PMA COMPANIES

Lock Out/Tag Out – Managing the Energy

Failure to control energy and potential energy sources before performing maintenance, repair, cleaning, clearing jams and other activities that expose an employee can and will lead to a devastating result.

1. **What is "Lockout/Tagout" (LOTO)?**

   Lockout/Tagout or (LOTO) programs are designed to secure all potential energy sources and ensure that they are disconnected from equipment prior to working on the equipment. This program/process is specifically in place to prevent accidental startup or the release of stored energy.

2. **Potential Energy Source**

   Potential energy source is any type of stored energy that can be accidentally released. Most associate electrical energy with Lockout/Tagout programs, but there are many other types of potential energy exposures:

   - *Hydraulic, vacuum or pneumatic pressure from energized fluid systems.*
   - *Mechanical energy: like a coiled spring ready to release.*
   - *Thermal energy including steam and heated, pressurized systems.*
   - *Chemical energy released during chemical reactions; this may include pressure releases and/or the release of chemicals that can cause harm.*
   - *Kinetic energy is like a big rock on top of a hill, it is not typically a problem until it starts to roll downhill.*

3. **Equipment may have more than one type of energy associated with the operation.**

   For Example: A piece of equipment may have an electric motor (***electrical***), pressurized steam (***pneumatic and thermal***) and pistons (***mechanical energy***) working simultaneously to achieve the intended function.

   A **LOTO** program must consider all of the possibilities and confirm that they are included in the securing of the equipment.

4. **Identify Energy Sources**

   - Someone knowledgeable about the piece of equipment and the operation should be the one to identify the potential energy sources.
   - The manufacturer can provide useful information that will be important to the program.

- To ensure that a Lockout/Tagout program will work it is important to have written instructions or diagrams that show exactly how to Lockout/Tagout each piece of equipment.

5. How to Control a Potential Energy Source

Energy is typically controlled by one of two methods:

- Utilizing a lock and key to make it impossible to accidentally restart the equipment. This is the best method because it provides positive control.

- A tag affixed to the equipment noting that it should not be used. This method is not the best as tags can be removed or ignored.

Based on the method used, the entire team must know how and where to find the instructions for securing a piece of equipment such as where the locks and keys (or tags) are located and where the keys are to be placed once lockout is completed.

Before a person begins working on a piece of equipment that is locked out, ***that person*** should go over the lockout personally to ensure that all the necessary steps were taken.

6. Lockout/Tagout - Who Does It?

Only trained or authorized individuals are to complete Lockout/Tagout. They must know the Lockout/Tagout procedure and how to secure the energy sources and to ensure that these energy sources stay secured while the equipment is being worked on. They must also know the start up process.

7. Basic Steps of Lockout/Tagout

- Develop a step-by-step plan for doing Lockout/Tagout. This will be your road-map to make sure you follow all the steps each and every time.
- Identify all potential energy sources.
- Determine how each source can be safely locked out.
- Get all the supplies (locks, hasps, keys, etc.) you will need to do your Lockout/Tagout.
- Train everyone who will be involved in the Lockout/Tagout of a piece of equipment. (supervisors, maintenance, production and even housekeeping staff)
- Isolate the energy sources; block moveable parts, drain or bleed lines, disconnect electricity, etc.
- Make sure you de-energize all the potential energy sources and the methods you use to isolate the energy sources work.
- ***Test--Test--Test***. Before allowing anyone to start working on a piece of equipment (and with everyone and everything safely out of the way!) try to start the machine to make sure it is completely shut down.

8. Equipment Restarting

Precautions exercised when restarting equipment that was involved in the Lockout/Tagout procedure is just as important as shutting it down.

For Example:

- The order in which you restart or restore the energy sources may be important based on the equipment
- Make sure everyone and all equipment is out of the way
- Complete a thorough check to assure the equipment is operating properly
- If you can't see all of the equipment components during restart, steps should be included in the procedure such as sounding an alarm, make an announcement etc. before the actual re-start begins
- Once the equipment has been restarted, make sure all guards and other safety devices are properly in place and remove all tags or locks regarding the lockout/tagged