

Lockout Tagout Program



Lockout / Tagout Program

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INTRODUCTION

The OSHA regulation, entitled “Control of Hazardous Energy – Lockout / Tagout” under Sub-Part J, Section 29 CFR 1910.147, requires that all employers develop a complete hazardous energy control program. The program should cover the servicing and maintenance of machines and equipment in the workplace. Controls should be implemented to help prevent unexpected energization or startup of the machines or equipment or the release of stored energy which could cause injury to employees.

PURPOSE

The purpose of this program is to establish practices and procedures to isolate and prevent the release of potentially hazardous energy while maintenance and servicing activities are being performed. These categories of energy are to be isolated:

1. Electrical
2. Pneumatic
3. Hydraulic
4. Chemical / Fluids and Gases
5. Mechanical / Kinetic

ELEMENTS OF A LOCKOUT / TAGOUT PROGRAM

A formal Lockout / Tagout Program should consist of these elements. The elements are defined in further detail in the following pages of this document (please refer to the Table of Contents for specific topic and pages).

- Management commitment – Management statement of policy
- Assignment of responsibility
- Written lockout / tagout program
- Documented lockout / tagout procedures
- Procedures for locking and tagging out equipment / machinery
- Procedures for startup of equipment / machinery
- Hazard analysis for each type or piece of equipment / machinery
- Documented training program for employees
- Periodic inspection of the procedures
- Requirements for lockout /tagout devices
- Lockout / tagout audit

MANAGEMENT STATEMENT OF POLICY

Our Management Team is committed to the safety of our employees. In compliance with OSHA CFR 29 Standard 1910.147, our company has developed a formal Lockout / Tagout Program. This program is designed to reduce the potential for employee injuries caused by unexpected energization of a machine or piece of equipment during a servicing or maintenance session.

This program will include these elements:

- Documented lockout / tagout procedures
- Procedures for locking and tagging out equipment / machinery
- Procedures for startup of equipment / machinery
- Hazard analysis for each type or piece of equipment / machinery
- Documented training program for employees
- Periodic inspection of the procedures – Requirements for lockout / tagout devices
- Lockout / tagout audit

Our Management Team is committed to the safety of our employees. Once the formal Lockout / Tagout program is implemented, the program will be evaluated on a continuous basis.

Officer's Name: _____

Title: _____

CONDITIONS FOR LOCKOUT / TAGOUT

Servicing and maintenance which takes place during normal production operations are covered by this standard only if:

- A. An employee is required to remove or bypass a guard or other safety device; or
- B. An employee is required to place any part of his or her body into an area of a machine or piece of equipment where work is actually being performed while the material is being processed (point of operation) or where an associated danger zone exists during a machine operating cycle.

Minor tool changes, adjustments, and other minor servicing activities, which take place during normal production operations, are not covered by this standard if they are routine, repetitive, and integral to the use of the equipment for production. The following is true provided that the work is performed using alternative measures which will provide effective protection. This may include an electronically interlocked safety block where the interlock receptacle is in constant sight of the authorized employee.

Energy control procedures should include cord and plug connected equipment. Cord and plug connected equipment should be under exclusive control of the authorized employee.

The term "under exclusive control" means: physically in possession, or

- within arms' reach and line of sight, or
- if lockout / tagout device is affixed

Plug locks can be used for locking out cord and plug connected equipment.

ASSIGNMENT OF RESPONSIBILITY

The employees typically affected by standard include:

- Authorized employees (maintenance workers)
- Affected employees (operators of equipment)
- Other employees (employees who may be working near or who may be in an area where the energy control procedures are being utilized. Outside contractors, public utility workers, and service representatives are also included.)

This is covered in further detail under Training and Communication on page 9.

LOCKOUT / TAGOUT PROCEDURES

In order to establish a lockout / tagout program, a complete list of all of the machinery and equipment in your plant should be made. A hazard analysis (see Addendum C for example) should be conducted on all machines and equipment to identify all energy sources associated with them. Once all energy isolating devices to be locked or tagged out for each machine. It is important to remember there could be more than one energy source for a machine.

A list of employees who will be authorized to lockout the machines and equipment should be established. The list should include the authorized employee's name and job title. A similar list should be made with the names and job titles of all affected employees.

The authorized employees should be thoroughly instructed in the safety significance and procedures involved in lockout / tagout procedures. Affected employees should be instructed in the purpose and use of the program.

Authorized employees will then be issued personal locks that are identified with the employee's name. The locks should be key style only, and there should be only one key for each lock. There should be one person per lock. Records must be maintained for all locks and keys administered. Additional lockout equipment will be issued to the authorized employees and may include chains, wedges, key blocks, adapter pins, self-locking fasteners, etc. A backup "master" set of keys should be placed in a secure location. Written procedures on the use of the backup "master" set of keys should be developed.

SERVICING, MAINTAINING, OR REPAIRING MACHINES AND EQUIPMENT

These steps should be followed when servicing, maintaining, or repairing machines or equipment in the workplace where the unexpected startup, energization, or the release of stored energy could cause injury to employees working on or around the machine being serviced. The established lockout or tagout procedures should be conducted in the following sequence:

- 1. NOTIFY ALL AFFECTED EMPLOYEES** that a lockout or tagout system is going to be utilized and state the reason why. The authorized employee should know the type and magnitude of energy that the machine or equipment utilizes and should understand the hazards that are associated.
- 2. PREPARATION FOR SHUTDOWN.** Before turning off the machine or equipment, the authorized employee should be familiar with the types of energy involved, the hazards associated with the energy sources, and the method and means to control the energy. At this time, all affected employees should be notified of the proposed shutdown.
- 3. MACHINE OR EQUIPMENT SHUTDOWN.** The machines or equipment should be shut down per established company standards in accordance with OSHA standards. Shutdown should be conducted in the sequence prescribed in the company's written procedure.
- 4. LOCKOUT OR TAGOUT DEVICE APPLICATION.** Lockout or tagout devices should be affixed on all energy isolating devices by the authorized employee. If tags are used, they should be placed in the same way the lock would be placed on or near the energy isolating device.
- 5. STORED ENERGY.** All potentially hazardous stored or residual energy should be relieved, disconnected, restrained, or rendered safe. This is usually accomplished using blocks, blanks, straps, etc.
- 6. VERIFICATION OF ISOLATION.** Before starting work on the machines or equipment that have been locked or tagged out, the operating controls should be activated to verify proper energy isolation. At this time, maintenance, repairs, or service can be conducted.

STARTUP PROCEDURES

After maintenance, repairs, or service is complete, the machine or equipment can be released from lockout or tagout. Before lockout or tagout devices are removed and energy is restored to the machine or equipment, the authorized employee should use the following procedures and actions:

1. The work area should be inspected to ensure that all nonessential items have been removed. Any machine or equipment guarding that was removed should be replaced.
2. All affected employees should be notified that the machine or equipment is to be activated and lockouts or tagouts are being removed.
3. Check work area to verify that it is all clear of employees and tools. Verify that all operating controls are in the off or neutral position. Authorized employees can then remove their specific lockouts or tags.
4. Each lockout or tagout device should be removed from the energy isolating device by the employee who applied it.
5. Restore energy.

TRAINING AND COMMUNICATION

Training should also be conducted to ensure the purpose and function of the energy control program is understood by all employees and that they acquire the knowledge and skills needed for the safe application, usage, and removal of energy controls. Training should include:

1. Authorized employees shall receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control
2. Affected employees (usually the machine operators) shall be instructed to:
 - understand the purpose of this procedure and the importance of not attempting to start up or use the equipment that has been locked or tagged out
 - recognize when the control procedure is being implemented
3. Other employees who work near operations being performed or who may be in the area where energy control procedures are being utilized, shall be instructed about the energy control procedure and instructed about the prohibition relating to attempted restarts of machines or equipment which are locked or tagged out.
4. When tagout systems are used, employees should also be trained in these limitations of tags.

The tags:

- a. are warning devices only
 - b. must not be removed / bypassed / ignored
 - c. must withstand environmental conditions
 - d. must be legible
 - e. must be securely attached
 - f. may evoke false sense of security
5. Yearly retraining should be provided for all authorized and affected employees whenever:
 - a. there is a change in their job assignments
 - b. there is a change in machines or equipment or processes that present new hazards
 - c. there is a change in the energy control procedures
 - d. periodic inspection reveals, or the employer has reason to believe, there are deviations in employees' knowledge of procedures
 6. Records should be kept on all training and retraining sessions. This will certify that employees have participated in and understand the program. These records should contain each employee's name and dates of training. Each employee should sign the record that he or she attended and understands the principles of the meeting.

PERIODIC INSPECTION

To comply with the provisions of 1910.147, a minimum of one inspection per year must be conducted if there are no maintenance problems. This will ensure the procedure and requirements of this standard are being followed. The inspection should be performed by someone who is trained and authorized by management, but not the authorized employee(s) utilizing the energy control procedure being inspected. Periodic inspections are designed to correct deficiencies. In situations where lockout is used for energy control, the responsibilities of each authorized employee should be reviewed. Where tagout is used, the employer should also conduct a review with each affected and authorized employee. In both situations, review must be done at least on a yearly basis.

The authorized employee should certify that the inspections have been conducted. This certification should include these elements:

1. Date of inspection
2. Name of person performing the inspection
3. Identification of the machinery or equipment on which the energy control procedure was being utilized
4. The names of employees included in the inspection

REQUIREMENTS FOR LOCKOUT / TAGOUT DEVICES

Both lockout and tagout devices must be singularly identified, must be the only devices used for controlling hazardous energy, and must meet these requirements:

- 1. Durable** – Lockout and tagout devices must withstand the environment to which they are exposed. Tagout devices must be constructed and printed so they do not deteriorate or become illegible, especially in wet or corrosive environments.
- 2. Standardized** – Both lockout and tagout devices must be standardized according to either color, shape, or size. Tagout devices must also be standardized according to print and format.
- 3. Substantial** – Lockout and tagout devices must be substantial enough to minimize early or accidental removal. Locks must be substantial to prevent removal except by excessive force. Tag means of attachment must be nonreusable, attachable by hand, non-releasable, self-locking, and with a minimum unlocking strength of no less than 50 pounds.
- 4. Identifiable** – Locks and tags must clearly identify the employee who applies them. Tags must also warn against hazardous conditions if the machine or equipment is energized and must include wording such as: DO NOT START, DO NOT OPEN, DO NOT CLOSE, DO NOT ENERGIZE, DO NOT OPERATE.

The device for attaching the tag also must have the general design and basic characteristics equivalent to a one-piece nylon cable tie that will withstand all environments and conditions.

GROUP LOCKOUT / TAGOUT

Group lockout procedures must be used when it is not possible for each person working on a machine to place his or her lock on each switch, valve, or other energy isolating device.

If a group lockout procedure must be used, remember that each person must still be protected by his or her own lock. This can be achieved by using one or more “shop locks” to lockout the equipment, then placing the key(s) in a cabinet or box equipped to handle the locks of each person working on the machine. One person must direct this process and be responsible for seeing that each person is protected by lockout procedures.

For group lockout / tagout, additional requirements must be met. These include:

- Primary responsibility is vested in an authorized employee for a set number of employees.
- The authorized employee must receive work completion status from group members.
- If more than one crew is involved, a coordinator is needed.
- Each authorized employee must use a personal lockout / tagout device and remove it when finished.

SHIFT OR PERSONNEL CHANGES

Specific written procedures should be developed and utilized during shift or personnel changes to ensure the continuity of lockout / tagout protection. This should include a provision for the transfer of lockout or tagout devices between employees leaving their shift and employees arriving to their shift, to reduce the potential for exposure to hazards from the startup or unexpected energization of machines or equipment, or the release of stored energy.

TAGOUT

A lockout system is the preferred method and should be used when equipment can be locked out unless the employer can show that the tagout system provides full employee protection. When tagout is used on equipment which is capable of being locked out, tags must be attached where lockout devices would be. The employer must demonstrate that tagout will provide safety equivalent to lockout.

If tagout is being used, when equipment is capable of being locked out, additional means are required to prove equal protection. Examples include removal of an isolating circuit or blocking of a control switch.

DEFINITIONS

Affected employee:

An affected employee is a person whose job requires him / her to operate a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him / her to work in an area in which such servicing or maintenance is being performed.

Authorized employee:

An authorized employee is an employee who has had documented proper training in lockout / tagout procedures and who performs servicing or maintenance on machines and equipment. This person is authorized by management to lock out the machines or equipment.

Capable of being locked out:

An energy isolating device is considered capable of being locked out if it meets one of these requirements:

- It is designed with a hasp to which a lock can be attached.
- It is designed with any other integral part through which a lock can be affixed.
- It has a locking mechanism built into it.
- It can be locked without dismantling, rebuilding, or replacing the energy isolating device or permanently altering its energy control capability.

Energized:

Machines and equipment are energized when they are connected to any energy source or contain residual stored energy.

Energy isolating device:

An energy isolating device is a mechanical device that physically prevents the transmission or release of energy. This includes, but is not limited to:

- Manually-operated electrical circuit breakers
- Disconnect switches
- Line valves
- Energy blocks

(Push buttons, selector switches, and other control circuit type devices are not included.)

Energy source:

An energy source is any source of energy (electrical, pneumatic, kinetic, hydraulic, etc.).

Lockout device:

A lockout device is a device that uses a key style lock to hold an energy-isolating device in a safe position, thereby preventing the energizing of machinery or equipment.

Normal production operations:

Normal production operations are the utilization of machines or equipment to perform its intended production function.

Servicing / Maintenance:

Servicing and maintenance involve any duties performed on machines or equipment for their general upkeep to insure proper operation. This includes adjusting, cleaning or unjamming machines, and inspection of machines. Employees are or may be exposed to the unexpected energization or startup of machines as energy is usually utilized for operation of machinery.

Setting up:

Setting up refers to work performed to make different products on machines (i.e., to change part sizes or products).

Tagout:

Tagout is the placement of a tagout device on 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 removed.

Tagout device:

A tagout device is a prominent warning device, such as a tag and its means of attachment, which can be securely fastened to an energy isolating device, to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.

ADDENDUM A

LOCKOUT PROGRAM DEVELOPMENTAL CHECKLIST

Completing each of the items below will provide the policies and procedures you need to develop your company's lockout safety program. Complete and check off each of these items in the sequence listed.

- _____ Management support and commitment
- _____ General lockout policy
- _____ Basic lockout rules
- _____ Hazard analysis for each type or piece of equipment
- _____ When to lockout each piece or type of equipment
- _____ Lockout procedures developed
- _____ Placing and removing lockouts
- _____ Cord and plug connected equipment
- _____ Transfer of lockout responsibilities
- _____ Removal of absent employee's lock(s)
- _____ Outside contractors
- _____ Group lockout
- _____ Lockout hardware and identification tags purchased
- _____ Lockout inspection policy and schedule
- _____ Lockout enforcement policy
- _____ Equipment replacement, repair, and modification policy
- _____ Authorized, affected, and other employees identified
- _____ Written employee training program completed
- _____ Authorized employees
- _____ Affected employees
- _____ Other employees

ADDENDUM B

ENERGY CONTROL PROCEDURE FORM

Machine: _____
type, manufacturer, model, and serial number

Location: _____

ENERGY SOURCES AND LOCATIONS OF ENERGY ISOLATING DEVICES:

1. _____
2. _____
3. _____
4. _____

Authorized employee(s) _____

Affected employee (s) _____

Qualified employee(s) _____

Procedure developed by _____

Specific procedure for this equipment is as follows:

(This energy control procedure form should be enclosed in a plastic sleeve and posted on each machine.)

ADDENDUM C

MACHINE HAZARD ANALYSIS CHECKLIST

Make as many copies of this checklist as you need to perform a hazard analysis on each piece or type of production, auxiliary, tool room, and other equipment found in your plant. A hazard analysis should identify a machine's sources of potentially hazardous energy that could cause injury during servicing or maintenance. The method(s) used to control hazardous energy and how to verify control should be in a written format.

Machine identification: _____

HAZARDOUS ENERGY SOURCE	METHOD(S) OR CONTROL	VERIFY CONTROL BY
ELECTRICAL		
MECHANICAL / KINETIC		
PNEUMATIC		
HYDRAULIC		

List any auxiliary equipment connected to this machine which may need to be locked out:

(Complete separate checklist for auxiliary equipment.)

LOCKOUT SEQUENCE REQUIREMENTS (Do you control electricity first?)	

ACTIVITIES THAT REQUIRE LOCKOUT ON THIS EQUIPMENT:	

ADDENDUM D

Resources

OSHA – Lockout / Tagout Standard CFR 1910.147