

COVER STORY

Lockout/Tagout: Don't Flip Out over LOTO Compliance

Update your understanding of this life- and limb-saving standard.

By Evelyn Sacks

Awelder was crushed to death by a hydraulic door on a scrap metal shredder. He was trying to remove a jammed piece of metal from the door. The system's energy had not been released, and the door had not been blocked open.

A mechanic was fatally crushed in an escalator while performing maintenance. He had removed the escalator stairs and crawled inside the escalator mechanism. When a coworker dropped the escalator's electrical circuit box, it triggered a relay that sent power to the escalator. The stairs began moving, and the mechanic could not escape. The escalator had no locks or tags on any power controls.

These grizzly examples are typical of the estimated 150–200 fatalities (and 50,000 or so injuries) that occur each year due to a failure to control the release of hazardous energy. Lockout/tagout (LOTO) 1910.147 refers to the Occupational Safety and Health Administration (OSHA)-required practices and procedures to protect workers from unexpected start-up of machinery or from hazardous energy released during service or maintenance. The standard is based on the fact that simply turning equipment off is not enough to block stored energy.

Lockout devices hold energy-isolating equipment in a safe or off position. They prevent equipment from becoming energized because the lockout devices cannot be removed without a key or other unlocking mechanism. Tagout devices, by contrast, are prominent warning devices that are fastened to energy-isolating devices to warn employees not to reenergize the machine while they are being serviced or maintained. Tagout devices are easier to remove and, alone, provide less protection than lockout devices.



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OUT OF SERVICE
DO NOT OPERATE

Details:

Permit # _____

Attached by _____

Time _____

DANGER
LOCKED OUT
DO NOT REMOVE

If You've Got Equipment, You're Probably Covered

According to OSHA, "If your employees service or maintain machines where the unexpected startup, energization, or the release of stored energy could cause injury, the standard likely applies to you. The standard applies to all sources of energy including, but not limited to mechanical, electrical, hydraulic, pneumatic, chemical, and thermal energy."

Incidents related to the control of hazardous energy are perennially on OSHA's top 10 list, but there seems to have been an uptick in cases in recent months. "One of the reasons we're noticing so many amputations and related citations is OSHA's new reporting rules that, since January, have required employers to notify the agency of all work-related amputations," explains Nickole Winnett, shareholder in the Washington, D.C., office of Jackson Lewis. The reporting serves as a red flag and is triggering more inspections. The culprit behind amputations is often a failure to lock out or tag out hazardous energy when employees are working on or near a machine, or a failure to use machine guarding.

Winnett says that although the standard is fairly straightforward and relatively easy for employers to understand,

the issue of "who's covered" can be confusing. LOTO covers servicing and maintenance of machines and equipment where release of stored energy or unexpected startup could harm employees.

She explains, "Normal production operations are not covered by the LOTO standard. However, servicing and/or maintenance activities that take place during normal operations are covered if an employee is required (1) to remove or bypass a guard or other safety device or (2) if an employee is required to place any part of his or her body into an area on a machine or piece of equipment where work is actually performed on the material being processed, or where an associated danger zone exists during a machine operating cycle."

Understand the Exemptions

LOTO does not apply to work on cord- or plug-connected electric equipment and certain hot tapping operations. (Hot tapping refers to the installation of connections to pipelines while they remain in service.) Minor servicing activities that take place during production are also not covered as long as the employer provides effective alternative protection from hazardous energy, such as guards.

Compliant (and Inquiring) Employers Want to Know ...

There are, to say the least, many moving parts when it comes to protecting employees from hazardous energy. The following are OSHA's answers to several key questions about LOTO compliance.

Q. Who is covered by the standard?

A. The standard applies to general industry workers performing service and maintenance on machines and equipment, and who are exposed to unexpected startup, energization, or release of hazardous energy.

Q. What activities or operations are covered?

A. Any source of energy, which can include mechanical, hydraulic, pneumatic, chemical, thermal, or others.

Q. What is not covered?

A. Servicing and maintenance performed during normal production operations are not covered, but only if the safeguarding provisions and other standards are effective in preventing worker exposure to hazards created by the unexpected energization or startup, or the release of energy. Also, minor tool changes and adjustments that are routine, repetitive, and integral to the use of the equipment are not covered as long as workers are effectively protected by alternate measures. Also not covered are:

- Construction, agriculture, and maritime work;
- Installations under the exclusive control of electric utilities for power generation, transmission, and distribution;

- Exposure to electrical hazards from work on equipment in electric utilization installations;
- Oil and gas well drilling and servicing;
- Work on cord and plug-connected equipment if it is unplugged and the authorized employee has exclusive control of the plug; *and*
- Certain hot tap operations.

Q. What are the basic elements of an energy control program?

A. There are three: energy control procedures (with specific information an authorized employee must know), employee training, and periodic inspections.

Q. Can I develop my own program, or does OSHA dictate what should be included?

A. Yes. In fact, employers are expected to develop programs and procedures, training, and inspections that meet their particular needs and the types of equipment in use as long as they meet the requirements of the standard.

OSHA requires that in order to be exempted, the minor servicing exemption applies only to activities that are:

- Routine—part of a regular procedure.
- Repetitive—repeated regularly as part of the production process or cycle.
- Integral—inherent to and performed as part of the production process.

Watch Out for Small Changes

OSHA applies a broad interpretation of servicing and maintaining, according to Winnett. “In most instances, unless it’s working on a cord or really minor servicing, OSHA will say that LOTO applies and the system needs to be de-energized. But many employers don’t understand this and tend to stretch their understanding of servicing and maintaining.”

She offers the example of a pizza box manufacturer making a small change to the line in order to produce a box of a different size. It’s not enough to hit the stop or off button, Winnett emphasizes. “If the system is not de-energized, it could cycle on and injure someone. But the employer may wrongly believe that turning off the machine was enough.” In fact, the system needs to be fully de-energized in OSHA’s view, and that status must be verified by an authorized individual.

Verification varies by machine, but essentially involves reviewing the equipment to understand how it will be shut down, then shutting it down and isolating the energy by putting a lock or tag on it so that it cannot be restarted. Once de-energization has taken place, the next step is to cycle the equipment through and test the system by trying to start it up to ensure that it is de-energized.

Will Your Efforts Stand up to Scrutiny?

What gets employers into trouble with OSHA when it comes to LOTO? Winnett points to a variety of causes, including failure to ensure that energy control procedures have been developed, documented, and are in use for each piece of equipment where service and maintenance occur. Exceptions are situations in which the following are all in place:

- The equipment has no potential for stored or residual energy or reaccumulation of stored energy after shut down, which poses a risk for employees.
- The equipment has a single energy source, which can be readily identified and isolated.
- Isolating and locking out the energy source will completely de-energize the equipment.
- The machine or equipment is isolated from the energy source and is locked out during service or maintenance.
- A single lockout device will achieve a lockout condition.
- The lockout device is under the exclusive control of the authorized employee.

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- The service or maintenance does not create hazards for other employees.

In order to apply this exception, the employer must have had no accidents involving unexpected activation or re-energizing of the equipment during service or maintenance. If the above conditions are not met, written procedures must be developed for each piece of equipment.

Advice for Avoiding Citations

Another area of regulatory concern is businesses that operate out of more than one location. “If you have multiple worksites, OSHA looks at the history of the company to determine whether to issue serious, repeat, or willful violations,” says Winnett.

She adds, “If you have a LOTO citation at a plant in one city, but have not made and verified the fixes, OSHA could issue a repeat violation with penalties up to \$70,000 (and higher after August 2016) for the same problem at another location.” For that reason, employers should communicate OSHA citations received at one location to other sites so they can review their practices and make any necessary changes.

Winnett urges employers to be mindful of the federal government’s practice of issuing contracts to employers with a strong record in safety and other compliance areas. “If you’ve received a citation, the government is going to weigh that in determining who gets contracts.” Winnett also reminds employers that they must provide equipment- and program-specific training to employees and must not rely solely on off-the-shelf LOTO safety videos.

Winnett recommends creating a worksheet or an appendix (paper or digital) for the LOTO program for foremen and crew members to ensure they complete all steps. The appendix walks personnel through every step of locking and tagging out each piece of equipment and trains them on specific expectations.

NIOSH Serves up Food for Thought on LOTO Hazards

The National Institute for Occupational Safety and Health (NIOSH) found that food manufacturing workers experience a higher rate of injuries and illnesses than workers in private industry overall. Their rate, 5.4 per 100 workers, is considerably higher than the 3.4 per 100 workers for private industry.

According to NIOSH research, many machine-based injuries in the food business are related to failure to use lockout/tagout procedures. From 2003 to 2013, 28 fatalities and 227 serious injuries such as amputations were related to LOTO, with the largest number in meatpacking and poultry slaughtering and processing. LOTO was also the most frequently cited OSHA

violation in 2012–2013 for food manufacturing.

What’s going on? NIOSH believes the pressure to maintain a fast pace on assembly lines could cause food-processing facilities to fall short on hazardous energy control. The researchers state, “Given the production pressures in this industry, workers may feel that managers would rather have them risk injury than stop production to properly apply LOTO procedures.”

NIOSH encourages food manufacturers to follow all OSHA requirements for LOTO, and to make sure workers have a clear understanding of when hazardous energy control procedures apply.

Business owners should be sure their company policies provide employee stop-work (or stop-equipment) authority. “OSHA loves to see the sort of safety-first culture that empowers employees and could hopefully prevent a serious accident,” adds Winnett. “Having those sorts of policies and programs in place can possibly affect the severity or classification of an OSHA penalty.”

Hundreds of Inspections Under His Belt

Paul Schlumper is a safety supervisor with the Georgia OSHA Consultation Program. A certified safety professional and engineer, Schlumper also heads the Safety Engineering Branch of the Human Systems Integration Division at the Georgia Tech Research Institute. He has helped hundreds of organizations step up their compliance and safety performance and frequently advises on lockout/tagout.

Schlumper often recommends that employers review OSHA’s lengthy (130-page) but valuable compliance directive on LOTO. The document, CPL 02-00-147, advises

compliance officers on the agency’s interpretation of the relevant standards and its procedures for enforcing them. As such, it contains important insights for employers.

When asked what’s missing in programs he inspects, Schlumper points to the requirement for periodic inspections. “One of the main requirements is that employers perform periodic—at least annual—inspections of each procedure. But, many companies I’ve dealt with are not meeting the requirements.” OSHA requires that the inspection be performed by an authorized employee not involved in the energy control procedure being inspected. The inspection includes identification and correction of any deficiencies or deviations, review of each authorized employee’s responsibilities, review of authorized and affected employees’ lockout duties, and certification by the employer that the inspection has been performed.

The review must be equipment-specific. “If you have 50 pieces of equipment that are all different from one another, each procedure needs to be inspected,” advises Schlumper. But if two or more pieces of equipment are the same, only one procedure needs to be written and inspected. An annual inspection should be the minimum, he suggests. “Don’t skimp on this step and just go through the motions. The goal is to ensure that your procedures are effective and that employees are actually following them.”

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Another compliance problem Schlumper observes is LOTO programs that fail to provide sufficient detail. “OSHA’s CPL (compliance directive) document discusses this at some length. Two words that come up frequently in the document are ‘specificity’ and ‘detail.’”

The intent is to produce a document that is specific and detailed enough so that anyone could follow it, not just someone who is intimately familiar with the equipment and the process of de-energizing it. “You want to see a procedure with lots of pictures, arrows, and accompanying text that is somewhat technical and really describes what people need to do,” Schlumper adds. **SD**

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