C-14. LOCKOUT/TAGOUT PROGRAM

I. PURPOSE

This program establishes the minimum performance requirements for the control of hazardous energy through lockout and tagout procedures. These general procedures apply to the servicing and maintenance of machines and equipment where the unexpected energization, start-up, or release of stored energy could cause injury to employees.

This program does not apply to work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energization or start up of the equipment are controlled by unplugging the equipment while the plug is under the exclusive control of the employee performing the servicing or maintenance.

II. DEFINITIONS

Affected employee. An employee whose job requires him/her to operate or use 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. A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under this section.

Capable of being locked out. An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

Energized. Connected to an energy source or containing residual or stored energy.

Energy isolating device. A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: A manually operated electrical circuit breaker, a

disconnect switch, a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

Energy source. Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Hot tap. A procedure used in the repair, maintenance and services activities which involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Lockout. The placement of a lockout device on an energy isolating device, in accordance with an established procedure, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device. A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

Normal production operations. The utilization of a machine or equipment to perform its intended production function.

Qualified person. An employee who has training in avoiding the electrical hazards of working on or near exposed energized circuits.

Servicing and/or maintenance. Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

Setting up. Any work performed to prepare a machine or equipment to perform its normal production operation.

Tagout. 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 operated until the tagout device is removed.

Tagout device. A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to 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 operated until the tagout device is removed.

III. RESPONSIBILITIES

A. Environment, Health and Safety Program (EHS)

1. Provide training in lockout/tagout procedures to include the following:

   a. General lockout/tagout training requirements as described below (Section IV).

   b. General sequence of lockout/tagout procedures as described below (Section V).

   c. General procedures for restoring machines or equipment to normal operation as described below (Section VI).

   d. Procedures for lockout/tagout operations involving more than one person as described below (Section VII).

2. Maintain training records to certify that employee training has been accomplished and is being kept up to date. The certification contains employees' names and dates of training.

3. Conduct a periodic inspection of the energy control procedure at least annually.

B. Facilities Maintenance and Engineering (FME)

1. Supervisors provide detailed training to employees on machine and equipment-specific energy control procedures to include the following;

   a. Recognition of applicable hazardous energy sources;

   b. Specific procedural steps for shutting down, isolating, blocking, and securing machines or equipment to control hazardous energy;

   c. Specific procedural steps for the placement, removal and transfer of lockout devices or tagout devices and the responsibility for them;

   d. Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures

2. Obtain and make available to authorized employees locks, tags, chains, wedges, key locks, adaptor pins, self locking fasteners, or other hardware for isolating, securing or blocking of machines or equipment from energy sources.

3. Provide to EHS records of training provided on specific energy control procedures.

4. Coordinate lockout/tagout procedures with outside personnel, such as subcontractors and USAG utilities (Section VIII).

C. Employee

1. Be completely familiar with the lockout/tagout procedures in this program.

2. Follow the lockout/tagout procedures described in this program and training provided by EHS and their supervisor.

3. Request guidance from their supervisor or EHS when lockout/tagout procedures are not understood.

IV. **TRAINING**

Training ensures that employees understand the purpose and function of the energy control program and that employees acquire the knowledge and skills required for the safe application, usage, and removal of the energy controls. The lockout/tagout training program includes the following:

1. Each authorized employee receives 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. Each affected employee is instructed in the purpose and use of the energy control procedure.

3. All other employees whose work operations are or may be in an area where energy control procedures may be utilized, are instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

4. When tagout systems are used, employees are also trained in the following limitations of tags:

    a. Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.

    b. When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.

    c. Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.

    d. Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.

e. Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.

f. Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.

5. Retraining

a. Retraining is provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures.

b. Additional retraining is also conducted whenever a periodic inspection reveals, or whenever the employer has reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

c. The retraining reestablishes employee proficiency and introduces new or revised control methods and procedures as necessary.

V. GENERAL SEQUENCE OF LOCKOUT/TAGOUT PROCEDURES

A. Prepare for Shutdown.

1. Notify affected employees that servicing or maintenance of the machine or equipment is about to be performed and lockout or tagout devices are being applied.

2. Determine what kind of energy powers the system that is to be shutdown? (Electrical, hydraulic, pneumatic, etc.)

3. Determine if more than one type of energy is involved?

4. Determine the hazards and how should they be controlled.

B. Shut Down the Equipment

1. Use the normal stopping procedure (turn switch to off, press a button, etc.)

2. More complex procedures may be required.

C. Isolate the Equipment

1. Close valves, throw main disconnects, throw circuit breakers.

2. Disconnect or cap any auxiliary power sources such as secondary electrical, steam, hydraulic, or pneumatic systems.

D. Apply the LOTO Devices

Attach a lock or tag to the energy isolating device to prevent the restoration of energy. *Do this at all disconnect switches, valves, and other energy-isolating devices.*

***Workers should have their own individually assigned locks and keys. There should only be one key for each lock. If a master key is kept, it should be reserved for special circumstances and under supervisory control. The worker who applies the lock should remove the lock.

E. Control/Render Safe All Stored or Residual Energy

1. Relieve, disconnect or restrain any residual hazardous energy that could be present, including trapped pressure.

2. Check that all moving parts have stopped turning.

3. Blank pipe flanges.

4. Install ground wires to discharge electrical capacitors and static buildup.

5. Block or support elevated equipment.

F. Verify Isolation of Equipment

1. The employee must make sure that equipment will not run before beginning work.

2. Warn employees and make sure everyone is clear of the lockout area.

3. Test to make sure the right system has been locked out and cannot be operated.

4. Press all start buttons or other activating controls; return them to the off position.

5. Be sure to verify isolation (by observation) periodically until service or maintenance is complete.

6. The service or maintenance on this machine or equipment can now be performed.

VI. RESTORING MACHINES OR EQUIPMENT TO NORMAL OPERATION

A. After servicing and/or maintenance is complete and equipment is ready for normal operation, check the area around the machine or equipment to ensure that employees have been safely positioned.

B. After all tools have been removed from the machine or equipment, guards have been reinstalled and employees are in the clear, remove all lockout and/or tagout devices and reactivate machinery using the proper steps to allow energizing of the machine or equipment.

C. Notify affected employees that servicing or maintenance of the machine or equipment is completed and lockout or tagout devices are removed.

VII. PROCEDURE INVOLVING MORE THAN ONE PERSON (Group Lockout)

A. In the preceding steps, if more than one individual is required to lockout or tagout machines or equipment, each will place his/her own personal lockout device or tagout device on the energy isolating device(s). When an energy isolating device cannot accept multiple locks or tags, a multiple lockout or tagout device (hasp) may be used. If lockout is used, a single lock may be used to lockout the machine or equipment with the key being

placed in a lockout box or cabinet. As each person no longer needs to maintain his or her lockout protection, that person will remove his/her lock from the box or cabinet. Each employee in the group must review the lockout/tagout procedure to be used.

VIII. OUTSIDE PERSONNEL (SUBCONTRACTORS, USAG, ETC.)

A. Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of the Lockout/Tagout Procedure, the COTR will make contact with the subcontractor and each will inform the other of their respective lockout or tagout procedures. If differences exist, a mutually agreeable procedure will be established prior to servicing or maintenance.

IX. REFERENCES

29 CFR 1910.147 - The Control of Hazardous Energy (Lockout/Tagout)