CONTROL OF HAZARDOUS ENERGY: LOCKOUT/TAGOUT PROGRAM

29 CFR 1910.147

April 2011

INTRODUCTION

The OSHA standard 1910.147 The *Control of Hazardous Energy* covers the servicing and maintenance of machines and equipment in which the *unexpected* energization or start up of the machines, or release of stored energy could cause injury to employees. To effectively control hazardous energy during servicing and maintenance, a Lockout/Tagout program should be developed. The goal of a Lockout/Tagout program is to isolate an energy source before employees can perform maintenance and servicing of equipment.

GENERAL

Lockout - The placement of a lockout device on a piece of equipment's Energy Isolating Device (circuit breaker, disconnect switch, control valve, etc.) which prevents the flow of energy so the equipment powered by that source cannot be operated. A lockout device is a type of physical restraint such as a lock, block, or chain that cannot be easily removed, and placed to keep valves or levers in the off position.

Tagout - The process of attaching a tag to the power source which acts as a notification or warning not to restore energy to that piece of equipment. A tag is not a physical restraint. It must be durable enough to withstand the environment it is placed in without deterioration. Tagout used in conjunction with Lockout is the most effective way to control energy sources. If only Tagout procedures are used, management must demonstrate Tagout is as effective as Lockout.

Employees effected by a Lockout/Tagout include:

Affected Employee: An employee whose job requires him/her to operate a piece of equipment on which servicing or maintenance is being performed under Lockout/Tagout conditions.

Authorized Employee: A person who locks or implements lockout system procedures on a piece of equipment to perform service or maintenance.

Appropriate employees should be instructed in the safety significance of the Lockout/Tagout procedures. Each new or transferred affected employee and other employees whose work operations are or may be in the area should be instructed in the purpose and use of the procedure.

Lockout/Tagout procedures must be followed if:

- An employee is required to remove or bypass a guard or other similar device
- An employee is required to place any part of his or her body into the point of operation on a piece of equipment

Exceptions to Lockout/Tagout procedures:

- Minor tool changes and adjustments that are a normal and routine part of production provided other alternative measures or protection are in place.

- Work on cord or plug connected electrical equipment as long as the plug is under exclusive control of the employee.

Types of hazardous energy and examples of how to control them:

ELECTRICAL CONTROL

1. Unplug the machine or piece of equipment using an electrical plug lock or a disconnect switch with padlocks, locks and tags.
2. Ensure that all power sources are locked and tagged out.
3. Bleed any stored electrical energy to a "zero energy state".
4. Use a tester to check that all circuits are dead.

PNEUMATIC CONTROL

1. Release the pressure to reach a "zero energy state".
2. Lockout the energy source-using lockout valves.

HYDRAULIC CONTROL

1. Release pressure valve to reach a " zero energy state".
2. Lockout the energy source using lockout valves, chain, padlocks and locks.

FLUIDS AND GASES

1. Evaluate all hoses and valves.
2. Insert a blank or blind in the line.
3. Use lockout valves, chains, padlocks, and locks at the isolating source.

MECHANICAL CONTROL

1. Release or block all stored mechanical energy. Be cautious of gravity, springs, tension and other sources of energy that are not always obvious.
2. Restrain energy using blocks.
3. Lockout and tagout energy using padlocks, locks, and tags.
4. Recheck all areas for potential sources of energy.

SUMMARY OF REQUIREMENTS:

- **Develop an energy control program**
- **Identify and implement specific procedures in writing for the control of hazardous energy including preparation for shut down, shut down equipment isolation, lockout/tagout application, release of stored energy, verification of isolation.**
- **Obtain standardized locks and tags that indicate the identity of the employee using them and which are of sufficient quality and durability to ensure their effectiveness.**
- **Ensure that new equipment or over hauled equipment can accommodate locks**.
- **Use locks when equipment can be locked out.**
- **Employ additional means to ensure safety when using an effective lockout program uses tags rather than locks.**
- **Institute procedures for release of lockout tagout including machine inspection, notification and safe positioning of employees and removal of the lockout tagout device**
- **Adopt procedures to ensure safety when equipment must be tested during servicing, when outside contractors are working at the site when a multiple lockout is needed for a crew servicing equipment and when shifts or personnel change.**
- **Train employees in the specific energy control procedures with training reminders as part of the annual inspections of control procedures.**

LOCKOUT/TAGOUT DEVICES SHOULD NEVER BE REMOVED BY ANYONE EXCEPT THE INDIVIDUAL IS RESPONSIBLE FOR THE LOCKOUT/TAGOUT PROCEDURES