SEC-025

Lock Out Tag Out for Equipment during Maintenance and Repair

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Status Final

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Policy Type University

Contact Office
Environmental Health and Safety

Oversight Executive
Vice President for Research

Applies To
Academic Division The Medical Center

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Reason for Policy

To prevent injury or risk of fatality to all faculty, staff and students caused by the unexpected energizing, start-up or release of stored energy when working on equipment, machinery or systems.

Definition of Terms

Affected Person(s)

Faculty, staff, or student who has been designated by their department to operate equipment, machinery, or systems that can be affected during shutdowns for service and/or maintenance. Shutdowns are performed by Authorized Persons using Lock Out procedures. In addition, personnel may be affected by shutdowns and Lock Out procedures when they are working in controlled spaces (e.g., electrical power to work area is secured during renovation, demolition activities, or abatement of hazardous materials).

Authorized Person(s)

Faculty, staff, or student who has been designated by their department to perform maintenance or service on a piece(s) of equipment, machinery, or system and is qualified to perform the work.

Cord and Plug–connected Equipment

Equipment that is powered by an electrical energy source that can be shut down by removing the cord and plug from the energy source.

Energy Isolation Device

A mechanical device that is part of a piece of equipment, machinery or system that physically prevents the transmission or release of energy. Some examples include manually operated electrical circuit breakers, disconnect switches, slide gates, line valves and blocks.

Lock Out

The placement of a Lock Out Device including a padlock on the Energy Isolating Device of a piece of equipment, machinery, or system. The placement is done in accordance with the department's established procedures to ensure the energy isolation device and equipment being controlled cannot be operated until the lock out device is removed. Only the Authorized Person who placed the lock on can remove it at the completion of the job. Procedures must include those conditions when personnel other than the Authorized Person can also be affected by accidental release of hazardous energy. An example would be multiple personnel performing work activities in a controlled space (e.g., electrical power has been secured to a work area, equipment, machinery, or system). During Lock Outs by multiple personnel, the equipment, machinery, or system must remain secured until the last Authorized or Affected personnel has completed their work task and has removed their lock.

Lock Out Device

A device that uses a positive means such as a lock to hold an Energy Isolation Device safely and prevent the start up of a machine or equipment. Lock Out devices include valve wheel covers, ball valve locks, locks for circuit breakers, and plug and switch plate locks.

Locks

An individually keyed padlock personally assigned to an Authorized Person or Affected Person that is used with a lock out device to control and isolate energy sources.

Servicing or Maintenance Activities

Workplace activities that include but are not limited to: installing, setting up, inspecting or maintaining equipment; and lubrication, cleaning and making tool changes where the employee may be exposed to the unexpected energization of the equipment or release of hazardous energy.

Tag Out

Posting a prominent warning tag with durable string onto the energy isolation device and/or lock out device of the piece of equipment, machinery, or system being controlled. This tag documents the Authorized Person taking the equipment out of operation and the date. It is a warning to others that the equipment cannot be put back into operation until the tag and lock have been removed by the Authorized Person.

Zero Mechanical State

The mechanical potential energy of all portions of the equipment or machine is set so that the opening of pipes, tubes, hoses or actuation of any valve, lever, or button, will not produce a movement which could cause injury.

Policy Statement

Authorized Person(s) must isolate the energy source and make the machine, equipment, or system inoperative (establish a Zero Mechanical State) prior to performing any service or maintenance. Energy sources that must be safely controlled are electrical, hydraulic, pneumatic, chemical, thermal, and mechanical system or other energy sources. Only properly trained Authorized Persons may isolate the energy source. Cord and plug equipment that only has a single electrical energy source that can be isolated by removing the cord and plug from the electrical receptacle is exempted from this policy provided that the following conditions apply:

- The employee will keep the cord and plug under their exclusive control while performing the service or maintenance task.
- There is no other stored energy source inside the equipment such as a capacitor that could harm the employee if it was not identified and/or isolated prior to doing the service or maintenance task.

Consultation and assistance from Environmental Health & Safety (EHS) is available to departments for establishing Lock Out procedures, providing safety awareness training on OSHA's Lock Out Standard 29 CFR 1910.147, and information on Lock Out resources.

I. **Departmental Responsibility:**
Departments are responsible for establishing and documenting Lock Out Tag Out procedures. Some available resources to assist departments include equipment manufacturers, their service representatives or, the equipment operator's manual can provide information on how to safely isolate the equipment's energy source(s) during service or maintenance activities. These procedures shall apply to each piece of equipment, machinery, or system under the department's control that is serviced and maintained by the department's faculty, staff, or students. Procedures may be established for classes of equipment or machinery if their function and operation are similar and the procedure can collectively account for the control of all hazardous energy sources.

Departments must evaluate and document the effectiveness of their Lock Out Tag Out program each year and correct any noted deficiencies. The ***University of Virginia Lock Out Annual Review Form*** can help to document this requirement. The departmental program must meet the following requirements:

- Authorization through Training and Qualification – All persons must be authorized through training and qualification on the departmental Lock Out procedures for the equipment and machinery they are assigned to work on. This training must be completed before they can perform any service or maintenance. Training and qualification must include understanding safe operation of the equipment and the use of the Lock Out devices and warning tags provided by the department.

- Lock Out Devices, Individually Keyed Padlocks, and Warning Tags – Departments must provide appropriate lock out devices, individually keyed padlocks, and warning tags to each Authorized Person. Affected personnel who will be assigned to work on a locked out piece of equipment, machinery, or system including working in a controlled area, must be provided with their individual padlock and warning tag.

- Training for Affected Persons on Lock Out Tag Out – Departments must train all persons who may be affected by equipment and machinery shutdown. Training for those affected by equipment or machinery lock out must include recognition of warning tags, lock out devices, and that tags and locks can only be removed by the Authorized Person who took the equipment or machine out of operation. In addition, Affected Persons who will be assigned to perform a work task on the locked out piece of equipment, machinery, or system, including working in a controlled work area, must know how to install their own individual padlock and warning tag.

- University faculty, staff, and students are responsible for adhering to Departmental Lock Out procedures.

- Departments are responsible for requesting the installation of lockable energy isolation devices onto their equipment or machinery whenever there is major replacement, repairs, renovation, or modification to the equipment. Generally, the referenced equipment and machinery is production equipment (i.e., printing presses, press brake, etc.) and facilities equipment (i.e., HVAC, fans, motors, boilers, etc.) All newly purchased equipment and machinery must include specifications that the energy isolation device(s) are lockable.

- Outside Personnel (contractors) – The on-site representative for the department and the contractor's representative must inform one another of their respective Lock Out procedures. The contractor's personnel and the department's personnel must comply with all restrictions, whichever is stricter, of one another's Lock Out procedures.

II. **Compliance with Policy:**
Failure to comply with the requirements of this policy may result in disciplinary action up to and including termination or expulsion in accordance with relevant University policies.

Questions about this policy should be directed to Environmental Health and Safety.

Procedures

Procedure 14-6, Lock Out Tag Out for Hazardous Energy Sources.

Related Information

OSHA Code of Federal Regulations 1910.147 – The Control of Hazardous Energy (Lock Out/Tag Out);
Virginia Administrative Code 16VAC 25-60-10;
Part III Occupational Safety and Health Standards - Section 120 General Industry Standards - 21Sept06.

Major Category Safety, Security and Environmental Quality

Next Scheduled Review Saturday, August 30, 2014

Revision History Added Compliance section 7/22/21; Updated 8/30/11; 10/18/10; 8/6/09; 8/29/08.

Applies To Text

Academic Division and the Medical Center.

Policy Summary

Only properly trained Authorized Persons may isolate the energy source and make the machine, equipment or system inoperative (establish a Zero Mechanical State) prior to performing any service or maintenance.

Supercedes Policy Text

Lock Out Tag Out for Hazardous Energy Sources XIV.P.1.

Last modified February 5, 2024 - 3:11pm

Approved By Policy Review Committee

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