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HAZARDOUS ENERGY CONTROL

I. INTRODUCTION

Employees must use lockout/tagout procedures to lock out hazardous energy to equipment when maintenance or servicing is required. These procedures are designed to prevent the unexpected startup and/or release of energy from machinery, both of which can cause serious injury to employees and damage to property. The purpose of this regulation is to specify the minimum steps necessary to render machinery, equipment, and processes in a safe condition for maintenance or service work to be performed.

This regulation applies to "authorized employees," employees who are authorized to perform service or maintenance on equipment, systems or machines, and "affected employees," employees whose job requires them to operate or use a machine or equipment on which servicing, maintenance, or set-up is being performed under lockout or tag-out.

II. LOCKOUT AND TAGOUT

On the job accidents sometime involve electrical shock, burns, or exposure to hazardous materials or moving machinery. These accidents share one thing in common—the uncontrolled release of energy, no matter what type.

***A lockout* is a locking device, such as a padlock, placed on an energy control point— such as a switch, lever, or valve—to prevent the release of hazardous energy that could set a machine in motion or otherwise endanger an employee working on the machine. In many instances, a padlock is used to hold an energy control point in an "off" position, making it impossible to operate.**

***A tagout* is a written warning to employees and others not to operate a switch or valve that could release hazardous energy or set a machine in motion. The tagout is placed prominently on the switch, lever, or other energy control point.**

Tagout devices are used as a method for energy isolation *ONLY* when the equipment or machine cannot accept a lockout device. In this instance a supervisor shall review, verify and authorize the use of tagout procedures as the energy isolation method.

III. LOCKOUT TAGOUT PROCEDURES

To safely perform service or maintenance on equipment, employees shall use specific procedures to secure the different energy sources a piece of equipment may have. These procedures shall be used when:

A. Repairs are conducted;
B. Employees are working alone or out of visual contact of the controlling switch;
C. A danger of injury from an unexpected release of energy exists; or
D. A situation threatens an employee's safety.

Departments should document the steps used to place the equipment into a safe condition to work on. Where specific step-by-step procedures have not been documented, employees shall use an Energy Source Determination Worksheet (Exhibit 6.01kk). However, if ALL of the following conditions exist, then a documented procedure or the worksheet does not have to be completed:

A. The equipment or system has ONLY ONE source of energy and a single lockout device will keep the equipment in a locked-out condition;
B. The lockout performed can completely de-engergize and deactivate the equipment/system and there is no potential for residual, accumulation or stored energy to release after the equipment/system is shut down;
C. The person performing the work can maintain exclusive control of the energy source;
D. The work to be performed doesn't create hazards for other employees; and
E. There have been no accidents involving the accidental re-energization of the equipment during service or maintenance.

The lockout/tagout procedures outlined below are intended to ensure the safe operation, calibration, maintenance, and repair of equipment and processes. Employees setting up a lockout/tagout shall follow the steps outlined below:

A. Identify the energy sources in the equipment. Review your department's documented procedures (where available), or use the Energy Source Determination Worksheet to identify all the sources that you will need to secure before beginning the work.

B. Notification. Notify all affected areas and employees of the impending lockout, the reason for it, and estimated start and duration times.

C. Shutdown equipment and place your lockout device(s) on the equipment. Place your lockout devices on the various energy sources you identified earlier in the checklist to hold the switches, valves, etc. in the "off" position. Lockout devices items such as chains, covers, padlocks, or blocks. The lockout of a single piece of equipment might involve several locks.

D. Release residual energy. Shutting down equipment does not mean that equipment is now safe to work on. It may still be necessary to release pressurized hydraulic, air, steam, gas, or water lines or spring-loaded systems. Rotating, swinging or elevated parts may need to be blocked and electrical capacitors may need to be discharged.

E. Double check that you have completed all of the steps. Take nothing for granted. Check to see that all points of control are locked out or tagged out as appropriate. The lockout of a single piece of equipment might involve several locks. Verify that the locked-out switch or control cannot be overridden. Test the equipment to be certain that the locked-out switch is de-energized and not simply malfunctioning. Press all start buttons or turn valves to see if the equipment starts.

F. Perform the scheduled maintenance or repair. Perform the scheduled maintenance or repair and be careful that such work does not bypass the lockout and reactivate the equipment or system. Try to anticipate possible hazards that can be created by the work you plan to do.

G. Remove your lockout devices and restart equipment. All locks and tags are to be left in place until work is completely finished. This is especially true when more than one employee is working on the equipment. Except for emergencies, a lockout can only be removed by the person who placed it. Make sure that other employees in the area are aware that you are returning the equipment or system to operation. Double check that you have removed tools and nonessential items from inside the equipment/system.

IV. GENERAL PRACTICES

All employees shall observe the following general practices governing the use of lockout/tagout devices:

A. Each lock shall be removed by the employee who applied the device. In emergency situations, the immediate supervisor may remove the lock only under the following conditions:
1. **No conditions exist that may impact the safe removal of the lockout device; and**
2. **It can be verified that the employee is not at the facility and the employee has been contacted to notify them that their lockout device has been removed.**
3. **When the employee returns to the facility, they must be advised that their lockout device has been removed before they begin work.**

B. Each department is responsible for providing employees who perform servicing or maintenance with the appropriate lockout/tagout hardware:

1. **Locks and other hardware must be durable and capable of withstanding the environment they will be used in, and not be removable without the use of excessive force (i.e. bolt cutters);**
2. **Only key type locks shall be used. Where locks have duplicate keys all but one key must be destroyed;**
3. **Lockout devices shall not be used for any purpose, such as security, other than for the use of energy isolation when performing servicing and maintenance; and**
4. **Lockout devices shall be standardized within a department using color, shape or size as the standard.**

V. SPECIAL CONDITIONS

The intent of this section is to provide continuity of lock-out protection when unusual or uncommon circumstances exist.

A. Group Lock-out

If more than one individual is working on the same equipment, all employees are still required to lock out equipment and one employee shall be designated to be in-charge. If any member of the group lockout identifies a step that has been missed or is incomplete, they shall notify the in-charge employee and has the right to stop the progression until the situation has been corrected. The designated in-charge employee shall be responsible for:

1. **Ensuring the continuity of energy control measures for the group (e.g. obtaining an appropriate group lockout device) and that each authorized employee assigned to perform work for the group maintenance activity has applied a personal lock;**
2. **Continually monitoring the work to ensure the crew/group employees are not exposed to hazards associated with energized equipment; and**
3. **Verifying that all procedures for returning the equipment back to service are completed before taking off the hasp.**

B. Shift Changes

If a group of employees initiates a lockout procedure for a piece of equipment and another shift of employees must continue the work, it shall be the responsibility of the off-going in-charge employee and the on-coming in-charge employee to ensure that the continuity of the energy control procedure is maintained and each step has been verified for the on-coming employees.

C. Shutdown of Equipment for Extended Periods of Time
Lockout devices shall not be used as a means to remove equipment from service. When extended shutdown is necessary or the equipment needs to be removed from service, tags marked "OUT OF SERVICE" should be used and the equipment should be disabled.

VI. TRAINING

Supervisors overseeing the servicing or maintenance of equipment shall be responsible for informing employees of the specific step-by-step procedures for the equipment managed by their employees. Employees must be able to recognize hazardous energy sources, the magnitude of the energy available, and the methods or means necessary for energy isolation and control before performing the servicing or maintenance to a particular piece of equipment.

Employees who do not perform the servicing or maintenance of equipment but may be affected by the shutdown shall be informed of the purpose and use of the energy control procedure and to never remove or tamper with energy control devices.