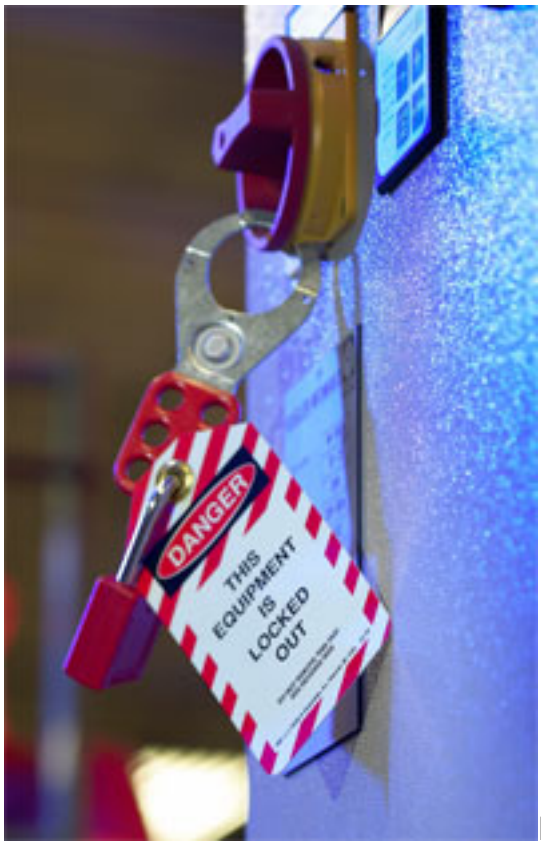
Never Bypass Lockout/Tagout During Repairs

Judie Smithers, Editor — Workplace Safety, J. J. Keller & Associates, Inc.

A sudden chemical release or unexpected machine movement can injure or kill an employee who is servicing, maintaining or repairing process equipment. OSHA's lockout/tagout standard (1910.147) requires employers to authorize the employees who do this work and provide them with the instructions and equipment they need to completely deenergize the machinery. Lockout/tagout procedures assure authorized employees that the equipment is safe to work on.



Locking out process equipment can become very complicated very quickly. Paying close attention to the following three concerns will decrease the risks:

- Group lockout
- Procedures to eliminate hazards from flowable materials in pipes
- The extent of the lockout

Group lockout

Group lockout provisions apply when more than one authorized employee will be working on the equipment. This is a fairly common occurrence when process equipment needs service, maintenance, or repair.

The lockout/tagout standard's provisions for group lockout are at 1910.147(f)(3).

The critical requirement is that each authorized employee must affix a personal lockout device to the group lockout device, group lockbox or comparable mechanism when he begins work. He must remove the device when he stops working on the machine. Primary responsibility is vested in an authorized employee for a set number of employees working under the protection of a group lockout device. Part of this responsibility is to keep track of the exposure status of individual group members.

Under group lockout, no single employee has control of the means to remove the group lockout devices while any employees are still servicing the machine. This can be accomplished by the use of a lockbox or other similar appliance. Once the machine or equipment is locked out using “job locks” applied by the authorized employee with primary responsibility, the keys to those job locks are placed into the lockbox. Each authorized employee then places his lockout device on the box. When each individual completes his portion of the work, he removes his lockout device from the lockbox. Once all personal lockout devices have been removed, the keys for the job locks can be retrieved from the lockbox to remove the locks from the equipment.

A step that should never be overlooked during group lockout is that each authorized employee assigned to the job must have the opportunity to verify that the equipment is indeed locked out before he starts working on the machine.

Lockout for piping

Employees who maintain, service or repair process equipment need the same protection from the unexpected release of flowable materials (such as steam, natural gas and other substances) as they do from the hazardous energy related to work on the mechanical components of the same systems.

OSHA discusses lockout/tagout for piping systems in Section V. of the preamble to the final rule [1]:

“... OSHA will consider bolted blank flanges or slip blinds to be an acceptable type of lockout/tagout device. As with all devices, these bolted systems must be used as part of a standardized, documented procedure, and they must meet the other requirements of the standard for lockout or tagout devices (that is, they must be durable, standardized, substantial and identifiable.) ...”

As a reference, consider the definition of the term “isolation” in OSHA’s standard on permit-required confined spaces (1910.146). The techniques listed in the definition are blanking, blinding, misaligning or removing sections of lines or pipes, and a double block and bleed system.

When these techniques are used to deenergize piping, a method to identify each authorized employee participating in the project must be in place. For example, each authorized employee can attached his tag on the blank flange or the slip blind when he starts work and remove it when he is finished. The use of a single master tag with provision for individuals to sign in and out as they begin and end their work

is also acceptable.

Extent of the lockout

An entire process may not need to be locked out when a repair is done to only a portion of the equipment.

An OSHA letter of interpretation dated November 10, 1999, notes that the extent of lockout procedures would depend on the employees' activities and their exposure to the hazards. The letter includes the following:

"The extent to which an employer must control hazardous energy depends upon the type of servicing or maintenance work being performed, as well as the type and magnitude of the energy. For example, a hydraulic pump overhaul or the removal of a hydraulic line is much different, and requires different energy control procedures, than working on a piece of equipment that is powered by the hydraulic system. Also, working on the 220/440 volt, nominal, electrical motor is different than working on either the hydraulic system or the equipment powered by the hydraulics.

"In some operations, the movement of a simple throw disconnect switch to the 'off' mode is a step sufficient to isolate the machine... In other cases, a series of predetermined steps may be necessary to achieve an orderly shutdown of a machine or piece of equipment in order to safely perform the servicing or maintenance work. This would be the case for the hydraulic pump overhaul or hydraulic line maintenance tasks.

"The employer should perform hazardous energy analyses of the workplace equipment and/or machinery to determine the specific procedures for the control of potentially hazardous energy when employees are performing servicing and maintenance activities covered by the standard. This is a prerequisite shutdown preparation step, described in §1910.147(d)(1), which requires authorized employees to have knowledge concerning the type and magnitude of the energy, the hazards associated with the energy to be controlled, and the methods or means to control the energy prior to shutting off the machine or equipment for servicing and/or maintenance activities.

"Question #2: If an employer secures the system motor (by service panel lockout) against unauthorized or accidental use and no energy hazards related specifically to the hydraulic system are known to exist, does OSHA commonly accept this as adequate lockout protection?

"Reply: Yes, but only if all of the provisions of the lockout/tagout standard, §1910.147, are met and all hazardous energy sources are effectively controlled. Whether a hydraulic pump and motor is effectively locked or tagged out will have to be determined on a case-by-case basis by the employer, who is ultimately responsible for the safety of employees."

OSHA expects the employer to take whatever steps are necessary to isolate the

equipment from the energy sources to the extent necessary so that authorized employees are not at risk of injury.

Conclusion

Each lockout/tagout event presents unique scenarios related to employee involvement, the need to protect from sudden releases from piping systems, and the portion of the process that must be deenergized during the job. Employers should take the time to evaluate the hazards whenever any service, maintenance, or repairs are scheduled.

Source URL (retrieved on *10/30/2014 - 8:43am*):
http://www.chem.info/articles/2013/07/never-bypass-lockout/tagout-during-repairs

Links:
[1] http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=PREAMBLES&p_id=1147