OFFICE OF ENVIRONMENTAL HEALTH AND SAFETY
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Occupational Safety & Health Environmental Health Laboratory Safety Industrial Hygiene Radiation Safety Hazardous Waste Pollution Prevention

Lockout – Tagout Program

Administered by

Environmental Health and Safety Office

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Section **Page**

- Comply fully with the requirements of this program, ODU Energy Control Procedures developed under this program and VOSH standard 1910.147 in the performance of their work
- Recognize and appropriately control applicable hazardous energy sources

I. Purpose

energy control capability.

Employee means any person hired by the University or Research Foundation as full or part-time personnel, including administrators, faculty, staff, students and work study students.

Energized

controlled may not be operated until the tagout device is removed.

Tagout Device means a prominent warning device, in this case a University-provided tag and 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. Tagout devices, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal. Tagout device attachment means shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds and having the general design and basic characteristics of being at least equivalent to a one-piece, all-environment-tolerant nylon cable tie.

IV. Energy Control Program

The purpose of the Energy Control Program is to prevent employee injuries by ensuring that, whenever the possibility of unexpected machinery or equipment startup or energizing exists, the machinery or equipment is isolated from all its active and/or stored energy source(s) and rendered inoperative prior to servicing or maintenance.

It is the policy of the University to exclusively use lockout for the control of hazardous energy sources unless lockout is not possible. Currently, there are no known situations where lockout is required and is not possible. If the responsible supervisor(s) and the Environmental Health and Safety Office both agree that lockout is not possible, that finding shall be written down, signed by all parties, and retained by the EHSO for as long as that situation continues to exist. Tagout may be used only with prior written approval of each such Energy Control Procedure by the EHSO.

V. Energy Control Procedures

The most vital element of the Lockout/Tagout Program is the Energy Control Procedure. Simply stated, an Energy Control Procedure is a written procedure that identifies all the steps a worker must take to shutdown, de-energize/isolate, apply lockout/tagout, safely release any stored energy, and verify energy isolation prior to servicing or maintaining a piece of equipment. The procedure will outline the scope, purpose, authorization, rules and techniques that will be used to control all applicable energy sources. An Energy Control Procedure shall contain, as a minimum, the following elements:

- A statement of how the procedure will be used;
- The procedural steps needed to shut down, isolate, block and secure machines or equipment to control hazardous energy;
- The steps designating the safe placement, removal, and transfer of lockout/tagout devices and who has the responsibility for them;
- The specific requirements for testing machines or equipment to determine and verify the

- The provision that the Authorized Employee must notify Affected Employees before lockout or tagout devices are applied and after they are removed from the machine or equipment.

Where tagout is approved by the EHSO, it is important to understand the limitations of the protection provided by tagout which includes the following:

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The first step in preparing an Energy Control Procedure shall be a detailed hazard assessment. For each piece of equipment the hazard assessment shall specify the machine's description, location, serial number, manufacturer's name, and a detailed description of all energy sources, including any sources of stored hazardous energy that could be present, such as capacitor banks or pressurized components. The information collected during this hazard assessment is used to complete many of the sections on the ODU Energy Control Procedure form provided in **Appendix B** of this program. Properly done, a thorough hazard assessment shall identify all necessary energy control actions to safely lockout and deenergize the machinery in question. Hazard assessments shall be performed by the supervisor in conjunction with an Authorized Employee. The Environmental Health and Safety Office will be available to assist with hazard assessments, if requested to do so.

All energy sources shall be locked out by use of an energy isolating device, lock, and a tag which is attached with a self-locking and non-releasable device equivalent to a one-piece, all environment-tolerant nylon cable tie. Tags shall be of a standardized design, supplied by EHSO, and of durable, substantial, and chemical-resistant material. All tags shall bear a message such as: *Do Not Start, Do Not Operate,* etc. and bear the name of the employee who attached the tag, and the date and time of attachment. Locks and tags shall be issued to Authorized Employees who perform lockout/tagout procedures.

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- The isolation and locking out of that energy source will completely deenergize 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; and

- The University, in utilizing this exception, has had no accidents involving the unexpected activation or re-energization of the machine or equipment during servicing or maintenance.

VII. Lockout / Tagout System Procedure

The following procedures shall be used when locking or tagging out a system in accordance with an approved Energy Control Procedure.

1. **Notification:** Notify all affected employees that a lockout or tagout is going to be utilized and the reason for the lockout/tagout. The Authorized Employee shall know the type and magnitude of energy that the machine or equipment utilizes and shall understand the hazards presented by all the energy sources.

2. **Preparation for shutdown:** The Authorized Employee(s) who will apply lockout or tagout shall review any written Energy Control Procedure for the equipment or machinery to be locked or tagged out and ensure that he/she/they understand the procedure fully.

Locks and tags shall be singularly identified by Authorized Employee. Examples of the tags that shall be used at ODU are included in **Appendix C**.

- Locks shall be affixed in a manner that will hold the energy isolating devices in a safe or off position

- Tags shall be affixed in a manner that will clearly indicate that the operation or movement of the energy isolating device from the safe or off position is prohibited

- Tags that cannot be affixed directly to the energy isolating device shall be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device

6. **Stored energy release or restraint:**

- It is verified that the Authorized Employee who applied the device is not at the facility;

- All reasonable efforts were made to contact the Authorized Employee to inform him/her that their lockout/tagout device has been removed, and~~;~~

- The supervisor who removes the lock can positively ensure that the Authorized Employee whose lock was removed shall be informed that the lock was removed before he/she resumes work at that facility. The following procedures shall be used to ensure that this happens without fail:

    - Supervisors shall require Authorized Employees to submit phone numbers, cell phone numbers, or other means in which they can be contacted in the event that they leave the facility. Authorized Employees who do not have a means of being contacted shall contact their supervisor as soon as possible after departing a job involving lockout tagout.

    - Authorized Employees who depart a job which involves the use of lockout tagout procedures shall check-in with their supervisor prior to resuming the work to ensure the locks and tags have not been removed and;

    - Authorized Employees who depart a job which involves the use of lockout tagout procedures shall personally verify that the locks and tags have not been removed prior to resuming the work.

IX. Shift or Personnel Changes

In the case of shift or personnel changes, a change over period will be established so that

- Recognition of applicable hazardous energy sources.

- Types and magnitude of hazardous energy sources present in the workplace.

- How using the proper Energy Control Procedure can isolate and control those energy sources.

- Identify the limitations of tags to include the following:

  * The use of tagout procedures exclusively are only authorized if such procedures are the only feasible options. Approval to use the procedures must be granted in writing and prior to use by the Environmental Health and Safety Office.

  * Tags are essentially warning devices affixed to energy isolating devices and do not provide the physical restraint and employee protection of a lock.

  * When a tag is attached to an energy isolating device, it is not to be removed except by the person who applied it, and it is never to be bypassed, ignored, or otherwise defeated.

  * Tags must be legible and understandable by all employees.

  * Tags and their means of attachment must be able to withstand the workplace environment in which they are placed.

  * Tags may evoke a false sense of security. They are only one part of an overall energy control program.

  * Tags must be securely attached to the energy isolating device so they cannot be detached during use.

XI

energized electrical circuits. Only Qualified Personnel, as defined by VOSH and as designated by the Electrical Shop Supervisor shall perform such work. The Electrical Shop Supervisor will verify that deenergizing circuits will create additional or increased hazards or that it is not feasible due to equipment design or operational limitations.

NOTE: Working on energized circuits requires the use of appropriate procedures and personal protective equipment (PPE). The Electrical Shop Supervisor shall be responsible for specifying appropriate protective equipment to be used, to ensure compliance with VOSH Standard 1910.335. Personal protective equipment (PPE) for electrical hazards shall meet and be used and maintained in accordance with the most recent revision of the applicable ANSI standards.

XIII. Electrical Test Verification of Deenergized Circuits

The Authorized Employee, if designated as qualified to do so by the Electrical Shop Supervisor, shall use test equipment to test the circuit elements and electrical parts of equipment to which they will be exposed and shall verify that the circuit elements and equipment parts are deenergized. Otherwise, such testing shall be performed by a Qualified Employee designated by the Electrical Shop Supervisor. The test shall also determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been deenergized and presumed to be safe. If the circuit to be tested is over 220 volts, nominal, the test equipment shall be checked on a live circuit of known voltage for proper operation immediately before and immediately after this test.

XIV. Annual Evaluations of Energy Control Procedures

Each Energy Control Procedure shall be evaluated on an annual basis. This evaluation shall be performed by Authorized Employees, other than the person using the Energy Control Procedure. Annual Energy Control Procedure evaluations shall be performed in accordance with the Evaluation Form in **Appendix A**. The Environmental Health and Safety Office will be responsible for arranging the annual evaluations and shall maintain a record of the completed Evaluation Forms for three (3) years. The Environmental Health and Safety Office shall coordinate with a supervisor to schedule the evaluations and ensure they are accomplished in a timely manner.

XV. References

VOSH Standard 1910.147, The control of hazardous energy (lockout / tagout)

VOSH Standard 1910.333, Selection and use of work practices

VOSH Standard 1910.335, Safeguards for personnel protection

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APPENDIX A

ENERGY CONTROL PROCEDURE ANNUAL INSPECTION FORM

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Energy Control Procedure Annual Inspection Form

Name of Equipment: _____

ODU Energy Control Procedure #: _____

Printed Name of Inspector(s): _____

Signature of Inspector(s): _____ Date: _____

Is the information on the Energy Control Procedure (ECP) accurate (i.e., correct location, equipment name, energy sources, serial numbers, etc.)? Yes / No

Does the ECP completely isolate the equipment from all energy sources? Yes / No

Does the ECP completely dissipate all sources of stored energy? Yes / No

Is the ECP clearly written and easy to follow? Yes / No

Are all energy sources capable of being locked out? Yes / No

Was the lockout/tagout procedure properly followed? Yes / No

Were the proper Energy Isolating Devices used? Yes / No

Does the Authorized Employee have a detailed knowledge of the type and magnitude of the hazardous energy present in the equipment? Yes / No

Comments:_____

_____

_____

Reviewed by: _____ Date: _____

Action: _____

_____

APPENDIX B

ENERGY CONTROL PROCEDURE WORKSHEET

OLD DOMINION UNIVERSITY **LOCKOUT/TAGOUT PROCEDURE**	Page 1 Date:
Facility:	Location:

SCOPE:

LOCKOUT/TAGOUT PROCEDURE

Date:

Department Work Area:	Equipment/Machine:	Process:
Description (Equipment/Machine/Process):		
Energy Sources: Additional Hazards:		

ENERGY ISOLATION DEVICES

No.# Device Location Lockout/tagout

APPENDIX C

TAGS USED BY THE UNIVERSITY