

SECTION Chapter	III. 1.	Occupational Safety Hazardous Energy Control
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HAZARDOUS ENERGY CONTROL

INTRODUCTION

PURPOSE

The purpose of the Hazardous Energy Control Program is to eliminate the risk of employee injury resulting from unexpected startup, energization or release of stored energy during service or maintenance of equipment. This program applies to all Duke employees performing service or maintenance on equipment where this could occur.

DEFINITIONS

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 servicing or maintenance is being performed.

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.

Energized - Connected to an energy source or containing residual or stored energy.

Energy Isolating Device – A mechanical device that physically prevents the transmission or release of energy. (Push buttons, selector switches and other control circuit type devices are NOT energy isolating devices.)

Energy Source - Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Hot Tap – A procedure used in the repair, maintenance and service activities which involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical systems.

Lockout - The placement of a lockout device on an energy isolating device (e.g., circuit breaker or electrical power disconnect), 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.

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.

Operational Lock- A yellow lock that is used for a purpose other than Lockout/Tagout (LOTO). Examples of use can include limiting/restricting access/use of equipment without verification of qualification(s) and/or authorization of use.

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.

Tagout Device - A 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.

RESPONSIBILITIES

Departments with employees performing maintenance and repair work shall:

- Provide necessary equipment and resources to implement a Hazardous Energy Control Program.
- Ensure full compliance with the detailed responsibilities of employees set forth in the referenced procedures, policies and standards applicable to their work areas.

Departmental Supervisors shall:

- Identify and inventory equipment with hazardous energy sources.
- Develop specific hazardous energy control procedures for applicable machines and equipment.
- Train employees on hazardous energy control procedures in their respective work areas.
- Ensure that employees complete general Hazardous Energy Control Program training (offered by OESO).

- Ensure compliance with the Hazardous Energy Control Program requirements within their specific work areas.
- Ensure that compliance with Hazardous Energy Control Procedures is reassessed annually for all authorized and affected employees in his/her work group.
- Ensure that newly purchased equipment that will require lockout/tagout is capable of utilizing a lockout device.
- Inform contractors of the Hazardous Energy Control Program requirements and all Department specific hazardous energy control procedures applicable to the contractor's work.

Employees shall:

- Follow safe work practices while performing work on equipment with hazardous energy sources.
- Report to their supervisors any unsafe conditions concerning the control of hazardous energy sources.
- Ask their supervisor for assistance or clarification of work procedures as necessary.

OESO shall:

- Assist in determining workplace situations that require hazardous energy control procedures.
- Assist supervisors with the formulation of specific hazardous energy control procedures.
- Review procedures to ensure compliance.
- Audit the Hazardous Energy Control Program periodically.
- Develop and conduct general training on the Hazardous Energy Control Program.
 - *The entity safety manager may provide training with approval and guidance from OESO.*

Contractors performing work at Duke University shall:

- Ensure their personnel understand and comply with the Duke University Hazardous Energy Control Program and specific hazardous energy control procedures.

- Coordinate any utility shut-down through the Duke Departmental Supervisor and/or Project Manager.
- Coordinate operations with the Duke Departmental Supervisor and/ or Project Manager, when both university personnel and contractor personnel will be working on or near equipment with hazardous energy sources.
- Inform the Duke Departmental Supervisor and/ or Project Manager of any additional hazards confronted or created during their operations.

PROCEDURES

The departmental Hazardous Energy Control Procedure defines the specific actions to be used by department employees when performing service or maintenance on equipment where the unexpected startup or release of stored energy could occur and cause injury. Individual procedures are to be prepared for each department as appropriate. Shop specific procedures may be prepared when necessary but must be consistent with all departmental procedures. Elements of procedures must include:

- A specific statement of the intended use of the procedure.
- The identity of the Departmental Supervisor.
- A listing of all situations which may require Lockout/Tagout.
- A listing of all required energy-isolating devices, the magnitude of each hazardous energy source, and its location.
- Specific procedures for notifying affected employees.
- Specific procedural steps for isolating, blocking, shutting down, securing and relieving stored or residual hazardous energy.
- Specific procedural steps for the placement, removal and transfer of lockout and tagout devices.
- Specific requirements for testing a machine or equipment to determine and verify the effectiveness of the lockout and tagout devices.
- An initial, revision and/or review date.

Contractors who must perform work which may require control of hazardous energy will be informed of the following:

- The Duke University Hazardous Energy Control Program and any specific procedures applicable to the equipment or machines upon which they may perform service or maintenance.

Color Coding of Lockout/Tagout Devices and Operational Lock Devices

RED: Lockout/Tagout

- Lockout devices and equipment used for the purpose of energy control (i.e., to prevent an unauthorized person from starting a piece of machinery or energizing a circuit) will use lockout devices that are red in color.
- Red locks cannot be used as operational locks.

YELLOW: Operational Lock

- Administrative locks used for the purpose of securing a device to provide operational control (i.e., to prevent an untrained or unauthorized person from using a piece of equipment) or to otherwise take equipment out of service for purposes other than hazardous energy control will use operational lock devices that are yellow in color. (Note: The yellow locks do NOT have to be lockout/tagout style.)
- Yellow operational locks/tags shall not be used for energy isolation purposes during LOTO of equipment for servicing, maintenance, or modification. If at any point the equipment needs to be serviced or maintained, LOTO program requirements must be followed and the yellow operational lock can no longer be used.
- Departments or work areas/shops/labs utilizing the operational locks must have a documented procedure for application and use prior to securing to equipment.

TRAINING

The following training courses are required for all employees who work in departments where the Hazardous Energy Control Program applies.

GS147 Lockout/Tagout for Authorized Employees

GS148 Lockout/Tagout for Affected Employees

GS149 Lockout/Tagout for Supervisors

GS146 Lockout/Tagout Annual Inspection and Training Assessment (Performed by shop supervisor)

REFERENCES

Code of Federal Regulations, Title 29, Part 1910.147 (OSHA), *The Control of Hazardous Energy (Lockout/Tagout)*

ANSI/ASSP Z244.1-2016 (R2020) Control of Hazardous Energy: Lockout/ Tagout and Alternative Methods