

1910.147

THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT/TAGOUT)

NOTE: THE FOLLOWING LOCKOUT/TAGOUT PROGRAM IS PROVIDED ONLY AS A GUIDE TO ASSIST EMPLOYERS AND EMPLOYEES IN COMPLYING WITH THE REQUIREMENTS OF 29CFR 1910.147, AS WELL AS TO PROVIDE OTHER HELPFUL INFORMATION. IT IS NOT INTENDED TO SUPERSEDE THE REQUIREMENTS OF THE STANDARD. EMPLOYERS SHOULD REVIEW THE STANDARD FOR PARTICULAR REQUIREMENTS WHICH ARE APPLICABLE TO THEIR SPECIFIC SITUATION AND TO MAKE ADJUSTMENTS TO MAKE THIS PROGRAM COMPANY SPECIFIC. EMPLOYERS WILL NEED TO ADD INFORMATION RELEVANT TO THEIR PARTICULAR FACILITY IN ORDER TO DEVELOP AN EFFECTIVE, COMPREHENSIVE PROGRAM.

LOCKOUT/TAGOUT PROCEDURE

for

I. OBJECTIVES

To establish a means of positive control to prevent the accident starting or activating of machinery or systems while they are being repaired, cleaned and/or serviced.

- A. To establish a safe and positive means of shutting down machinery, equipment and systems.
- B. To prohibit unauthorized personnel or remote control systems from starting machinery or equipment while it is being serviced.
- C. To provide a secondary control system (tagout) when it is impossible to positively lockout the machinery or equipment.
- D. To establish responsibility for implementing and controlling lockout/tagout procedures.
- E. To ensure that only approved locks, standardized tags and fastening devices provided by the company will be utilized in the lockout/tagout procedures.

II. AREAS OF RESPONSIBILITY

- A. _____ will be responsible for implementing the lockout/tagout program.
- B. _____ are responsible to enforce the program and insure compliance with the procedures in their department.
- C. _____ is responsible for monitoring the compliance of this procedure and will conduct the annual inspection and certification of the authorized employees.
- D. Authorized employees (those contained in attachment #A-1) are responsible to

follow established lockout/tagout procedures.

- E. Affected employees (all other employees in the facility) are responsible for insuring they do not attempt to restart or re-energize machines or equipment which are locked out or tagged out.

PROCEDURES

PREPARATION FOR LOCKOUT OR TAGOUT

Employees who are required to utilize the lockout/tagout procedure (see attachment #A-1) must be knowledgeable of the different energy sources and the proper sequence of shutting off or disconnecting energy means.

The four types of energy sources are:

- (1) Electrical (most common form)
- (2) Hydraulic or pneumatic
- (3) Fluids and gases
- (4) Mechanical

More than one energy source can be utilized on some equipment and the PROPER procedure must be followed in order to identify energy sources and lockout/tagout accordingly. See Attachment D for specific procedure format.

ELECTRICAL

- A. Shut off power at machine and disconnect.
- B. Disconnecting means must be locked or tagged.
- C. Press start button to see that correct systems are locked out.
- D. All controls must be returned to their safest position.
- E. Points to remember:
 1. If a machine or piece of equipment contains capacitors, they must be drained of stored energy.
 2. Possible disconnecting means include the power cord, power panels (look for primary and secondary voltage), breakers, the operator's station, motor circuit,

relays, limit switches, electrical interlocks.

NOTE:

1. Some equipment may have a motor isolating shut-off and a control isolating shutoff.
2. If the electrical energy is disconnected by simply unplugging the power cord, the cord must be kept under the control of the authorized employee or the plug end of the cord must be locked out or tagged out.

HYDRAULIC/PNEUMATIC

- A. Shut off all energy sources (pumps and compressors). If the pumps and compressors supply energy to more than one piece of equipment, lockout or tagout the valve supplying energy to this piece of equipment.
- B. Stored pressure from hydraulic/pneumatic lines shall be drained/bled when release of stored energy could cause injury to employees.
- C. Make sure controls are returned to their safest position (off, stop, standby, inch, jog, etc.).

FLUIDS AND GASES

- A. Identify the type of fluid or gas and the proper
- B. Close valves to prevent flow, lockout/tagout.
- C. Determine the isolating device, close, and lockout or tagout.
- D. Drain and bleed lines to zero energy state.

NOTE: *Some systems may have electrically controlled valves; if so, they must be shut off, locked or tagged out.*

- E. Check for zero energy state at the equipment.

MECHANICAL ENERGY (Gravity activation, or stored in springs, etc)

- A. Block out or use die ram safety chain.
- B. Lockout or tagout safety device.

- C. Shut off, lockout or tagout electrical system.
- D. Check for zero energy state.
- E. Return controls to safest position.

RELEASE FROM LOCKOUT/TAGOUT

- A. Inspection - - Make certain the work is completed and inventory tools and equipment used.
- B. Clean-up - - Remove all towels, rags, work-aids, etc.
- C. Replace guards - - Replace all guards possible. Sometimes a particular guard may have to be left off until the start sequence is over due to possible adjustments, however, all other guards should be put back into place.
- D. Check controls - - All controls should be in their safest position.
- E. The work area shall be checked to ensure that all employees have been safely positioned or removed and notified that the lockout/tagout devices are being removed.
- F. Remove locks/tags - - Remove only your lock or tag.

PROCEDURE INVOLVING MORE THAN ONE PERSON

When servicing and/or maintenance is performed by more than one person, each authorized employee shall place his own lock or tag on the energy isolating source. This shall be done by utilizing a multiple lock scissors clamp if the equipment is capable of being locked out. If the equipment cannot be locked out, then each authorized employee must place his tag on the equipment.

PROCEDURE FOR THE REMOVAL OF AN AUTHORIZED EMPLOYEE'S LOCKOUT/TAGOUT BY THE COMPANY

Each location must develop written procedures under the above heading that complies with 1910.147(e)(3) that can be utilized at that location. Your procedures should include the following:

- 1. Verification by employer that the authorized employee who applied the device***

is not in the facility.

2. ***Make reasonable efforts to advise the employee that his device has been removed. (This can be done when he returns to the facility).***
3. ***Ensure that the authorized employee has this knowledge before he resumes work at the facility.***

PROCEDURES FOR SHIFT OR PERSONNEL CHANGES

Each facility must develop their own written procedures based on their need and capabilities. However, your procedure must specify how you will ensure the continuity of lockout or tagout protection during that time. See 1910.147(e)(4).

PROCEDURES FOR OUTSIDE PERSONNEL/CONTRACTORS

Outside personnel/contractors shall be advised that the company has and enforces the use of lockout/tagout procedures. They will be informed of the use of locks and tags and notified about the prohibition relating to attempts to restart or re-energize machines or equipment that are locked out or tagged out.

The company will obtain information from the outside personnel/contractor about their lockout/tagout procedures and advise affected employees of this information.

The outside personnel/contractor will be required to sign a certification form (see attachment C). If outside personnel/contractor has previously signed a certification that is on file, there is no need to have them sign a new certification.

TRAINING AND COMMUNICATION:

Each authorized employee who will be utilizing the lockout/tagout procedure will be trained in the recognition of applicable hazardous energy sources, type and magnitude of energy available in the work place, and the methods and means necessary for energy isolation and control.

Each affected employee (all employees other than authorized employees utilizing the lockout/tagout procedure) shall be instructed in the purpose and use of the lockout/tagout procedure and the prohibition relating to attempts to restart or re-energize machines or equipment which are locked out or tagged out.

Training will be certified using attachment #A-2 (Authorized personnel) or #A-3 (Affected

Personnel). The certification will be retained in the employee's personnel file.

PROCEDURES FOR PERIODIC INSPECTION

A periodic inspection (at least annually) will be conducted of each authorized employee under the lockout/tagout procedure. This inspection shall be performed by the _____ ***(Responsible person)*** provided they are not the ones utilizing the energy control procedure being inspected.

The inspection will include a review between the inspector and each authorized employee, of that employee's responsibilities under the energy control (lockout/tagout) procedure. The inspection will also consist of a physical inspection of the authorized employee while performing work under the procedures.

The _____ ***(Responsible person)*** shall certify in writing that the inspection has been performed. The written certification (see attachment #B) shall be retained in the individual's personnel file.

ATTACHMENT A-2

CERTIFICATION OF TRAINING

(AUTHORIZED PERSONNEL)

I CERTIFY THAT I RECEIVED TRAINING AS AN AUTHORIZED
EMPLOYEE UNDER _____ LOCKOUT/TAGOUT
PROGRAM. I FURTHER CERTIFY THAT I UNDERSTAND THE
PROCEDURES AND WILL ABIDE BY THOSE PROCEDURES.

AUTHORIZED EMPLOYEE SIGNATURE

DATE

ATTACHMENT A-3

CERTIFICATION OF TRAINING

(AFFECTED PERSONNEL)

I CERTIFY THAT I RECEIVED TRAINING AS AN AFFECTED EMPLOYEE UNDER
_____ LOCKOUT/TAGOUT PROGRAM. I FURTHER CERTIFY
AND UNDERSTAND THAT I AM PROHIBITED FROM ATTEMPTING TO RESTART
OR RE-ENERGIZE MACHINES OR EQUIPMENT WHICH ARE LOCKED OUT OR
TAGGED.

AFFECTED EMPLOYEE SIGNATURE

DATE

ATTACHMENT B

LOCKOUT/TAGOUT INSPECTION CERTIFICATION

I CERTIFY THAT _____ WAS INSPECTED ON THIS DATE
UTILIZING LOCKOUT/TAGOUT PROCEDURES. THE INSPECTION WAS
PERFORMED WHILE WORKING ON _____.

AUTHORIZED EMPLOYEE SIGNATURE

DATE

INSPECTOR SIGNATURE

DATE

ATTACHMENT C

OUTSIDE PERSONNEL/CONTRACTOR CERTIFICATION

I CERTIFY THAT _____ AND _____
(OUTSIDE PERSONNEL/CONTRACTOR) HAVE INFORMED EACH OTHER OF OUR
RESPECTIVE LOCKOUT OR TAGOUT PROCEDURES.

NAME (PRINTED)

DATE

SIGNATURE

DATE

OUTSIDE PERSONNEL/CONTRACTOR (PRINTED)

DATE

SIGNATURE

DATE

ATTACHMENT D

EQUIPMENT SPECIFIC PROCEDURE
FOR

(Date)

Machine Identification

General Description: _____

-

Manufacturer: _____

Model Number: _____

Serial Number:* _____

** If more than one piece of same equipment, list all serial numbers.*

Location of equipment: _____

Operator Controls

The type of controls available to the operator need to be determined. This should help identify energy sources and lockout capacity for the equipment.

List types of operator controls:

Energy Sources

The energy sources present on this equipment are: (electrical, steam, hydraulic, pneumatic, natural gas, stored energy, etc.)

ENERGY SOURCE	LOCATION	Lockable		Type lock or block needed
		Yes	No	

Shutdown Procedures

List the steps in order necessary to shut down and de-energize the equipment. Be specific. For stored energy, be specific about how the energy will be dissipated or restrained.

Procedure:

Lock Type & Location:

De-energized State To Be Verified? How?

AFFECTED EMPLOYEES	
Name	Job Title

AUTHORIZED EMPLOYEES	
Name	Job Title

Approved by (& date):

Approved by (& date):
