



Lockout/Tagout in Practice

Avoiding Pitfalls & Staying Compliant – 2026

COMPLIANCE MANAGEMENT INTERNATIONAL

Today's Presenter



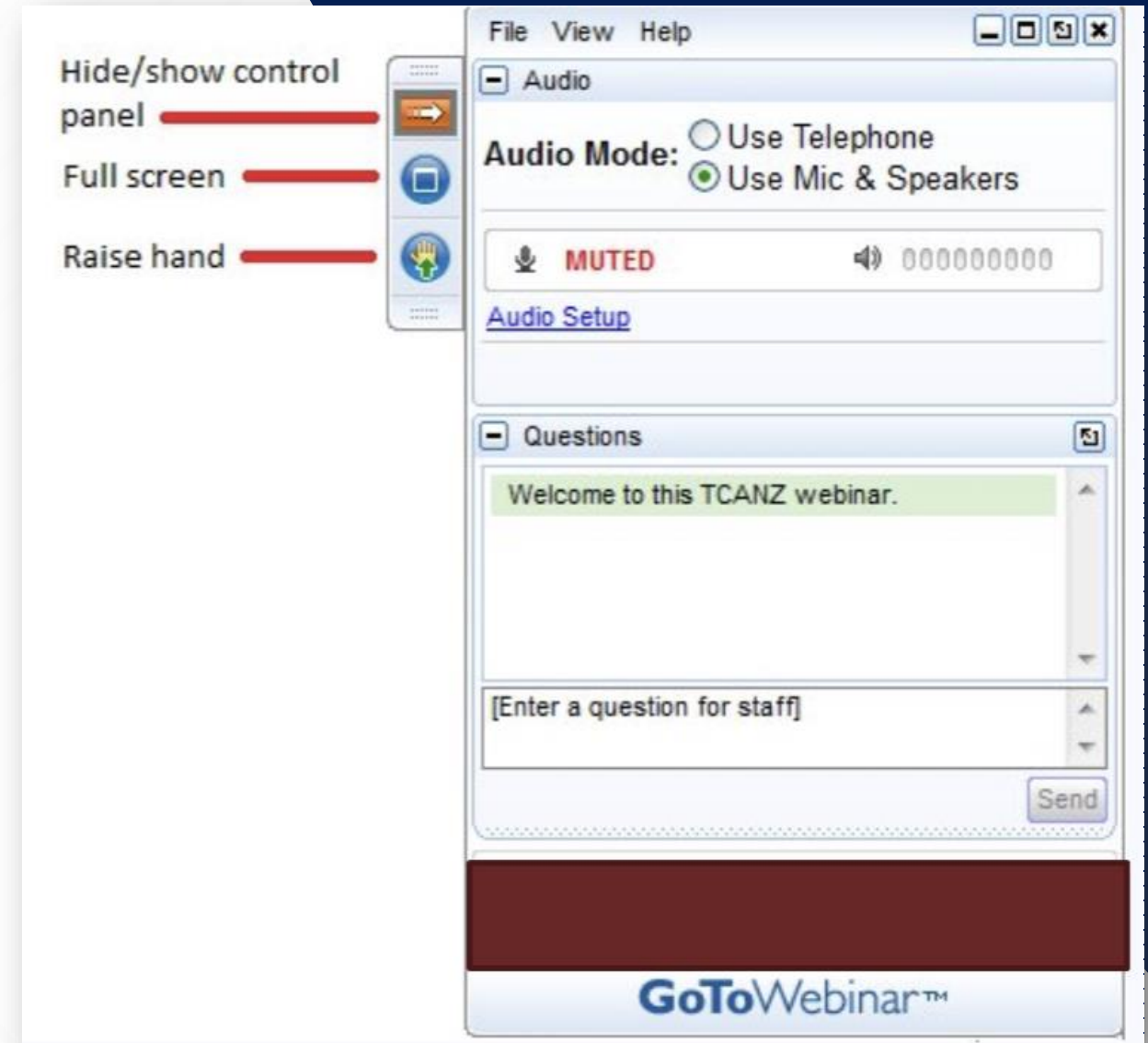
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Services

Housekeeping

- ✓ This presentation is being recorded and will be shared along with the slides after the session is complete (less than 48 hours).
- ✓ Everyone will be muted to prevent background noise.
- ✓ Use the question button to log your question.





Today's

Topics

Why Lockout/Tagout remains one of OSHA's most cited standards

Written program and equipment-specific energy control procedures

Identifying every energy source, including stored and residual energy

The 6 step sequence & steps most often skipped

Group lockout, shift change, and outside contractors

The minor servicing exemption: when it applies and when it doesn't

Steps organizations can take to strengthen overall compliance

Questions? Stay until the end for a free checklist!

Terms & Acronyms

- **LOTO** – Lockout/Tagout, in reference to OSHA's Control of Hazardous Energy standard 1910.147
- **Energy Isolating Device** – A mechanical device that physically prevents the transmission or release of energy. Disconnect switches, circuit breakers, line valves, and blocks qualify. Push buttons, selector switches, and other control-circuit devices do not.
- **Authorized Employee** – A person who locks out or tags out machines or equipment in order to perform servicing or maintenance. An affected employee becomes an authorized employee when their duties include performing that work.
- **Affected Employee** – An employee whose job requires them to operate or use a machine being serviced under lockout or tagout, or to work in an area where that servicing is being performed.
- **Zero Energy State** – The condition in which all energy sources have been isolated, all stored energy has been released or restrained, and the isolation has been verified.

- **Stored / Residual Energy** – Energy that remains in equipment after the primary source is isolated. Includes hydraulic and pneumatic pressure, springs, capacitors, gravity, steam, thermal energy, and rotational momentum.
- **Periodic Inspection** – The annual inspection of each energy control procedure required by 1910.147(c)(6), performed by an authorized employee other than the one using the procedure.

Why Lockout/Tagout Remains One of OSHA's Most Cited Standards

Section 1



OSHA's Top 10

Control of Hazardous Energy has held a Top 10 spot every year, and ranked fourth nationally in FY2025.

Top 10 Most Cited Standards

FY 2025



➤ 2,562 citations under 1910.147 in Fiscal Year 2025 (Oct. 1, 2024 to Sept. 30, 2025)

➤ Penalties reach \$16,550 per serious or other-than-serious violation and \$165,514 per willful or repeated violation. 2025 penalties carry forward.

➤ Citations are assessed per violation. A facility with 20 machines and no equipment-specific procedures can face 20 separate citations from one inspection.

Why the Standard Exists

Section 1

- OSHA estimates that compliance with 1910.147 prevents roughly 50,000 injuries and 120 fatalities each year
- Hazardous energy incidents produce the injuries that end careers: amputations, crush injuries, electrocution, burns
- 1910.147 is one of five standards OSHA uses to target inspections under its National Emphasis Program on Amputations, alongside machine guarding, woodworking machinery, mechanical power presses, and power transmission apparatus
- After any machine-related injury, the written energy control program is one of the first documents a compliance officer requests



Common Citation Categories Under 1910.147



Energy Control Procedures: No equipment-specific procedures, or one generic procedure applied to every machine



Training: Authorized and affected employees untrained, training undocumented, or no retraining after equipment and procedure changes



Periodic Inspections: Annual inspections not performed, self-inspected, or certified without an actual observation



Program & Hardware: No written program, or employees without enough locks, tags, and devices to isolate the equipment they service

Why Citations Happen

Section 1

- The requirements are not complex, but they are difficult to maintain across dozens of machines and multiple shifts
- Programs are written once and never revisited as equipment changes
- Enforcement fades after rollout, and shortcuts become normal practice
- No system exists to periodically review and audit the program's real status
- Everyone assumes the program works because there has not been an incident yet



Written Program & Equipment-Specific Procedures

Section 2



3 Parts of an Energy Control Program

Section 2

1910.147(c)(1) requires a program built from three components:

- Energy Control Procedures – documented, equipment-specific instructions for isolating each machine
- Employee Training – initial and refresher training for authorized, affected, and other employees
- Periodic Inspections – annual inspection of each procedure, certified in writing

Bottom line: All three must exist and be current. A policy on the shelf without procedures and inspections behind it is a citation waiting to happen.

What the Written Policy Must Cover

Your policy should be specific to your company and your operations, and should address:

- Scope, purpose, and roles and responsibilities
- Energy control procedures and how they are developed and updated
- Employee training and retraining triggers
- Periodic inspections and certification
- Lockout/tagout devices, hardware standards, and who issues them
- Group lockout procedures
- Shift and personnel change procedures
- Outside contractors and servicing personnel
- Emergency lock removal steps

Best practice: Review and update the policy annually with changes tracked, and audit whether it reflects what actually happens on the floor.

What OSHA Requires in an Equipment-Specific Procedure

Section 2

Under 1910.147(c)(4), procedures must document:

- A statement of the intended use of the procedure
- Specific steps for shutting down, isolating, blocking, and securing the machine
- Specific steps for the placement, removal, and transfer of lockout or tagout devices, and who has responsibility for them
- Specific requirements for testing the machine to verify the effectiveness of the isolation

The most common finding in the field: procedures that are vague, generic, or missing the steps needed to release residual energy.



Procedure Best Practices

- Include a photo of every lockout point, not just a written description
- Post the procedure at the machine, or make it immediately accessible where the work happens
- Number and mark each lockout point on the equipment so the tag matches the disconnect
- List the device required at each point, including the specific valve, breaker, or block
- State how residual energy is released or restrained at each point
- Include the verification step explicitly, not as an assumption
- Date and version the procedure, and update it when the equipment changes



When a Written Procedure Is Not Required

1910.147(c)(4)(i) allows a narrow documentation exception. All eight conditions must be met:

1. No potential for stored or residual energy, or re-accumulation of energy after shutdown
2. A single energy source that can be readily identified and isolated
3. Isolating that source completely de-energizes and deactivates the machine
4. The machine is isolated and locked out during the servicing
5. A single lockout device achieves the locked-out condition
6. The device is under the exclusive control of the authorized employee performing the work
7. The servicing creates no hazard for other employees
8. The employer has had no accidents involving unexpected activation during servicing

The pitfall: applying this exception broadly to avoid writing procedures. If a machine has pneumatics, a capacitor, a spring, or a second disconnect, the exception does not apply.

Identifying Every Energy Source

Section 3



Energy Comes in More Forms Than Electrical

Electrical – line power, control power, backup and secondary feeds, capacitors, batteries

Hydraulic – pressurized fluid, accumulators, suspended loads

Pneumatic – compressed air, air reservoirs, tanks

Mechanical – springs, flywheels, rotating parts, tensioned belts and chains

Gravity – raised platens, rams, gates, elevated components

Thermal – steam, hot surfaces, process heat

Chemical – process lines, reactive materials



Stored and Residual Energy

- Isolating the source is not the same as reaching a zero energy state
- Stored energy must be relieved, disconnected, restrained, or otherwise rendered safe before work begins
- Where energy can re-accumulate, verification must continue until the servicing is complete
- Common methods: bleeding pressure, cycling valves, blocking or pinning raised components, grounding, allowing rotation to stop, allowing surfaces to cool



Where This Breaks Down in the Field



What we see:

- Procedures that identify only the electrical disconnect
- Employees who lock the panel and go to work, skipping air and hydraulic isolation
- A second feed or control power source nobody knew existed
- Blocking or pinning listed in the procedure but no blocks available at the machine

What it happens:

- Training covered the standard, not the equipment
- Periodic inspections not conducted, or conducted without observing the work
- Enforcement is inconsistent between shifts and departments
- Employees believe the other energy sources cannot hurt them

The Six-Step Sequence and the Steps Most Often Skipped

Section 4



The Six-Step Sequence

The authorized employee will:

1. Notify affected employees that lockout is about to occur
2. Shut down the equipment using its normal stopping procedure
3. Isolate the equipment from all energy sources
4. Lock or tag each energy isolating device with their own assigned lock
5. Release stored energy, or restrain it by blocking or pinning
6. Verify isolation by testing and attempting to restart

Verification Is the Step That Gets Skipped

- Verification means confirming the machine cannot start and that no energy remains, not assuming it
- The authorized employee performing the work must verify, not a supervisor by proxy
- Methods include attempting to start the equipment, checking gauges for zero pressure, and testing for absence of voltage with a meter
- Return controls to the off or neutral position after testing
- Where energy can re-accumulate, verification continues throughout the job

The pitfall: treating verification as a formality. If your procedure does not name the verification method for that specific machine, employees will improvise.



Releasing From Lockout

Before energy is restored, the authorized employee must:

- Inspect the work area and confirm nonessential items are removed and the machine is intact
- Confirm all employees are safely positioned and clear of the equipment
- Notify affected employees that lockout devices are being removed
- Remove their own devices. Each employee removes their own lock, no exceptions.

Emergency lock removal:

- Removal by anyone other than the applying employee requires a documented procedure
- Verify the employee is not at the facility, make all reasonable efforts to contact them, and inform them before they resume work
- Document each occurrence. Frequent emergency removals signal a program problem.

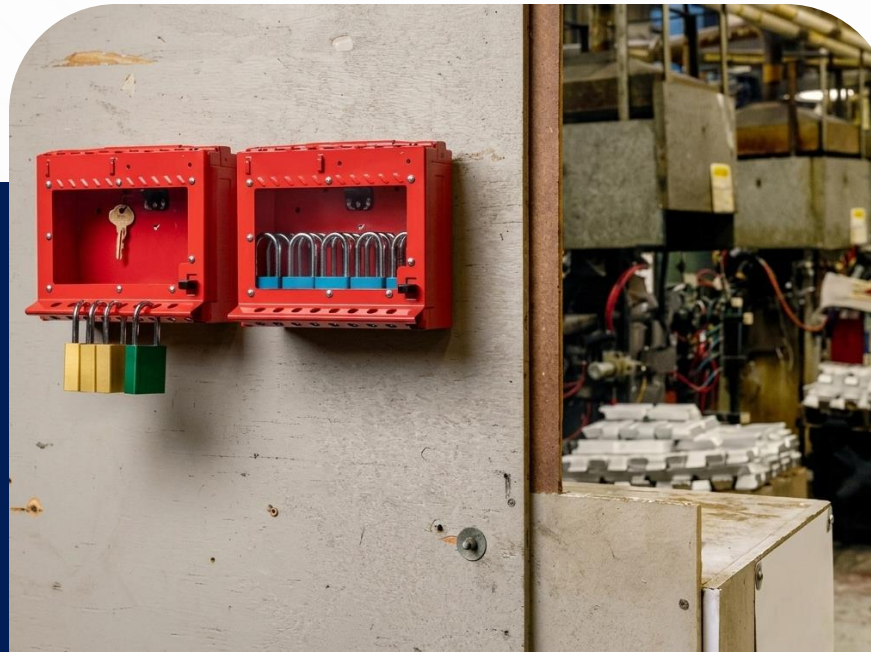
Group Lockout, Shift Changes & Outside Contractors

Section 5



Group Lockout

- Applies when servicing or maintenance is performed by a crew, department, or multiple groups
- Protection must be equivalent to that of personal lockout
- One authorized employee takes primary responsibility for the group and coordinates the work
- That person ascertains the exposure status of every individual in the group
- Each authorized employee applies their own personal lock to the group device, lockbox, or comparable mechanism, and removes it only when their own work is done



What we might hear on site:



- "I don't need to lock this out, my foreman already did."
- "We can't fit all of our locks on the equipment."



Neither is acceptable.

- If hardware is the barrier, buy a lockbox and more hasps.

Shift and Personnel Changes



1910.147(f)(4) requires specific procedures for continuity of protection across shift and personnel changes:

- Orderly transfer of lockout and tagout devices between outgoing and incoming authorized employees
- Notification of incoming affected employees that lockout is in progress
- Start-up testing to be performed as part of the transfer, verifying the de-energized state
- Protection cannot lapse during the handoff, even briefly

Outside Contractors

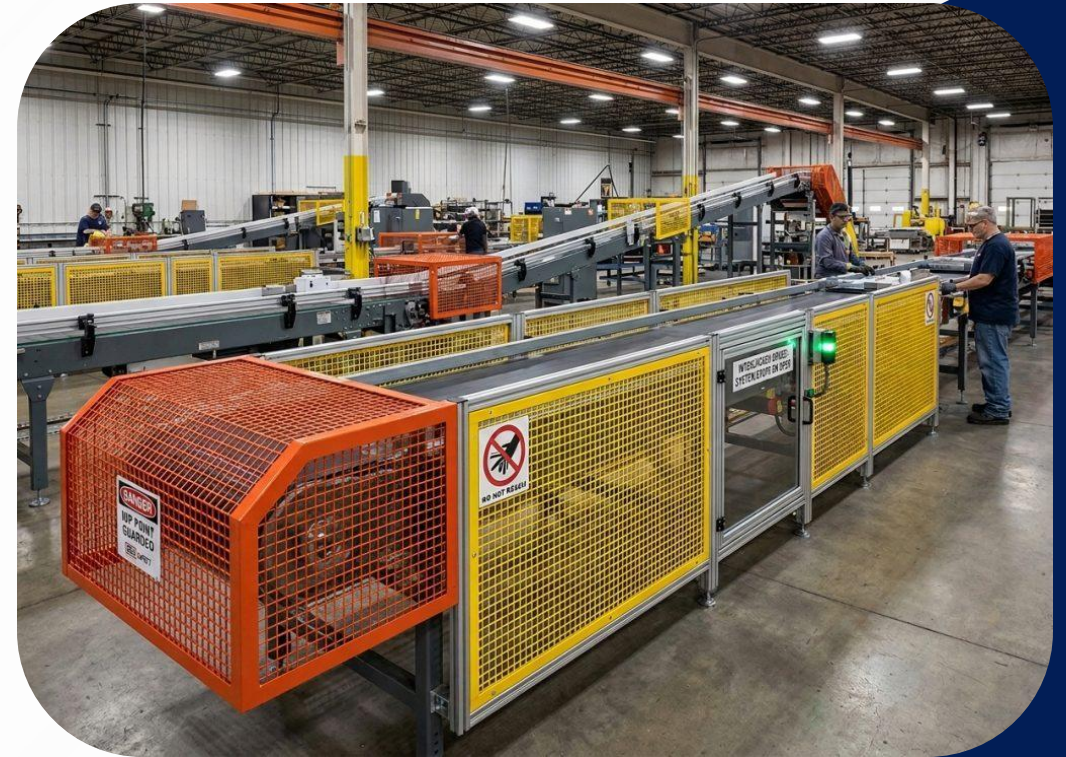
- When outside servicing personnel work at your site, each employer informs the other of their respective lockout procedures
- Your affected employees must understand and comply with the contractor's program restrictions
- Contractors must understand and comply with yours
- Address this in your written policy, not verbally at the gate

Best practice: Verify contractor LOTO training and hardware before work begins, and include contractor jobs in your periodic inspection sampling.



The Minor Servicing Exemption: When It Applies and When It Doesn't

Section 6



What the Exemption Actually Says

OSHA text, exception to 1910.147(a)(2)(ii): Minor tool changes and adjustments, and other minor servicing activities which take place during normal production operations, are not covered by this standard if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection.

Also outside the standard's scope:

- Work on cord and plug connected equipment where the plug is under the exclusive control of the employee performing the servicing
- Situations where no hazardous energy exists

The Pitfall

Treating the exemption as a general permission to work on energized equipment. It is narrow, conditional, and the conditions must be documented.

Routine, Repetitive, and Integral

The activity must occur during, and be inherent to, normal production operations. All three tests must be met:

Routine:

A regular course of procedure, performed in accordance with established practices

Repetitive:

Repeated as part of the production process or cycle

Integral:

Inherent to the production process itself

Typical Examples:

clearing jams, minor cleaning, minor adjustments, lubrication, tool changes

Typical Examples:

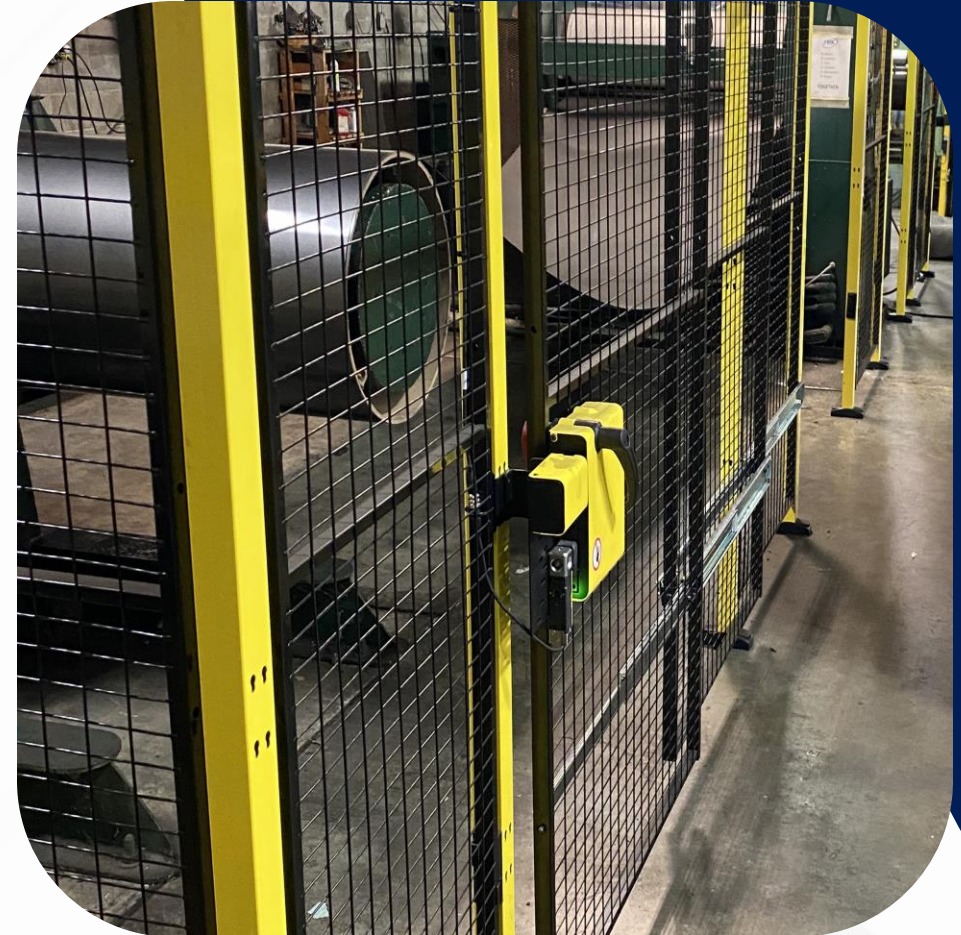


Not Eligible:

work requiring extensive disassembly, work outside the production cycle, breakdown repairs, anything performed on an unscheduled basis

Alternative Measures

- If all three tests are met, the employer determines what alternative measures provide effective protection
- Alternative measures draw on equipment safeguarding as described in OSHA Subpart O, Machinery and Machine Guarding
- These can include fixed guarding, interlocks, presence-sensing devices, and exclusive control by the person performing the task
- Exclusive control is the critical element. If the employee cannot maintain it, the exemption does not apply.



Write the Procedure, Then Train to It

A minor servicing procedure should:

- State the purpose and define the exemption
- Clearly scope the specific tasks the exemption applies to
- Define the steps required to achieve equivalent protection
- Confirm how the operator maintains exclusive control

Interlocks will not suffice if:

- They can be bypassed
- The guard can close behind the employee, so exclusive control is lost
- The machine can be overridden from another location
- Guarding is present but insufficient for the task being performed

After development, employees who use the procedure must be trained against it. An undocumented exemption is an unenforceable one

Periodic Inspections, Training & Prioritizing Corrective Actions

Section 7



Periodic Inspections

What 1910.147(c)(6) requires:

- An inspection of each energy control procedure at least annually
- Performed by an authorized employee other than the one using the procedure being inspected
- Conducted to identify and correct deviations and inadequacies
- Includes a review between the inspector and each authorized employee of that employee's responsibilities. Where tagout is used, affected employees are included as well.
- Certified in writing, identifying the machine, the date, the employees included, and the person performing the inspection

Best practices:

- Observe the lockout being performed. A desk review of the binder does not satisfy the requirement.
- Inspect per procedure, not once per program
- Spread inspections across the year rather than stacking them in December
- Track them in your preventive maintenance system so they generate work orders
- Feed findings back into procedure updates and retraining

Training Requirements

Who gets trained, and on what:

- **Authorized employees** – recognition of hazardous energy, the type and magnitude of energy in the workplace, and the methods and means of isolation and control
- **Affected employees** – the purpose and use of the energy control procedure
- **All other employees** – the prohibition against restarting or re-energizing locked-out equipment

When retraining is required:

- A change in job assignment
- A change in machines, equipment, or processes that presents a new hazard
- A change in the energy control procedure
- When a periodic inspection reveals deviations or inadequacies

Best practices: hands-on training with the actual devices employees will use, walking the equipment-specific procedure step by step, practical exercises to verify competence, and documented certification with employee names and dates.

Identifying and Prioritizing Corrective Actions

- Document every deficiency found during audits, inspections, and floor observations
- Build a corrective action worksheet that lists each deficiency separately
- Prioritize by risk, where risk equals probability multiplied by severity
- Assign corrective actions, responsible parties, and deadlines, then follow up
- Communicate changes to affected employees, not just to the safety file
- Verify the fix held. If the same finding appears at the next inspection, that pattern is exactly what an inspector notices.



Strengthen Your LOTO Program

Section 7

Determine program status – Program audits, site audits, and gap assessments against 1910.147

Build what's missing – Equipment-specific procedure development with photo-based lockout points, machine inventories, and policy updates

Evaluate training – Authorized and affected employee training, hands-on sessions, and documentation review

Sustain it – Periodic inspection support, machine safeguarding assessments, and partnership programs



CMI has CSPs, CIHs, and health and safety professionals experienced in every element of an effective energy control program.

Lockout/Tagout Program Self-Review Checklist

Section 7

- After the webinar, look out for your follow-up email. It contains your direct link to download the **Lockout/Tagout Program Self-Review Checklist**, so you can walk your floor, review your procedures and inspection records, and prioritize any fixes before your next audit.



Questions?

Thank you!

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