Chapter 51: Control of Hazardous Energy

Simple Lockout Procedure

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URL: https://www-esh.slac.stanford.edu/eshmanual/references/coheProcedLOTOSimple.pdf

1 Purpose

The purpose of this procedure is to prevent worker exposure to *hazardous energy* (such as from unexpected energization, startup, or release of stored energy).

It covers locking out a machine, equipment, or system for which all the following conditions are met:

1. Has a single source of hazardous energy that can be readily identified, isolated, and locked out; and the single source controls all hazards, with no potential for stored hazardous energy
2. Involves only one department, group, craft, or employer, and does not involve a shift change
3. Contains no potential to release a hazardous material

Lockouts that meet these conditions are considered *simple*.

Note	This procedure, a custom plan, or an *equipment-specific lockout procedure (ELP)* or a *group lockout procedure* (for example, if more than one worker from the same crew is involved) may be used for simple lockouts.

Note	A simple lockout procedure may be used for locking out multiple molded case breakers in a panel board with a single cable-type lockout device.

If any of these conditions are not met (for example, there are multiple energy sources or multiple groups), the lockout is considered *complex* and this procedure may not be used. Instead, an *equipment-specific lockout procedure (ELP)* or a *group lockout procedure* must be used (see Control of Hazardous Energy: General Requirements).

This procedure applies to workers, supervisors, and equipment custodians.

2 Procedures

2.1 Establishing a Lockout

Step	Person	Action
1.	Authorized worker or supervisor	Contacts the equipment custodian
2.	Equipment custodian	Grants permission to work on equipment Provides additional contacts, if any, for work coordination
3.	Authorized worker	Notifies affected workers before shutdown: ▪ Notifies affected workers that a lockout is about to take place, the reason for it, and the specific affected machinery or equipment ▪ Clears the area of people and any non-essential objects
4.	Authorized worker	Identifies and locates the energy source and energy isolating device (see Control of Hazardous Energy: Hazard Analysis Procedure) **Important** Confirms lockout is simple or complex: if more than one energy source is identified follows a complex lockout procedure
5.	Authorized worker or equipment operator	Shuts the machine or equipment down using the normal stopping procedure
6.	Authorized worker or equipment operator or qualified electrical worker	Operates the disconnect switch, circuit breaker, valve, or other energy isolating device to isolate (disconnect) the machine or equipment from its energy source For electrical equipment with viewing window, verifies all blades are fully open. Switchgear-type breakers must be open and racked out to the fully disconnected position. Rackable motor control center (MCC) buckets must be fully withdrawn with the breaker open. **Note** Wears appropriate personal protective equipment (PPE) per the arc flash hazard label
7.	Authorized worker	Applies personal LOTO lock and tag to the energy isolating device **For subcontracted work,** if both the SLAC worker(s) and the subcontractor worker(s) will perform work under the lockout, then the lockout is complex and the general lockout procedure may not be used. A complex lockout procedure is required.
8.	Authorized worker	Relieves, exhausts, or restrains stored or residual energy in the machine or equipment by grounding, blocking, bleeding down, et cetera
9.	Authorized worker	Verifies zero energy by ▪ Attempting to start the equipment using normal operating controls to check that the equipment does not start or become energized (, that is, verification of non-operation) ▪ Returning the operating control(s) to the NEUTRAL or OFF position before proceeding with servicing or maintenance work ▪ Ensuring zero-energy state appropriate to the type of hazardous energy involved

Step	Person	Action
10.	Qualified electrical worker	If work will be performed within the *arc flash protection boundary* or *limited approach boundary,* performs *zero-voltage verification (ZVV)* of circuit elements and electrical parts to which worker(s) may be exposed (see Control of Hazardous Energy: Zero Voltage-verification Procedure) **Note** Wears appropriate PPE per the arc flash hazard label **Note** The electrical worker in charge must control access to electrical equipment per the boundaries on the arc flash hazard label
11.	Authorized worker	Proceeds with servicing or maintenance work
12.	Authorized worker	Returns equipment to service as described in Section 2.2, "Returning Equipment to Service"

2.2 Returning Equipment to Service

Step	Person	Action
1.	Authorized worker	Checks the machine/equipment and surrounding area to ensure that non-essential objects have been removed, guards have been reinstalled, and that the machine/equipment is operationally intact
2.	Authorized worker	Verifies machine/equipment controls are in the NEUTRAL or OFF position
3.	Authorized worker	Verifies that all affected workers and other authorized workers are out of harm's way
4.	Authorized worker	Removes locks and tags and prepares to restart the machine/equipment
5.	Authorized worker	Before restarting machinery/equipment, notifies affected workers and the equipment custodian, equipment owner, or system owner, as applicable, that work is complete, that locks and tags have been removed, and that normal operations may proceed

3 Forms

The following are recommended templates. Equivalent forms may be used:

- Simple lockout plan template and instructions (available from Control of Hazardous Energy Program Site [SharePoint]). Template for creating a simple lockout plan; lists required elements

The following checklists are provided as guidance:

- Control of Hazardous Energy: Simple Lockout Checklist (SLAC-I-730-0A10J-008). Checklist for completing a simple lockout

4 Recordkeeping

The following recordkeeping requirements apply for this procedure:

- None

5 References

SLAC Environment, Safety, and Health Manual (SLAC-I-720-0A29Z-001)

- Chapter 51, "Control of Hazardous Energy"
  - Control of Hazardous Energy: General Requirements (SLAC-I-730-0A10S-004)
  - Control of Hazardous Energy: Hazard Analysis Procedure (SLAC-I-730-0A10C-002)
  - Control of Hazardous Energy: Zero-voltage Verification Procedure (SLAC-I-730-0A10C-004)
  - Control of Hazardous Energy Program Site (SharePoint)