The Control of Hazardous Energy
(Lockout/Tagout)

California State University Chico

Department of Environmental Health and Safety
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1.0 INTRODUCTION

1.1 History of the OSHA Lockout/Tagout Program

Effective January 2, 1990, the Federal Occupational Safety and Health Administration (OSHA) passed Section 1910.147 of Title 29 Code of Federal Regulations. The intention of this law was to reduce the amount of accidents, injuries, and fatalities caused by the release of stored energy during routine or non-routine maintenance of equipment or machines. The State of California has also adopted similar regulations that are located in California OSHA Title 8, §2320.4-6 and §3314.

1.2 Objective

The objective of the Lockout/Tagout Program is to prevent accidents that may cause injuries including (but not limited to) pinching, crushing, cuts, slices, burns, shocks, electrocution, or death that may be caused by unexpected energization or startup of machines or equipment, or the release of stored energy from machines and equipment when maintenance or servicing operations are taking place. Lockout/Tagout procedures are also required to protect employees from using machines or equipment that are unsafe and awaiting service or repair.

1.3 Definitions

Affected employee

An employee whose job requires them to operate or use a machine or equipment on which cleaning, repairing, servicing, setting-up, or adjusting operations are being performed under lockout or tagout, or whose job requires the employee to work in an area in which activities are being performed under lockout or tagout.

Authorized employee or person

A qualified person who locks out or tags out specific machines or equipment in order to perform cleaning, repairing, servicing, setting-up, or adjusting operations on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing cleaning, repairing, servicing, setting-up, or adjusting operations.

Locked out

The use of devices, positive methods, and procedures, which will result in the effective isolation or securing of prime movers, machinery, and equipment from mechanical, hydraulic, pneumatic, chemical, electrical, thermal, or other hazardous sources.

Normal Production Operations

The use of a machine or equipment to performs its intended production function.

Prime Mover

The source of mechanical power for a machine.

2.0 PROCEDURES

2.1 Scope

The scope of these procedures establishes the minimum performance standards required to ensure that machines and equipment are isolated from all hazardous energy sources, either potential or actual, and that they are properly locked. Lockout /Tagout procedures must be in place prior to an affected employee engaging in the servicing or maintenance of any piece of equipment or machinery. This applies in any situation where the unexpected energization of, start-up, or release of the stored energy to a machine or equipment has the potential to cause injury to an affected and/or authorized employee.

2.2 Responsibility

It is the responsibility of each Department's Manager or Supervisor to develop a written lockout/tagout program specific to each machine or type of equipment used by affected employees. The procedures shall be in accordance with this document and the requirements of CAL-OSHA. It is the Managers or Supervisors responsibility to ensure that all aspects of the lockout/tagout program are understood and are being followed by affected and authorized employees. Annual inspections and documentation shall be performed as outlined in Section 5.4 of this document.

Affected/authorized employees shall be trained in the safety and the importance of lockout /tagout procedures on all equipment and machines they are required to operate or use. A new affected/authorized employee or any existing employee that has been transferred shall be trained on all equipment in the new work area. All affected/authorized employees shall be trained if new machines or equipment are utilized. At no time are affected employees to perform service or maintenance on any equipment or machine alone, or as a team, if the employees have not received safety training specific to lockout/tagout procedures.

2.3 Preparation for Lockout/Tagout

Read the owner's manual and carefully survey the machine or the equipment to locate and identify all controlling devices to be certain which isolating device(s) (i.e., switches, levers, valves, etc.), apply to the machine or the equipment. It is important to note that more than one energy source may be involved, and that the energy sources may be of a different nature (i.e., electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy).

2.4 Sequence of Lockout/Tagout System Procedure

<u>Notification/Competence</u>

Notify all affected employees that a lockout/tagout system is to be utilized on a machine or equipment and specify the reason the system is being installed. The authorized employee initiating the lockout/tagout shall be aware of and understand the type and magnitude of the energy the machine or equipment utilizes and shall perform the appropriate procedures required to lock out all potential energy sources. The affected and authorized employees are required to know which hazards are present and understand the dangers associated with the particular machine or equipment.

Shut Down

If the equipment or the machine is currently being operated, it shall be stopped following the normal shut-down procedures. All machinery or equipment shall have the power source de-energized or disengaged.

Isolation

Operate the energy isolating device (i.e., switch, valve, lever, etc.) to verify that the equipment has been completely isolated from the energy source. Stored energy *(such as that in springs, rotating parts, capacitors, hydraulic pressure, and air, gas, steam, or water pressure*) must be dissipated or restrained by methods such as mechanical blocking, bleeding down, repositioning, etc. Other movable parts shall be mechanically blocked out or locked out as necessary to prevent accidental movement, and/or to prevent the release of stored energy during cleaning, servicing, and adjusting operations.

Control/Locks

Locks shall be placed so that the energy isolating devices may not be operated without the removal of the lock. Accident Prevention Tags shall be placed on the lock or as close to the lock as physically possible. These tags must be clearly visible, readable, and of an approved design.

Accident Prevention Tags and Signs

Accident Prevention Tags or Signs shall be approved by your Supervisor. Accident Prevention Tags and Signs shall include, *at a minimum*, the date the tag is placed on the machine or equipment, the name of the person to whom the lock and tag belong, the department in which that person works, the telephone number of the department, and the job supervisor, if different than the person to whom the lock belongs, *and* the expected time of job completion. Accident Prevention Tags and/or Signs shall be placed both on the controls of the machine or equipment and at the power source of the machine or equipment as needed to ensure all affected employees are aware that a lockout/tagout is in place.

Ensuring Proper Lockout

To verify that the machine or equipment has been isolated, clear the operating area around the machine or equipment. After ensuring that no affected employees are in an area of possible exposure, operate the proper button(s) or operating control(s) to verify that the machine or equipment will not operate.

CAUTION: Return all of the proper controls to the “neutral” or the “off” position after the test.

Notification of Lockout/Tagout

Notify all affected or potentially affected personnel that the equipment is now locked and tagged out.

3.0 RESTORING TO NORMAL OPERATIONS

3.1 Restoring of Equipment to Use

When all required servicing and/or maintenance is completed, clear the operating area of all affected employees. Check the machine or equipment carefully to ensure that it is ready and is safe to return to normal production operations.

3.2 Removal of Lockout/Tagout

Only after all tools have been removed from the machine, accounted for, and the guards have been reinstalled and properly adjusted, the authorized employee may remove all accident prevention tags and signs and lockout/tagout devices.

3.3 Machine Start-Up

Reconnect or re-establish contact with the energy source for the machine or equipment. Operate the energy isolating devices to restore the proper energy level to the machine or equipment. Verify the machine or equipment is operating properly.

4.0 PROCEDURES INVOLVING MORE THAN ONE PERSON

4.1 Procedures

Maintenance and servicing operations which require more than one person will require that each team member follow the preceding steps. Each person who is involved in any part of the operation will be required to post accident prevention tags or signs and lockout/tagout the equipment as if he/she were the only one working on the equipment. No team member will have the capability to remove any other team member's lock. If the actual energy isolating device can not accept multiple locks, then an approved hasp will be used to facilitate the multiple locks. All hasps shall be approved by your Supervisor.

4.2 Equipment

If it is not physically possible for all of the authorized employees in the operation to have an individual lock, then only one lock will be used. The key to this lock will be placed in a designated lockout/tagout cabinet, and all the team members will then apply their locks to a multiple lock hasp that will secure the keys in the cabinet.

4.3 Lock Removal Procedures

As each authorized employee involved in the servicing or maintenance operation completes his or her part, they will then remove their lock. Upon removal of any lock the authorized employee removing the lock will inform his or her job Supervisor.

4.4 Shift Change/Hand off

If lockout/tagout is in place and will remain through another work shift or personnel change, communication shall be made to the Supervisor or Manager to ensure that the next shift of affected and/or authorized employees is aware of the lockout/tagout. There shall be an orderly transfer and/or sign over of all lockout/tagout devices, and as necessary actions shall be taken to ensure there is no interruption of lockout/tagout program. The Supervisor or Manager is responsible for notifying the next shift Supervisor or Manager, who shall be responsible for notifying all employees who may be affected by the lockout/tagout.

4.5 Outside Contractors

Contractors shall be provided a copy of the Lockout/Tagout Program and shall be required to adhere to the Program. The Supervisor, Manager, or Project Manager shall ensure the Contractor understands the Program. Contractors shall provide their own lockout/tagout devices and tags or signs. In the event both a contractor and CSU, Chico employees are working on the same equipment or machine(s), the employee shall also place his or her lockout/tagout devices and tags/signs to the equipment or machine. Both parties shall follow all procedures in this Program to ensure there are no accidental or unexpected releases of hazardous energy.

5.0 RULES

5.1 General Rules

Any and all equipment or machines that are subject to maintenance or repair that is not part of the normal production operation of the equipment or machine shall be provided with an accident prevention tag or sign and be locked and tagged out. This is to eliminate the possibility of unexpected or accidental activation resulting in the release of hazardous energy during the service or repair operations. This rule shall apply at all times when an accidental or unexpected activation could cause any injury or death to an affected employee.

5.2 Training

All personnel shall be trained in the recognition of accident prevention tags and signs and lockout/tagout devices. This training will emphasize the rule that employees are to never attempt to activate equipment or machines that are locked out or tagged out. Employees shall be trained to understand to never remove any energy isolating device unless authorized and have performed all safety functions in accordance with Section 3.0 through 3.2.of this document.

5.3 Machine and Equipment Specific Procedures

Lockout/tagout procedures shall be specific to each machine or type of equipment. Employees shall be trained to be aware of specific hazards relative to each machine and type of equipment.

5.4 Periodic Inspections and Documentation

Authorized employees or Supervisors shall conduct periodic inspections of energy control procedure(s) applicable to specific machines or equipment at least annually to evaluate the continued effectiveness and determine if it necessary to update the written procedures. The inspection shall be conducted by an authorized employee or person other than the one(s) utilizing the hazardous energy control procedures being reviewed.

Where lockout/tagout procedures are used for hazardous energy control, a periodic review between the Supervisor or authorized employee and the affected employee shall be performed to ensure the employees understand both the requirements and their responsibilities under the hazard control program.

It is required that periodic inspections are performed and are documented. The documentation shall include: the identification of the machine or equipment the hazardous energy control procedure was being utilized, the date of the inspection, all employees included in the inspection and/or review, and the name of the person performing the inspection or review.