

# Control of Hazardous Energy and Lockout/Tagout Program Overview

EHS Procedure EHS-SAF-41.1, Rev. 0

Effective Date: 09/01/2015

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## 1.0 PURPOSE

This document describes the requirements for establishing positive control over hazardous energy sources whenever machinery, equipment, or scientific apparatus is installed, adjusted, or otherwise serviced. Establishing positive control is necessary to prevent injury to personnel or damage to components that may result from an unexpected startup of machinery, or inadvertent release of stored energy.

The requirements of this section are based on 29 Code of Federal Regulations (CFR) 1910.147, *Control of Hazardous Energy (Lockout/Tagout)*; 29 CFR 1926.417, *Lockout and Tagging of Circuits*; 29 CFR 1910.333, *Selection and Use of Work Practices*; 29 CFR 1910.269, *Electric Power Generation, Transmission, and Distribution*; and National Fire Protection Association (NFPA) 70E, *Standard for Electrical Safety in the Workplace*.

## 2.0 SCOPE

This program applies to all National Cancer Institute (NCI) at Frederick and Frederick National Laboratory for Cancer Research (FNLRCR) operations, including off-post facilities, such as the Advanced Technology Research Facility and the Vaccine Clinical Materials Program, as required by 29 CFR 1910.147.

This procedure defines the minimum requirements for the control of such hazardous energy through the application of lockout/tagout (LOTO) and written energy control procedures that must be utilized for machinery, equipment, or other factors that require LOTO.

This procedure does not apply when performing minor tool changes and adjustments during normal operations that are routine, repetitive, and integral to the use of the equipment/machine, provided that the work does not expose personnel to additional risk of injury.

This procedure does not apply to subcontractors to NCI at Frederick and FNLRCR. The Contracting Officer's Technical Representative must coordinate with construction and service contractors or their employers so that the contractor meets the requirements of the Occupational Safety and Health Administration and NFPA for a LOTO program as stated in the terms and conditions of the contract.

## 3.0 PROCEDURE

Lockout/tagout must be used only to secure energy sources for machinery or equipment that is to be placed out of service for a defined period of time, such as during maintenance or while replacement parts are delivered. If the lockout is to extend over 30 days, the reason must be noted in the tag. Locks/tags must be removed or replaced with an administrative lock if no electrical service and/or maintenance work is being performed for an extended period of time (beyond 30 days). Lockout/tagout must be reestablished before service and/or maintenance activity resumes.

Step	Job Role	Action
1	All personnel	<p>1.1 Familiarize yourself with general responsibilities associated with this procedure and definitions contained in the Environment, Health, and Safety (EHS) Directorate Glossary.</p> <p>1.2 Comply with all LOTO procedures outlined in Appendix A, completing all procedural steps including zero electrical energy verification when an electrical hazard exists.</p> <p>1.3 Employees must not attempt to start, energize, or use machinery or equipment that is locked or tagged out of service.</p>

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2	EHS Staff	<p>2.1 Provide for a periodic review and update of this procedure.</p> <p>2.2 Provide initial training and retraining to staff on all LOTO procedure requirements per EHS-SAF-41.9.</p> <p>2.3 Perform and annual review of the LOTO procedure implementation per EHS-SAF-41.9.</p>
3	Department Supervisors	<p>3.1 Review with employees their responsibilities under this procedure.</p> <p>3.2 Confirm that all employees have received the required training per EHS-SAF-41.9.</p> <p>3.3 Ensure pre planning is conducted and includes all required procedures, including zero-energy verification, bases on the type of LOTO conducted.</p>
4	Responsible Person	<p>4.1 Facilities, Maintenance, and Engineering (FME) Shop Foremen and Laboratory Principle Investigators / Laboratory Chiefs are the Responsible Persons and have the overall responsibility for the hazardous energy control program in their organizations.</p> <p>4.2 Provide for the appropriate equipment and ensure training is provided for staff conducting LOTO.</p> <p>4.3 When LOTO must be used, determine the appropriate procedure for staff to follow using the criteria in EHS-SAF-41.2 and ensure appropriate implementation. See Appendix A for the list of LOTO procedures.</p>
5	Custodians	<p>5.1 Conduct monthly inspections of the LOTO recordkeeping to verify that energy control procedures are being verified and document the results of the inspections.</p> <p>5.2 Determine that LOTO devices and tags are available in sufficient quantities.</p> <p>5.3 Retain completed LOTO Logs and Logbooks for EHS review.</p>
6	Authorized Personnel	<p>6.1 Ensure tags are completed with the required documentation.</p> <p>6.2 Completes LOTO in accordance with procedures in Appendix A.</p>

## 4.0 RECORDS

Description of Record	Custodian	Storage Medium
LOTO Log Books	Authorized Personnel	Binder
Annual LOTO Review Report	EHS	SIIMS
Monthly Audit Records	EHS	SIIMS
Complex LOTO Procedure	EHS and Department Supervisors	Electronic and/or SIIMS

## 5.0 RELATED DOCUMENTS

The following documents provide requirements and background information relevant to all confined space entry procedures of this Program:

- [29 CFR 1926.417](#), *Lockout and Tagging of Circuits*

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- [29 CFR 1910.147](#), *Control of Hazardous Energy (Lockout/Tagout)*
- [29 CFR 1910.269](#), *Electric Power Generation, Transmission, and Distribution*
- [29 CFR 1910.333](#), *Selection and Use of Work Practices*
- NFPA 70E, *Standard for Electrical Safety in the Workplace*

## 6.0 DEFINITIONS

Term	Definition
affected employees	Those whose jobs require them to operate or use a machine or equipment on which service or maintenance is being performed under lockout/tagout, or whose job requires them to work in an area in which such service or maintenance is being performed.
authorized employee	An employee who has approval from the supervisor and has current training to lock out energy sources in order to service or maintain machines or equipment.
blanks/blinds	Solid metal plates normally installed at a flange in a line (fluid or gas) to prevent flow.
capable of being locked out	Refers to an energy-isolating device to which, or through which, a lock can be affixed, or into which a locking mechanism is built.
custodian	An employee who is responsible for one or more lockout/tagout stations or equipment and who determines that lockout devices and tags are available in sufficient quantities for the users and that proper procedures are followed.
electrically safe work condition	A condition that has passed acceptance by a qualified person via an accepted meter or verification.
energized	Connected to an energy source, or containing residual or stored energy.
energy-isolating device	<p>A mechanical device that physically prevents the transmission or release of energy including, but not limited to, the following:</p> <ul style="list-style-type: none"><li>• A manually operated electrical circuit breaker;</li><li>• A disconnect switch;</li><li>• A line valve;</li><li>• A block;</li><li>• A blank (or blind);</li><li>• A manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply connectors and, in addition, no pole can be operated independently;</li><li>• Any similar device used to isolate energy.</li></ul> <p>(push buttons, selector switches and other control circuit or interlock devices are not energy-isolating devices.)</p>
energy source	Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

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<b>Term</b>	<b>Definition</b>
exclusive control	A situation in which the authorized employee is working on plug-and-cord-connected equipment and the plug is kept within sight and within arm's reach.
lockout	The placement of a lock and tag identification on an energy-isolating device in accordance with an established procedure conforming to the requirements of this procedure. Each lock must be accompanied by its own properly completed tag. The employee's name and date the lock was applied must appear legibly on each and every tag.
lockout device	A device that utilizes a positive means such as a lock, blank flange, or bolted slip blank to hold an energy-isolating device in a safe position and prevent the inadvertent energizing of a machine or equipment.
qualified person	An employee who has sufficient training and experience with the construction and operation of the apparatus and the hazards involved to demonstrate to supervision that he or she is competent to complete the work to be done.
electrical worker	An FME Electrician, who has the skills and knowledge related to the construction and operation of the electrical equipment and installations to be worked on, is authorized to perform the specific task by line management, and has received NCI at Frederick-approved safety training.
responsible person	Person having the overall responsibility for the hazardous energy control program in their organizations
service and/or maintenance	Workplace activities such as constructing, installing, setting up, adjusting, inspecting, repairing, or modifying machines or equipment. Also includes lubrication, cleaning or unjamming, and making adjustments or tool changes, where the employee may be exposed to the unexpected energizing or start-up of the equipment, or release of hazardous energy.
setting up	Any work performed to prepare a machine or equipment to perform its normal production function.
tagout	The process of placing a prominent warning tag and the positive disabling of a piece of equipment achieved through means other than a locking device. The tag identifies the equipment being controlled and states that equipment may not be operated until the tag is removed and the equipment controlling the energy is returned to normal operating condition.

## 7.0 ABOUT THIS PROCEDURE

Issuing organization:	EHS
Final approver:	Terri Bray
Subject matter expert:	Greg Ragan
Review cycle (months):	12
Date last revised:	initial issue

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## **8.0 SUMMARY OF CHANGES IN THIS VERSION**

None. Initial issue. Replaces portions of EHS Compliance Manual Chapter C-14.

## **9.0 APPENDICES**

Appendix A: Control of Hazardous Energy and LOTO Program Procedures

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## **APPENDIX A: CONTROL OF HAZARDOUS ENERGY AND LOTO PROGRAM PROCEDURES**

[EHS-SAF-41.1 \*Control of Hazardous Energy and LOTO Program Overview\*](#)

[EHS-SAF-41.2 \*Determining the Appropriate LOTO Procedure\*](#)

[EHS-SAF-41.3 \*Simple LOTO\*](#)

[EHS-SAF-41.4 \*Writing a Complex LOTO Procedure\*](#)

[EHS-SAF-41.5 \*Administrative LOTO\*](#)

[EHS-SAF-41.6 \*Tagout Only Procedure\*](#)

[EHS-SAF-41.7 \*Cord and Plug LOTO\*](#)

[EHS-SAF-41.8 \*Procedures for Removing Another Employee's Lock\*](#)

[EHS-SAF-41.9 \*Periodic Reviews and Training for LOTO\*](#)