9 Things You Must Do to Meet CSA Z460 and ANSIASSE Z244.1 Lockout Requirements

The Risks

Safety devices like barrier guards that are designed to keep workers away from operating machinery don’t do much good when machines are shut down for maintenance and repairs. The danger is that the machinery will start up while being serviced and crush, electrocute, burn and/or amputate the limbs of workers performing the servicing operations. These incidents are typically caused by the inadvertent and unforeseen release of energy left in the system. That’s why OHS laws require you not only to turn off the machine but ensure it’s isolated from its energy source before servicing it. The way to do this is by implementing what’s called a lockout/tagout (LOTO) program.

Be a Better Supervisor

In Canada LOTO rules vary by jurisdiction and in the U.S., LOTO rules are governed by either federal or state OSHA. However, regardless of the location, these OHS requirements represent the legal minimum. And given what’s at stake, many employers build their LOTO programs around the more rigorous standards created by non-governmental safety organizations. And in Canada, CSA Z460-13 “Control of Hazardous Energy – Lockout and Other Methods” is the gold standard for LOTO. In the U.S. ANSI/ASSE Z244.1-16 exists to provide a reliable standard practice that, if followed correctly, can assure safety from hazardous energy in machinery.

Here are the nine things you must do to comply with CSA Z460 and ANSI/ASSE Z244.1.

Step 1: Do a Hazard Assessment

Do a thorough hazard assessment that identifies each task to be completed in servicing the machine.

The risks associated with the task; all potential sources of hazardous energy—electrical, mechanical, gravity, chemical, thermal, pneumatic, hydraulic and radiation; the likelihood of the hazard’s occurrence; and the potential consequences if it were to occur.

(Click here for the TOOL – Lockout Hazard Identification & Risk Assessment Form you can use to do your LOTO hazard assessment.)

Step 2: Create a LOTO Policy

Establish a general LOTO policy that explains the purpose and objectives of the LOTO program; identifies the kinds of servicing operations for which LOTO is required; lists the basic LOTO procedures (see Step 3 below); addresses special LOTO situations, e.g., group lockouts and coordination with contractors; describes the LOTO training and education to be provided to authorized and affected persons (see Steps 6 + 7 below); and provides for regular auditing of the LOTO program and personnel (see Steps 8 + 9 below); and documentation of each aspect of the LOTO program.

Step 3: Create Machine-Specific LOTO Procedures

In addition to a general policy, both OHS laws and CSA/ANSI require you to implement a written procedure for locking and tagging out, servicing and then re-energizing machines. But while OHS requirements typically allow for a general LOTO procedure, CSA/ANSI requires a specific procedure for each machine that identifies the machine to be serviced and the sources of hazardous energy. In either case, the LOTO procedure should describe (and, where necessary, include photos and visuals) each of the 9 phases of the process.

Defining Our Terms: Authorized & Affected Persons
There are 2 crucial definitions you need to understand to implement a LOTO procedure:
* Authorized persons: those with competency & authority to implement key steps in the procedure.
* Affected persons, i.e., workers, supervisors and others affected by LOTO operations.

Phase 1: Preparation for Shutdown: Before servicing begins, an authorized person must identify the sources of energy that need to be controlled and how.

Phase 2: Notification: The authorized person must notify affected workers that a lockout is going to happen; what machinery is going to be locked out; how long the machinery will be unavailable; who’s responsible for the lockout; and whom to contact for more information.

Phase 3: Machinery Shutdown: The machine must be shut off in accordance with manufacturer’s instructions. Somebody needs to verify all controls are in the “off” position and all moving parts have come to a complete stop.

Phase 4: Isolation: Methods must be implemented to isolate the machine from its source of energy, depending on the type of energy being isolated, e.g., electrical, chemical, thermal, etc.

Phase 5: Bleeding: Stored residual energy, e.g., electricity in the capacitors, must be dissipated so it doesn’t cause the machine to start up. Methods of dissipation include grounding, repositioning, blocking or bleeding depending on the type of energy involved.

Phase 6: Placing Locks & Tags: Locks must be used to secure the energy-isolating device and tags to signal a lockout is in process and the machinery ***must not*** be

turned on. Exception: Locks may not be required if they're impractical to use and equally effective alternative means of securing the device are used.

Phase 7: Verification: Next, verify the machine is effectively isolated via visual inspection, testing the equipment and/or attempting to restart it.

Phase 8: Perform Servicing: Once you verify the effectiveness of the lockout, you can perform the maintenance operation that required you to implement it in the first place.

Phase 9: Re-Energize Machine: When maintenance ends, the following steps must be taken before the machine is restored to service: check the machinery to ensure equipment components are operationally intact and controls are in neutral; check the work area to ensure it's been cleared of unnecessary tools, equipment and personnel; remove locks and tags; restart the machine; and notify affected workers the servicing is done.

Step 4: Ensure All LOTO Devices Meet Required Standards

As part of both your general LOTO policy and machine-specific procedures, specify that all lockout devices (including tags used with lockout devices) must be uniquely identified; be the only devices used for controlling hazardous energy; not be used for any other purpose; be capable of withstanding the environment to which they're exposed; be substantial enough to prevent removal of the energy-isolating device without excessive force, unusual measures or destructive techniques; and be standardized within the facility in at least one of the following criteria:

- Color
- Shape
- Size
- Specific markings

Step 5: Ensure All LOTO Tags Meet Required Standards

An information tag must be used with each lockout device unless the device already has the required information attached. The informational tag must list the identity of the worker applying device; warn of hazardous conditions (as should the locks); and may include the date and reason for the lockout.

Step 6: Ensure All Authorized Persons Receive Proper Training

Authorized persons must receive proper training before carrying out their LOTO duties. Training can't be generic but must be specific to the company's LOTO program; it must be developed based on manufacturer's documentation, industry best practices, OHS requirements and input from authorized persons themselves; it must include the type and magnitude of the energy in the workplace; each authorized person must be trained in the methods of controlling or isolating those energy types; training must incorporate samples of the machine-specific LOTO procedures and ensure trainees are able to interpret and implement them; and lastly, training must be documented in records listing the trainee's name, training date and topics.

Step 7: Ensure All Affected Persons Receive Required Training

Affected persons’ training must be specific to the hazards to which the affected person is exposed; notify the trainee of the hazards posed to both affected and authorized persons; be carried out before the affected person enters the work area; be documented in records listing the trainee’s name, training date and topics; and be refreshed at least once every 3 years or immediately after changes in job tasks, technology/equipment or other conditions or situations the previous training didn’t address.

Step 8: Do Annual Audits

Complete an annual inspection of all LOTO procedures to ensure they’re still effective and suitable to the particular equipment, energy sources and servicing procedures being used. Retain your audit records for at least 3 years.

Conduct annual audits to ensure workers are following the LOTO program. You don’t have to audit all your workers, just a sample size that includes workers from all shifts, days of operation, groups, non-standard work situations and types of personnel. As with LOTO procedure audits, you must retain your worker audit records for at least 3 years.

Step 9: Coordinate LOTO Measures with Outside Contractors

Finally, it’s highly advisable to address situations where outside contractor personnel perform or are affected by LOTO activities within your facility. Specifically, you need to ensure servicing operations requiring LOTO are carried out in accordance with either your own LOTO procedures; or another suitable LOTO procedure, compliant with regulations and standards, and at least equally effective in protecting workers’ safety as your own procedures.