zero Energy State" and "Zero Mechanical State". Each time a circuit or piece of equipment is to be serviced, the authorized employee shall follow these 8 steps in sequence, checking them off when complete before proceeding to the next step.

## **1. NOTIFICATION**

Notify all affected employees that servicing or maintenance is required on a machine or piece of equipment and that the machine or equipment must be shut down and locked out to perform the servicing.

## **2. PREPARATION**

Authorized employees shall be knowledgeable of and use the energy isolation procedures to prepare for shutdown. This procedure includes the identification of all energy sources (types, magnitudes), the hazards of the energy to be controlled, and the method (energy isolation devices) to control energy.

## **3. EQUIPMENT SHUTDOWN**

Shut down the system by using the proper shutdown procedure. Ensure that no personnel are endangered during the shutdown.

## **4. EQUIPMENT ISOLATION**

Deactivate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s). Be sure to isolate all energy sources, including secondary power supplies. Energy can come from many different sources including: electrical, mechanical, hydraulic, pneumatic, chemical, and thermal.

## **5. ISOLATION DEVICES**

All energy isolation devices are to be locked out with the use of an attached lock, and tag. The tag must display the authorized person's name. Only standardized devices supplied by the College are to be utilized. More than one employee can lock out a single energy device by using a multiple-lock hasp. Use an appropriately designed lockout providing "attachment device" if a lock cannot be placed directly on the energy control. The authorized employee who applied the lock shall maintain the key (to the lock) in his or her possession during the time the lockout is under their control. The Maintenance Supervisor shall be responsible for the integrity of the lockout, in the event of shift or personnel changes. The integrity of the lockout/tag out protection must be respected at all times, and no one shall remove another's lock.

## **6. STORED ENERGY**

All potentially hazardous stored or residual energy shall be dissipated and restrained. This includes stored energy in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure etc. The dissipation process shall include methods such as grounding, repositioning, blocking, or bleeding down. This includes stored energy in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure etc.

## **7. VERIFICATION**

Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate. This process is also known as the “Tryout”. *Caution: Return operating controls to neutral or “off” position after verifying the isolation of the equipment.*

## **8. PERFORM SERVICE OR MAINTENANCE**

The equipment is now effectively locked out, and service or maintenance can now be safely performed.

### **2.2 RELEASE FROM CONTROL PROCEDURE**

When the service or maintenance is complete, and the circuit or equipment is ready to return to normal operating condition, the following 6 steps must be taken.

#### **1. AREA SURVEY**

Check the machine or equipment and the immediate area around the machine or equipment to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.

#### **2. PREPARATION**

Check the work area to ensure that all employees have been safely positioned or removed from the area.

#### **3. VERIFICATION**

Verify that the controls are in neutral, and that everyone is clear. (Energy must not be restored to any equipment, until this verification and notification has been successfully completed.)

#### **4. DEVICE REMOVAL**

Remove the lockout devices and reenergize the machine or equipment. Removal of the lockout device shall be removed from the energy isolating device by the employee who applied the device. When the authorized employee who applied a lockout device is not available to remove it, that device may be removed only under the agreement and direction of the Director of Facilities Operation or the Director of Safety and Emergency Preparedness. It is also necessary to adhere to all of the following minimum criteria:

- (a) Verification that the authorized employee who applied the device is not at the facility.
- (b) Making all reasonable efforts to contact the authorized employee to inform him/her that his/her lockout out has been removed.
- (c) Inform the employee that the lock or tag has been removed and the system is no longer de-energized before the employee resumes work at the facility.

*Note: The removal of some forms of blocking may require the machine to be energized before safe removal.*

## **5. VERIFY EQUIPMENT OPERATION**

Verify that the system or equipment is operating safely as intended and that all safety guards are in place.

## **6. NOTIFICATION**

Notify all affected employees that the service or maintenance is complete and the machine or equipment is ready for use.

## **2.3 SYSTEM SPECIFIC PROCEDURES**

The Standard Operating Procedures listed (in the previous section) are supplemented, where applicable, with equipment or machine specific procedures listed on a separate Lockout/Tag-out Data Sheet and kept by the Facilities Department.

**Note:** Equipment or machine specific procedures are not required or provided when all of the following exist:

- The machine or equipment has no potential for stored or residual energy or accumulation of stored energy after shut down which could endanger employees.
- The machine or equipment has a single energy source which can be readily identified and isolated.
- The isolation and locking out of that energy source will completely de-energize and deactivate the machine or equipment.
- The machine or equipment is isolated from that energy source and locked out during servicing or maintenance.
- A single lockout device will achieve a locked-out condition.
- The lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance.
- The servicing or maintenance does not create hazards for other employees.
- In utilizing this exception, no accidents have occurred involving the unexpected activation or reenergizing of the machine or equipment during servicing or maintenance.

## **3.0 PLAN ENFORCEMENT**

Enforcement is necessary to make sure workers do their part in protecting the safety of themselves, as well as others. In addition to the required annual inspections, informal or random inspections will be conducted as a part of the supervisory responsibilities of the Facilities Department. These inspections shall verify that energy control procedures are being carried out as prescribed. Enforcement of safety rules shall be fair and uniform, and the penalties for failure to comply with our energy control procedures will result in disciplinary actions being taken (up to and including immediate termination).

## **4.0 TRAINING AND AUDITS**

Employees authorized to use lockout/tag-out devices shall have initial training about this program and shall have annual audits to ensure that the employee understands and follows this program. Training shall be documented with the training records maintained by the Director of Safety and Emergency Preparedness (form located in Appendix A), and the equipment specific

data sheets (form located in Appendix B) along with the annual audits (form located in Appendix C ) will be maintained by the Director of Facilities Operation.

Training shall include the following:

- (a) Each authorized employee shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
- (b) Each affected employee shall be instructed in the purpose and use of the energy control procedures.
- (c) All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.
- (d) Supervisors shall receive training on their supervisory responsibilities.

Retraining shall include the following:

- (a) Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or process that present a new hazard, or when there is a change in the energy control procedures.
- (b) Additional retraining shall also be conducted whenever a periodic inspection reveals, or there is reason to believe that there are deviations from or inadequacies in the employees' knowledge or use of the energy control procedure
- (c) The retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures as necessary.
- (d) The trainer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

## **5.0 OUTSIDE CONTRACTORS**

Outside contractors are required to follow this policy or provide a similar policy that complies with Occupational Safety and Health Administration (OSHA) Standard 29 CFR 1910.147. Under no circumstances are outside contractors authorized to remove a College lockout/tag-out device nor are they allowed to energize a locked out/tagged out system.

## **6.0 ANNUAL REVIEW AND EVALUATION OF THE PLAN**

This Control of Hazardous Energy (Lockout/Tag-out) Plan will be reviewed and evaluated on an annual basis. The Director of Safety and Emergency Preparedness and the College Safety Committee will perform the plan evaluation. The evaluation will look at the results from the inspections and will review the requirements of 29 CFR 1910.147. After review, changes to the plan will be made as necessary.



# APPENDIX B

## LOCKOUT/TAG-OUT DATA SHEET

Equipment Description			
Equipment	Manufacturer	Model #	Serial #

<b>Equipment Actuation Control:</b>

Step No.	Hazardous Energy		Isolation Device		Control Device		Additional Hardware Required
	Type	Magnitude	Type	Location	Lock & Tag	Tag Only	
	<b>Additional Measures:</b>						

<b>Authorized Employees:</b>		

Document Control			
Verified By:	Date:	Issued:	Date:



# APPENDIX C

## EXAMPLE LOCKOUT/TAG-OUT DATA SHEET

Equipment Description			
Equipment	Manufacturer	Model #	Serial #
Automatic Drill Press	Clausing	CL-2500	CSN-5658745

<b>Equipment Actuation Control:</b> <ul style="list-style-type: none"> <li>Single button (operator controlled) actuating switch on the control panel</li> <li>A “Limit Switch” is used as an Automatic End of Cycle and Return to Top</li> </ul>
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Step No.	Hazardous Energy		Isolation Device		Control Device		Additional Hardware Required
	Type	Magnitude	Type	Location	Lock & Tag	Tag Only	
1	Electric	120 Volt	Electric Disc	Labeled ED 1	X		
2	Pneumatic	50 psi	3-way valve	Tagged PV 1	X		
	<b>Additional Measures:</b>						
2	When closed, the 3 way valve releases all the stored energy from the equipment.						

<b>Authorized Employees:</b>	John Doe	Jane Smith

Document Control			
Verified By:	Date:	Issued:	Date:
John Doe	11/5/2018	Bob Jones	11/5/2018
Jane Smith			

