

Control of Hazardous Energy Policy “Lockout/Tagout”

A. Scope

This policy establishes practices and procedures to protect employees from the hazards associated with the uncontrolled release of hazardous energy sources at work locations under the control of Goucher College and as directed by Occupational Safety and Health Administration (OSHA) Standards.

B. Applicability

This policy applies to all operations involving lockout/tagout energy control procedures that are carried out by college employees and contractors.

C. References

- 29 CFR 1910.147, Lockout/Tagout “Control of Hazardous Energy Sources”
- 29 CFR 1926.21(b)(6)(i), Safety Training and Education

D. OSHA Standard

The Occupational Safety and Health Administration (OSHA) issued a standard (Lockout/Tagout, 29CFR1910.147), effective January 2, 1990, to assure the protection of all employees from injuries resulting from the accidental restoration of stored energy during servicing and maintenance. The standard *“covers the servicing and maintenance of machines and equipment in which the unexpected energizing or start up of the machines and equipment, or release of stored energy could cause injury to employees.”*

E. General Requirements

The college must implement the basic requirements of this Lockout/Tagout policy by:

- 1) Establishing and maintaining written Lockout/Tagout (LOTO) procedures;
- 2) Training employees in the hazards from an accidental energizing or release of energy, and the proper use of the LOTO procedures; and
- 3) Inspecting for the implementation and effectiveness of these procedures.

F. Definitions

The following definitions are consistent with those included in the OSHA Lockout/Tagout Standard. All supervisors are encouraged to use this terminology during training and actual work to enhance mutual understanding by all employees involved in Lockout/Tagout activities.

- 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.
- 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 section.
- 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) Energized - Connected to an energy source or containing residual or stored energy.
- 5) 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.
- 6) Energy source - Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.
- 7) Hot tap - A procedure used in the repair, maintenance and services activities that involves welding on a piece of equipment (pipelines, 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.

- 8) Lockout - The placement of a lockout device on an energy-isolating device, in accordance with an established procedure, which ensures that the energy-isolating device and the equipment being controlled cannot be operated until the lockout device is removed.
- 9) 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 a safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.
- 10) LOTO - An acronym for lockout/tagout.
- 11) Normal production operations - The utilization of a machine or equipment to perform its intended production function.
- 12) 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 re-setting of machines or equipment, and making adjustments or tool changes, where the employee may be exposed to the unexpected energizing or startup of the equipment or release of hazardous energy.
- 13) Setting up - Any work performed to prepare a machine or equipment to perform its normal production operation.
- 14) Contractor - For the purposes of this policy, an organization, under a contract or agreement with the college, which performs a service at a college site that involves hazardous energy or material control procedures.
- 15) 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.
- 16) Tagout device - A prominent warning device, such as a tag and a means of attachment that 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.
- 17) Zero-Energy State - A condition that is reached when all energy sources to or within equipment are isolated, blocked, or otherwise relieved, with no possibility of re-accumulation. Equipment is not safe to work on until it is in a zero-energy state.

G. Program Scope

1) Covered Equipment

OSHA provides a list of specified equipment or systems for which compliance to the Lockout/Tagout Standards is required when servicing or maintaining the equipment. They include:

- Powered Industrial Trucks
- Overhead and Gantry Cranes
- Derricks
- Wood Working Machinery
- Mechanical Power Presses
- Forging Machines
- Welding, Cutting and Brazing
- Electrical Equipment

Additional OSHA standards exist for each of the items above. These standards are identified by their OSHA General Industry 29 CFR1910 paragraph numbers.

2) Excluded Equipment, Machines, Systems, or Operations

- Line breaking – Breaking of the lines of systems that contain hazardous material.
- Air and water lines – Breaking the lines of air and water systems is exempted where an accidental re-pressurization.
- Cord and plug – Work on cord and plug electrical equipment.
- Hot tap – Hot tap operations on pressurized pipeline systems of gas, steam, water, or petroleum products are exempted.

3) Covered Hazards

The following energy types at the magnitudes indicated are considered a hazard requiring the use of Lockout/Tagout protection:

- a) Chemical - Any toxic, corrosive, flammable, or explosive material in either a solid, dust, liquid, vapor, gaseous state that has the potential to cause serious bodily harm or death to an unprotected employee.
- b) Electrical - Electrical energy at or above 50 volts.
- c) Hydraulic - Pressure sources above 150 pounds per square inch (psi).
- d) Pneumatic. Pressure sources above 150 pounds per square inch (psi).
- e) Mechanical - Any form of potential or kinetic energy such as springs, flywheels, or rotating machinery that has the potential to cause serious bodily harm or death to an unprotected employee.

- f) Thermal - Any source of conductive, convective, or radiant thermal energy that has the potential to cause serious bodily harm or death to an unprotected employee.
- g) Radiation - Any source of ionizing or non-ionizing radiation that has the potential to cause serious bodily harm or death to an unprotected employee.

H. Lockout/Tagout General Procedures

LOTO procedures shall be the preferred measure for employee safeguarding.

1) LOTO devices

- a. LOTO lockout devices with locks and tags as a package should be used rather than the placement of tag(s) alone.
- b. LOTO devices, locks and tags as a package, adaptable for all lockout configurations, should be made readily available to employees and used whenever possible.
- c. LOTO locks shall be standardized (by manufacture) and shall be of the single key operation only type.
- d. LOTO locks should be color coded according to craft.
- e. LOTO locks shall be identified (inventory/employee assigned) by number.
- f. A master inventory of all LOTO devices and locks assigned will be maintained and kept under management control by FMS.
- g. Spare LOTO devices, locks and tags necessary for replacement as a result of destruction or excessive damage or wear will be made available kept under management control and re-issued as the need arises.
- h. Re-issued LOTO devices, locks and tags will be issued on a one for one basis and logged in the master inventory control list as they are applied.

2) Tags Used With Lockout Devices and Locks

- a. When using LOTO devices and locks, LOTO tags will also used to identify the purpose (the type and magnitude of the hazard), date of the lockout device/lock application and the person who applied the LOTO lock/device.
- b. LOTO tags will not be removed without authorization of the authorized person responsible for them, and are never to be bypassed, ignored, or otherwise defeated.

- c. Written information on LOTO tags must be legible and understandable by all other employees.
- d. LOTO tags and their means of attachment shall be of materials that will withstand the environmental conditions to which they are exposed in the workplace.
- e. LOTO tags shall be securely attached to energy controlling devices.
- f. LOTO tags should be destroyed after completion of each intended use. Re-use of previously marked tags for any purpose is prohibited.

I. Employee Responsibilities

- 1) Only employees trained in controlling hazardous energy by the use of LOTO procedures will be authorized to perform maintenance and servicing tasks involving the control of hazardous energy sources.
- 2) Removal of a LOTO device, lock and tag package by an employee other than the authorized employee who attached it, is prohibited except under emergency circumstances, or when the person who initially applied the LOTO device, lock and tag package is otherwise unavailable to remove the same.
- 3) Removal of a LOTO device, lock and tag package under emergency or other circumstances will only be performed by the supervisor of the employee who initially placed the subject LOTO package. The authorized supervisor removing the lock, device and tag is responsible for notifying the employee who attached the initial package before the employee attempts any additional servicing or maintenance tasks.
- 4) Removal of a LOTO lock should be achieved by lock destruction.
- 5) All necessary information regarding the removal of a LOTO device, lock and tag package should be annotated in the master LOTO Task Log.

J. Duplicate and Master Keys

- 1) Duplicate keys to assigned LOTO locks should be discouraged.
- 2) Assigned locks and their keys are the sole responsibility of the authorized employees who maintain and control their suitability for use.
- 3) Single keys for controlled locks shall not be exchanged between employees for any reason.

K. Sequential Steps of Lockout and Tagout

- 1) Notification: LOTO authorized employees shall notify the affected employees when servicing or maintenance is to be performed on a system or item of equipment that lockout and tagout devices will be applied, and their purpose.
- 2) Shutdown: LOTO authorized employees will shut down the equipment or system by the normal procedures associated with the equipment being serviced.
- 3) Isolation: LOTO authorized employees will operate the control devices to isolate the hazardous energy or material from the source.
- 4) Lockout/Tagout: LOTO authorized employees will lockout and tag the energy isolating devices installed to provide protection to exposed employees.
- 5) Release Stored Energy: LOTO authorized employees will ensure that stored energy (stray or stored voltage, springs, elevated machine components, flywheels, hydraulic and pneumatic pressure, residual steam, water, or hazardous chemicals) is dissipated or restrained by repositioning, blocking, bleeding, venting or appropriate safety release before working on equipment.
- 6) Verification: LOTO authorized employees will operate the normal controls in an attempt to energize the equipment or system and verify that disconnects are effective. If verification by an attempt to operate the equipment is not practicable, they will perform the necessary tests to ensure hazard isolation before working on the equipment.
- 7) Performance of Work: Only authorized employees will perform LOTO servicing or maintenance operations affecting college employees.
- 8) Lock, Device and Tag Removal: After completion of the maintenance or servicing tasks, LOTO authorized employees shall remove all tools from the equipment or system, reinstall any/all guards, notify the affected employees, ensure that no personnel are near the potential hazard areas, and remove the appropriate lockout/tagout packages affecting the equipment system.
- 9) Equipment Operations Restoration: LOTO authorized employees will operate the energy or material isolating devices to restore the equipment or system to normal operation, if there are no other employer LOTO devices attached to the equipment system.

L. Equipment-Specific Lockout/Tagout Procedures

- 1) Participant responsibilities:

The lockout/tagout procedure for particular equipment must state the intended use and describe the scope of applicability for the procedure. This may include or reference a list of specific equipment or a set of similar equipment items within a functional area or

specific location. Limitations of the scope of the procedure must be included. Participants' responsibilities are described below:

Participants including:	Must:
The department, group, or authorized employee most familiar with the equipment.	<ul style="list-style-type: none"> •Generate a written energy-control procedure •Explain the specific application of each Lockout/Tagout step clearly in the context of the specific equipment.
Any authorized employee who will perform Lockout/Tagout on the equipment	<ul style="list-style-type: none"> •Use this procedure.
Supervisors	<ul style="list-style-type: none"> •Ensure that equipment that requires a written procedure is so identified and that the procedure is readily available to the employees authorized to perform Lockout/Tagout on the equipment.
Supervisors	<ul style="list-style-type: none"> •Label, clearly, any equipment with an equipment-specific written Lockout/Tagout procedure.
Supervisors or employees responsible for the equipment	<ul style="list-style-type: none"> •Determine the appropriate format and content of the label, for example: <p>CAUTION— An equipment-specific written procedure exists for the locking and tagging of this equipment. This equipment-specific written procedure may be obtained from _____.</p> <p>*Entry to be determined by the supervisor.</p>

2) Requirements for Shift Changes

Lockout/Tagout operations shall ensure the continuity of LOTO protection during shift or personnel changes if work is to be continued by an oncoming shift. An orderly transfer of Lockout/Tagout devices and procedures between authorized employees or supervisors must be maintained. The following rules must be implemented:

REQUIRES THAT	Must
Both shifts	Be present
The outgoing shift	Remove its lock and tag
The oncoming shift	Places its lock and tag on the group Lockout/Tagout device, immediately.
An outgoing employee	Removes his or her lock and tag.
An oncoming employee	Informs the authorized oncoming employee of any potential hazards.

M. Special Considerations for Repositioning and Testing Equipment

The authorized employee shall complete the first three steps of the Lockout/Tagout procedure: notification, shutdown, and isolation; proceed with the repositioning or testing; and then continue the remaining steps, subject to the following exceptions:

- 1) **Out of View Equipment:** In situations where it may be necessary to turn an isolating device off and on more than once to position equipment for a maintenance or servicing task, and the equipment and isolating device are not continually in sight of the authorized employee performing the task, tags may be used to secure the device until final positioning is accomplished and a lock is applied. Similarly, if testing is required to assure that the correct isolating device has been selected, the same procedure may apply.
- 2) **Line of Sight:** For situations where direct view of the equipment and isolation device is provided, tags or locks are not required until repositioning or testing is complete.

N. Procedures Involving More Than One Authorized Employee

- 1) The intent of the Lockout/Tagout standard is to place with each employee the maximum individual control of hazards associated with the unexpected release of hazardous energy sources. Procedures used to protect more than one employee from these hazards must meet this intent. If absolute hazardous energy control is not achievable through engineering/mechanical controls, a waiver must be obtained from the Director of FMS to implement a lockout or tagout procedure that provides the measure of protection intended by the OSHA standard.
- 2) **Group lockout/devices capable of multiple lock attachment:** For energy or material isolating devices or locking devices that accept multiple locks, employees will attach their own individual locks when work is to be performed on the hazardous energy source.
- 3) **Group lockout/devices capable of single lock attachment:** For an isolating device that will accept only one lock, the key to the lockout device attached to the isolating source must be placed in a lock box and multi-employee individual locks must be attached to the lockbox.
- 4) **Group lockout/multiple organizations or trades:** When more than one locking device is applied to an item of equipment or a system by authorized employees from different trades or organizations, all individual keys must be locked in a single lock box and a lock attached. The key to this lock must be in the sole possession of a knowledgeable supervisor who will control the removal of individual locks from the isolating devices.
- 5) **Group tagout/individual tags:** Each employee will affix individual tags.

- 6) Group tagout/single tag: Every employee that will perform servicing and maintenance tasks will sign a group tag and the tag will be affixed to the energy or material isolating device before any work that may expose the employees to the potential hazards can commence. Upon completion of the tasks, the tag can be removed only after every employee that signed it before work commenced signs again to permit its removal.

O. TRAINING

1) Initial training

- a. Goucher's Director of FMS will arrange for training to be provided to all authorized and affected employees to ensure that they understand the purpose and function of the energy control program, and that they possess the knowledge and skills required for the safe application, usage, and removal of hazardous energy control systems and materials.
- b. Authorized and affected employees will be trained in the recognition of hazardous energy or material sources, the type and magnitude of the source, the means to isolate and control the hazard source(s), the procedures for the hazard controls, the recognition of the lockout/tagout devices, the prohibition against removal of the locks, tags and attempts to re-start or re-energize equipment or systems that are locked out or tagged out, and the means for enforcing these requirements.
- c. Other employees will be instructed, as necessary, with respect to energy and material control procedures, how to recognize lockout/tagout devices, the prohibition against removal of the locks, tags and attempts to re-start or re-energize equipment or systems that are locked out or tagged out, and the means for enforcing these requirements.

2) Retraining Requirements

- a. Retraining for employees will be provided in the event of changes or modifications to OSHA mandated standards or Goucher's LOTO procedures.
- b. Retraining will be provided for authorized and affected employees when there is a change in: (1) job assignments, (2) energy or material control procedures, or (3) hazards presented by equipment or systems, or when inspections reveal employee non-compliance with established rules and/or procedures.

3) Training Certification

Goucher shall maintain records of authorized and affected employee training by individual employee name and date.

P. Inspections

Goucher's Director of FMS shall ensure that lockout/tagout procedures are inspected on a quarterly basis to ensure compliance with OSHA requirements. Specific requirements are as follows:

- a) Inspector: Inspections must be performed by someone who is thoroughly knowledgeable in energy control standards, procedures, equipment and systems, and the duties of authorized and affected employees.
- b) Recording and corrective actions: All deviations resulting from the inspection must be recorded and a closed loop system used to assure that deviations are corrected.
- c) Lockout reviews: Where lockout is used, a review of employer responsibilities will be conducted between the inspector and the authorized an affected employee.
- d) Inspection certification: The safety officer will certify the inspection. The certification shall include the identity of equipment and systems, date(s) of inspection, employees included in the inspection, and the name of the inspector.

Q. Loto Evaluations

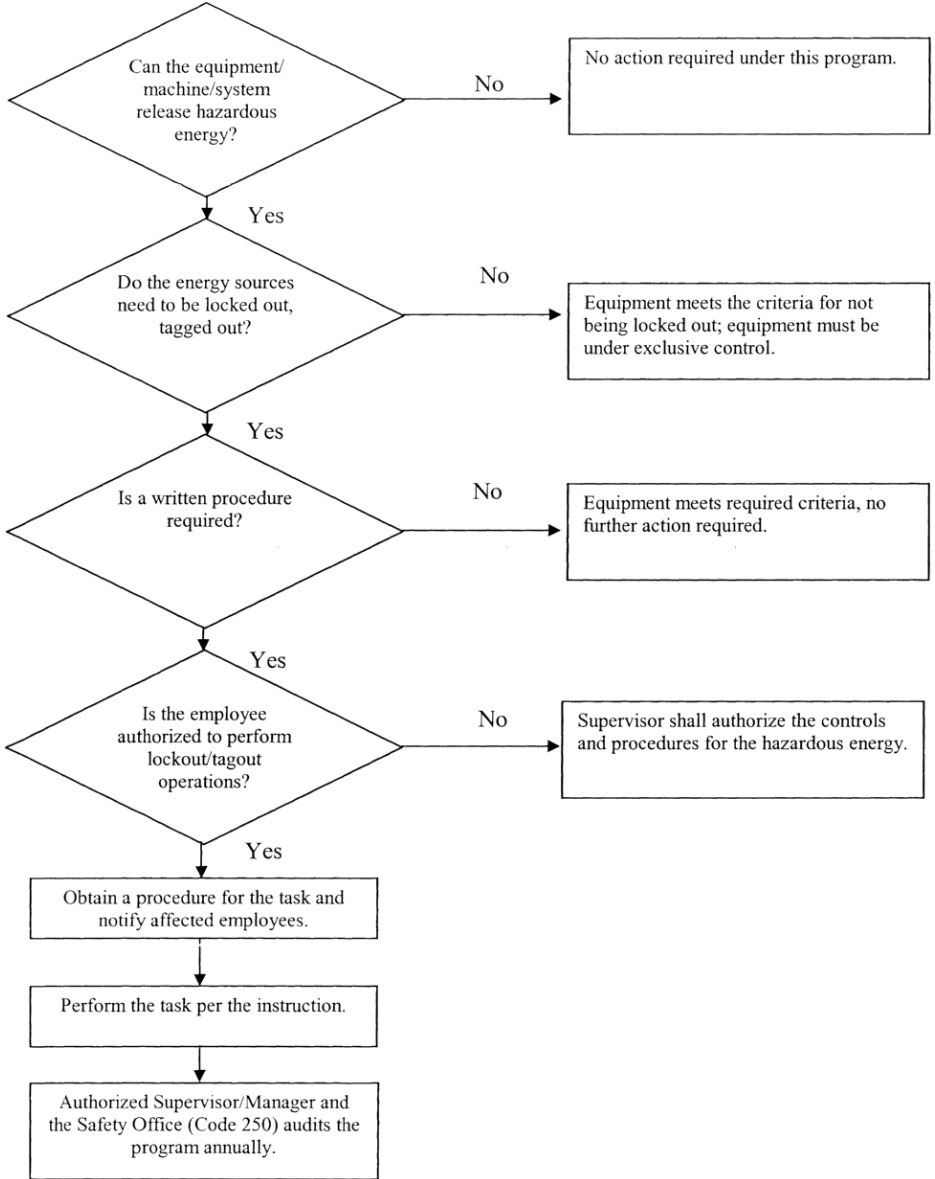
Evaluation of Lockout/Tagout procedures shall be conducted at least annually by an authorized individual to assure that hazardous energy control procedures are implemented properly and that the employees are familiar with their responsibilities under performance procedures.

R. Contractor Notification

Whenever contractors are to be engaged in activities covered by the scope and application of this policy, Goucher, through the Director of FMS or his/her designee, and the contractor shall inform each other of their respective lockout or tagout procedures. Goucher shall implement procedures and training to insure that affected employees understand and comply with the restrictions and prohibitions of the contractor's energy control program.

S. Lockout/Tagout Decision-Making Flowchart

The decision-making flow chart is to be used as a tool to guide the user on what actions are to be taken during the assessment of a confined space in a variety of situations.



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