



LOCKOUT | TAGOUT



Quick Reference FAQs



BACKGROUND



OSHA COVERAGE



REQUIREMENTS OF
THE STANDARD



COMMONLY
USED TERMS

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BACKGROUND

BACKGROUND

What is “lockout/tagout”?

“Lockout/tagout” refers to specific practices and procedures to safeguard employees from the unexpected energization or startup of machinery and equipment, or the release of hazardous energy during service or maintenance activities. This requires, in part, that a designated individual turns off and disconnects the machinery or equipment from its energy source(s) before performing service or maintenance. Additionally, the authorized employee(s) either lock or tag the energy-isolating device(s) to prevent the release of hazardous energy and take steps to verify that the energy has been isolated effectively. If the potential exists for the release of hazardous stored energy or for the re-accumulation of stored energy to a hazardous level, the employer must ensure that the employee(s) take steps to prevent injury that may result from the release of the stored energy.

Lockout devices hold energy-isolation devices in a safe or “off” position. They provide protection by preventing machines or equipment from becoming energized because they are positive restraints that no one can remove without a key or other unlocking mechanism, or through extraordinary means, such as bolt cutters. Tagout devices, by contrast, are prominent warning devices that an authorized employee fastens to energy-isolating devices to warn employees not to re-energize the machine while he or she services or maintains it. Tagout devices are easier to remove and, by themselves, provide employees with less protection than do lockout devices.

Why do I need to be concerned about lockout/tagout?

Employees can be seriously or fatally injured if machinery they service or maintain unexpectedly energizes, starts up, or releases stored energy. OSHA’s standard on the Control of Hazardous Energy (Lockout/Tagout), found in Title 29 of the Code of Federal Regulations (CFR) Part 1910.147, spells out the steps employers must take to prevent accidents associated with hazardous energy. The standard addresses practices and procedures necessary to disable machinery and prevent the release of potentially hazardous energy while maintenance or servicing activities are performed.

Two other OSHA standards also contain energy control provisions: 29 CFR 1910.269 and 1910.333. In addition, some standards relating to specific types of machinery contain de-energization requirements—such as 29 CFR 1910.179(l)(2)(i)(c) (requiring the switches to be “open and locked in the open position” before performing preventive maintenance on overhead and gantry cranes). The provisions of Part 1910.147 apply in conjunction with these machine-specific standards to assure that employees will be adequately protected against hazardous energy.

The purpose of the standard is to prevent injury to servicing and/or maintenance employees due to the unexpected energization or startup of machines and equipment, or release of stored energy.



OSHA COVERAGE

OSHA COVERAGE

How do I know if the OSHA standard applies to me?

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.

The standard does not cover electrical hazards from work that is on, near, or with conductors or equipment in electric utilization (premise wiring) installations, which are outlined by Subpart S of 29 CFR Part 1910. You can find the specific lockout and tagout provisions for electrical shock and burn hazards in 29 CFR Part 1910.333. Controlling hazardous energy in installations for the exclusive purpose of power generation, transmission, and distribution, including related equipment for communication or metering, is covered by 29 CFR 1910.269.

The standard also does not cover the agriculture, construction, and maritime industries or oil and gas well drilling and servicing. Other standards concerning the control of hazardous energy, however, apply in many of these industries/situations.

When does the standard not apply to service and maintenance activities performed in industries covered by Part 1910?

The standard does not apply to general industry service and maintenance activities in the following situations, when:

- » Exposure to hazardous energy is controlled completely by unplugging the equipment from an electric outlet and where the employee doing the service or maintenance has exclusive control of the plug. This applies only if electricity is the only form of hazardous energy to which employees may be exposed. This exception encompasses many portable hand tools and some cord and plug connected machinery and equipment.
- » An employee performs hot-tap operations on pressurized pipelines that distribute gas, steam, water, or petroleum products, for which the employer shows the following:
 - Continuity of service is essential;
 - Shutdown of the system is impractical; and
 - The employee follows documented procedures and uses special equipment that provides proven, effective employee protection.
- » The employee is performing minor tool changes or other minor servicing activities that are routine, repetitive, and integral to production, and that occur during normal production operations. In these cases, employees must have effective, alternative protection.

GENERAL INDUSTRY SERVICE AND MAINTENANCE OPERATIONS INCLUDE:



CONSTRUCTING



INSTALLING AND
SETTING UP



INSPECTING



MODIFYING



MAINTAINING
OR SERVICING

How does the standard apply to general industry service and maintenance operations?

The standard applies to the control of hazardous energy when employees are involved in service or maintenance activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining or servicing machines or equipment. These activities include lubricating, cleaning or unjamming machines, and making adjustments or tool changes, where the employees may be exposed to hazardous energy.

If a service or maintenance activity is part of the normal production operation, the employee performing the servicing may be subjected to hazards not normally associated with the production operation itself. Although machine guarding provisions in Subpart O of 29 CFR 1910 cover most normal production operations, workers doing service or maintenance activities during normal production operations must follow lockout/tagout procedures if they:

- » Remove or bypass machine guards or other safety devices;
- » Place any part of their bodies in or near a machine's point of operation, or;
- » Place any part of their bodies in a danger zone associated with machine operations.

Work involving minor tool changes and adjustments or other minor servicing activities that are routine, repetitive, and integral to the use of the production equipment and that occur during normal production operations are not covered by the lockout/tagout standard. This exception is limited, however, and applies only when economic considerations prevent the use of prescribed energy-isolation measures and when the employer provides and requires alternative measures to ensure effective, alternative protection.

Whenever the standard is applicable, the machinery must be shut off and isolated from its energy sources, and lockout or tagout devices must be applied to the energy-isolation devices. In addition, the authorized employee(s) must take steps to verify that he or she has effectively isolated the energy. When there is stored or residual energy, the authorized employee(s) must take steps to render that energy safe. If the possibility exists for re-accumulation of stored energy to hazardous levels, the employer must ensure that the worker(s) perform verification steps regularly to detect such re-accumulation before it has the potential to cause injury.



REQUIREMENTS OF THE STANDARD



If employers use tagout devices on machinery that can be locked out, they must adopt additional measures to provide the same level of employee protection that lockout devices would provide.

³The standard provides a limited exception to the requirement that energy control procedures be documented. If an employer can demonstrate the existence of EACH of the eight elements listed in 1910.147(c)(4)(i), the employer is not required to document the energy control procedure. However, the exception terminates if circumstances change and ANY of the elements no longer exist.

REQUIREMENTS OF THE STANDARD

What are OSHA's requirements?

OSHA's standard establishes minimum performance requirements for controlling hazardous energy. The standard specifies that employers must establish an energy-control program to ensure that employees isolate machines from their energy sources and render them inoperative before any employee services or maintains them.

As part of an energy-control program, employers must:

- » Establish energy-control procedures for removing the energy supply from machines and for putting appropriate lockout or tagout devices on the energy-isolating devices to prevent unexpected re-energization. When appropriate, the procedure also must address stored or potentially re-accumulated energy;
- » Train employees on the energy-control program, including the safe application, use, and removal of energy controls; and
- » Inspect these procedures periodically (at least annually) to ensure that they are being followed and that they remain effective in preventing employee exposure to hazardous energy.

If employers use tagout devices on machinery that can be locked out, they must adopt additional measures to provide the same level of employee protection that lockout devices would provide. Within the broad boundaries of the standard, employers have the flexibility to develop programs and procedures that meet the needs of their individual workplaces and the particular types of machines being maintained or serviced.

What must an energy-control procedure include?

Employers must develop, document, and use procedures to control potentially hazardous energy. ³The procedures explain what employees must know and do to control hazardous energy effectively when they service or maintain machinery. If this information is the same for the various machines used at a workplace, then a single energy-control procedure may suffice. For example, similar machines (those using the same type and magnitude of energy) that have the same or similar types of control measures can be covered by a single procedure. Employers must develop separate energy-control procedures if their workplaces have more variable conditions such as multiple energy sources, different power connections, or different control sequences that workers must follow to shut down various pieces of machinery.

The energy-control procedures must outline the scope, purpose, authorization, rules, and techniques that employees will use to control hazardous energy sources, as well as the means that will be used to enforce compliance. These procedures must provide employees at least the following information:

- » A statement on how to use the procedures;
- » Specific procedural steps to shut down, isolate, block, and secure machines;
- » Specific steps designating the safe placement, removal, and transfer of lockout/tagout devices and identifying who has responsibility for the lockout/tagout devices; and
- » Specific requirements for testing machines to determine and verify the effectiveness of lockout devices, tagout devices, and other energy-control measures.



OSHA STANDARD
1910.147(A)(1)(I)

Covers the servicing and maintenance of machines and equipment in which the unexpected energization or start up of the machines or equipment, or release of stored energy, could harm employees. This standard establishes minimum performance requirements for the control of such hazardous energy.

In Appendix A to 1910.147, OSHA provides a Typical Minimal Lockout Procedure for employers to consult when preparing their own specific energy-control procedures. The outline is a non-mandatory guideline to help employers and employees comply with the standard. Nothing in the appendix adds to or detracts from any of the requirements in the standard.

What must workers do before they begin service or maintenance activities?

Before beginning service or maintenance, the following steps must be accomplished in sequence and according to the specific provisions of the employer's energy-control procedure:

- » Prepare for shutdown;
- » Shut down the machine;
- » Disconnect or isolate the machine from the energy source(s);
- » Apply the lockout or tagout device(s) to the energy-isolating device(s);
- » Release, restrain, or otherwise render safe all potential hazardous stored or residual energy. If a possibility exists for re-accumulation of hazardous energy, regularly verify during the service and maintenance that such energy has not re-accumulated to hazardous levels; and
- » Verify the isolation and de-energization of the machine.

What must workers do before they remove their lockout or tagout device and re-energize the machine?

Employees who work on de-energized machinery may be seriously injured or killed if someone removes lockout/tagout devices and re-energizes machinery without their knowledge. Thus, it is extremely important that all employees respect lockout and tagout devices and that only the person(s) who applied these devices remove them.

Before removing lockout or tagout devices, the employees must take the following steps in accordance with the specific provisions of the employer's energy-control procedure:

- » Inspect machines or their components to assure that they are operationally intact and that nonessential items are removed from the area; and
- » Check to assure that everyone is positioned safely and away from machines.

After removing the lockout or tagout devices but before reenergizing the machine, the employer must assure that all employees who operate or work with the machine, as well as those in the area where service or maintenance is performed, know that the devices have been removed and that the machine is capable of being re-energized. (See Sections 6(e) and (f) of 29 CFR Part 1910.147 for specific requirements.) In the rare situation in which the employee who placed the lockout/tagout device is unable to remove that device, another person may remove it under the direction of the employer, provided that the employer strictly adheres to the specific procedures outlined in the standard. (See 29 CFR 1910.147(e)(3).)

When do I use lockout and how do I do it?

You must use a lockout program (or tagout program that provides a level of protection equal to that achieved through lockout) whenever your employees engage in service or maintenance operations on machines that are capable of being locked out and that expose them to hazardous energy from unexpected energization, startup, or release of stored energy.

The primary way to prevent the release of hazardous energy during service and maintenance activities is by using energy-isolating devices such as manually operated circuit breakers, disconnect switches, and line valves and safety blocks. Lockout requires use of a lock or other lockout devices to hold the energy-isolating device in a safe position to prevent machinery from becoming re-energized. Lockout also requires employees to follow an established procedure to ensure that machinery will not be re-energized until the same employee who placed the lockout device on the energy-isolating device removes it.

How can I determine if the energy-isolating device can be locked out?

An energy-isolating device is considered "capable of being locked out" if it meets one of the following requirements:

- » Is designed with a hasp or other part to which you can attach a lock such as a lockable electric disconnect switch;
- » Has a locking mechanism built into it; or
- » Can be locked without dismantling, rebuilding, or replacing the energy isolating device or permanently altering its energy-control capability, such as a lockable valve cover or circuit breaker block-out.

What do I do if I cannot lock out the equipment?

Sometimes it is not possible to lock out the energy-isolating device associated with the machinery. In that case, you must securely fasten a tagout device as close as safely possible to the energy-isolating device in a position where it will be immediately obvious to anyone attempting to operate the device. You also must meet all of the tagout provisions of the standard. The tag alerts employees to the hazard of re-energization and states that employees may not operate the machinery to which it is attached until the tag is removed in accordance with an established procedure.

What other options do I have?

If it is possible to lock out an energy-isolating device, employers must use lockout devices unless they develop, document, and use a tagout procedure that provides employees with a level of protection equal to that provided by a lockout device. In a tagout program, an employer can attain an equal level of protection by complying with all tagout-related provisions of the standard and using at least one added safety measure that prevents unexpected re-energization. Such measures might include removing an isolating circuit element, blocking a controlling switch, opening an extra disconnecting device, or removing a valve handle to minimize the possibility that machines might inadvertently be re-energized while employees perform service and maintenance activities.

When can tagout devices be used instead of lockout devices?

When an energy-isolating device cannot be locked out, the employer must modify or replace the energy-isolating device to make it capable of being locked out or use a tagout system. However, whenever employers significantly repair, renovate, or modify machinery or install new or replacement machinery, they must ensure that the energy-isolating devices for the machinery are capable of being locked out.

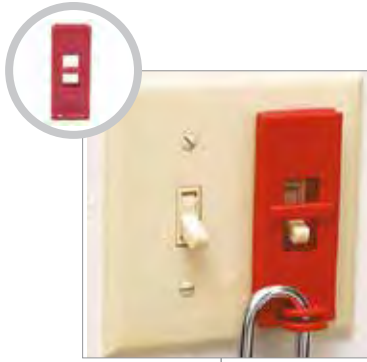
Tagout devices may be used on energy-isolating devices that are capable of being locked out if the employer develops and implements the tagout in a way that provides employees with a level of protection equal to that achieved through a lockout system.

When using a tagout system, the employer must comply with all tagout-related provisions of the standard and train employees in the limitations of tags, in addition to providing normal hazardous energy control training for all employees.



Lockout requires employees to follow an established procedure to ensure that machinery will not be re-energized until the same employee who placed the lockout device on the energy-isolating device removes it.

SAMPLE PRODUCTS



ELECTRICAL SWITCH
LOCKOUT
(ES01)



PUSH BUTTON
LOCKOUT
(PB01)



ADJUSTABLE GATE
VALVE LOCKOUT
(AVLO1)

What are the limitations of tagout devices?

A tagout device is a prominent warning that clearly states that the machinery being controlled must not be operated until the tag is removed in accordance with an established procedure. Tags are essentially warning devices and do not provide the physical restraint of a lock. Tags may evoke a false sense of security. For these reasons, OSHA considers lockout devices to be more secure and more effective than tagout devices in protecting employees from hazardous energy.

What are the requirements for lockout/tagout devices?

Whether lockout or tagout devices are used, they must be the only devices the employer uses in conjunction with energy-isolating devices to control hazardous energy. The employer must provide these devices and they must be singularly identified and not used for other purposes. In addition, they must have the following characteristics:

- » Durable enough to withstand workplace conditions. Tagout devices must not deteriorate or become illegible even when used with corrosive components such as acid or alkali chemicals or in wet environments.
- » Standardized according to color, shape, or size. Tagout devices also must be standardized according to print and format. Tags must be legible and understandable by all employees. They must warn employees about the hazards if the machine is energized, and offer employees clear instruction such as: "Do Not Start," "Do Not Open," "Do Not Close," "Do Not Energize," or "Do Not Operate."
- » Substantial enough to minimize the likelihood of premature or accidental removal. Employees should be able to remove locks only by using excessive force with special tools such as bolt cutters or other metal-cutting tools. Tag attachments must be non-reusable, self-locking, and non-releasable, with a minimum unlocking strength of 50 pounds. Tags must be attachable by hand, and the device for attaching the tag should be a one-piece nylon cable tie or its equivalent so it can withstand all environments and conditions.
- » Labeled to identify the specific employees authorized to apply and remove them.

What do employees need to know about lockout/tagout programs?

Training must ensure that employees understand the purpose, function, and restrictions of the energy-control program. Employers must provide training specific to the needs of "authorized," "affected," and "other" employees.

"Authorized" employees are those responsible for implementing the energy-control procedures or performing the service or maintenance activities. They need the knowledge and skills necessary for the safe application, use, and removal of energy-isolating devices. They also need training in the following:

- » Hazardous energy source recognition;
- » The type and magnitude of the hazardous energy sources in the workplace; and
- » Energy-control procedures, including the methods and means to isolate and control those energy sources.

"Affected" employees (usually machine operators or users) are employees who operate the relevant machinery or whose jobs require them to be in the area where service or maintenance is performed. These employees do not service or maintain machinery or perform lockout/tagout activities. Affected employees must receive training in the purpose and use of energy-control procedures. They also need to be able to do the following:

- » Recognize when the energy-control procedure is being used;
- » Understand the purpose of the procedure, and;
- » Understand the importance of not tampering with lockout or tagout devices and not starting or using equipment that has been locked or tagged out.

All other employees whose work operations are or may be in an area where energy-control procedures are used must receive instruction regarding the energy-control procedure and the prohibition against removing a lockout or tagout device and attempting to restart, re-energize, or operate the machinery.

In addition, if tagout devices are used, all employees must receive training regarding the limitations of tags. (See 29 CFR 1910.147(c)(7)(ii).)

WHEN IS TRAINING NECESSARY?

The employer must provide initial training before starting service and maintenance activities and must provide retraining as necessary. In addition, the employer must certify that the training has been given to all employees covered by the standard. The certification must contain each employee's name and dates of training.

Employers must provide retraining for all authorized and affected employees whenever there is a change in the following:

- » Job assignments,
- » Machinery or processes that present a new hazard, or
- » Energy-control procedures.

Retraining also is necessary whenever a periodic inspection reveals, or an employer has reason to believe, that shortcomings exist in an employee's knowledge or use of the energy-control procedure.

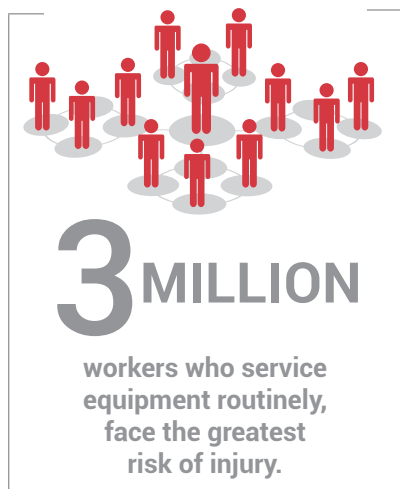
What if I need power to test or position machines, equipment, or components?

OSHA allows the temporary removal of lockout or tagout devices and the re-energization of the machine only in limited situations for particular tasks that require energization—for example, when power is needed to test or position machines, equipment, or components. However, this temporary exception applies only for the limited time required to perform the particular task requiring energization. Employers must provide effective protection from hazardous energy when employees perform these operations. The following steps must be performed in sequence before re-energization:

- » Clear tools and materials from machines.
- » Clear employees from the area around the machines.
- » Remove the lockout or tagout devices as specified in the standard.
- » Energize the machine and proceed with testing or positioning.
- » De-energize all systems, isolate the machine from the energy source, and reapply energy-control measures if additional service or maintenance is required.



OSHA S1910.147(C)(2)(III)
After January 2, 1990, whenever replacement or major repair, renovation or modification of a machine or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machine or equipment shall be designed to accept a lockout device.



The employer must develop, document, and use energy-control procedures that establish a sequence of actions to follow whenever re-energization is required as a part of a service or maintenance activity, since employees may be exposed to significant risks during these transition periods.

What if I use outside contractors for service or maintenance procedures?

If an outside contractor services or maintains machinery, the onsite employer and the contractor must inform each other of their respective lockout or tagout procedures. The onsite employer also must ensure that employees understand and comply with all requirements of the contractor's energy-control program(s).

What if a group performs service or maintenance activities?

When a crew, department, or other group performs service or maintenance, they must use a procedure that provides all employees a level of protection equal to that provided by a personal lockout or tagout device. Each employee in the group must have control over the sources of hazardous energy while he or she is involved in service and maintenance activities covered by the standard. Personal control is achieved when each authorized employee affixes a personal lockout/tagout device to a group lockout mechanism instead of relying on a supervisor or other person to provide protection against hazardous energy. Detailed requirements of individual responsibilities are provided in 29 CFR 1910.147(f)(3)(ii)(A) through (D). Appendix C of OSHA Directive STD 1-7.3, 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout)-Inspection Procedures and Interpretive Guidance, (September 11, 1990), provides additional guidance.

What if a shift changes during machine service or maintenance?

Employers must make sure that there is a continuity of lockout or tagout protection. This includes the orderly transfer of lockout or tagout device protection between outgoing and incoming shifts to control hazardous energy. When lockout or tagout devices remain on energy-isolation devices from a previous shift, the incoming shift members must verify for themselves that the machinery is effectively isolated and de-energized.

How often do I need to review my lockout/tagout procedures?

Employees are required to review their procedures at least once a year to ensure that they provide adequate worker protection. As part of the review, employers must correct any deviations and inadequacies identified in the energy-control procedure or its application.

What does a review entail?

The periodic inspection is intended to assure that employees are familiar with their responsibilities under the procedure and continue to implement energy-control procedures properly. The inspector, who must be an authorized person not involved in using the particular control procedure being inspected, must be able to determine the following:

- » Employees are following steps in the energy-control procedure;
- » Employees involved know their responsibilities;
under the procedure; and
- » The procedure is adequate to provide the necessary
protection, and what changes, if any, are needed.

For a lockout procedure, the periodic inspection must include a review of each authorized employee's responsibilities under the energy-control procedure being inspected. Where tagout is used, the inspector's review also extends to affected employees because of the increased importance of their role in avoiding accidental or inadvertent activation of the machinery. In addition, the employer must certify that the designated inspectors perform periodic inspections. The certification must specify the following:

- » Machine or equipment on which the energy-control procedure was used;
- » Date of the inspection;
- » Names of employees included in the inspection; and
- » Name of the person who performed the inspection.

What additional information does OSHA provide about lockout/tagout?

To gain a more comprehensive understanding of the requirements for controlling hazardous energy, employers and other interested persons should review the following:

- » OSHA standards with provisions regarding the control of hazardous energy such as 29 CFR 1910.147, The control of hazardous energy (lockout tagout); 29 CFR 1910.269, Electric power generation, transmission, and distribution; and 29 CFR 1910.333, Selection and use of work practices. Employers in the maritime, agriculture, and construction industries are urged to review the provisions for the control of hazardous energy contained in 29 CFR Parts 1915, 1917, 1918, 1925, and 1926.
- » The regulatory preambles to 29 CFR 1910.147 (54 Federal Register 36644 (September 1, 1989) and 1910.269 (59 Federal Register 4320 (January 31, 1994), which contain comments from interested parties and OSHA's explanation for the provisions of the standards.
- » OSHA instructions concerning the control of hazardous energy—
Directive CPL 2-1.18A, Enforcement of the Electrical Power Generation, Transmission, and Distribution Standard (October 20, 1997) and OSHA Directive STD 1-7.3, 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout) -Inspection Procedures and Interpretive Guidance, (September 11, 1990).
- » OSHA letters of interpretation regarding the application of standards concerning the control of hazardous energy.
- » Most of these documents are available on the OSHA website at www.osha.gov.

Additionally, OSHA offers a variety of web-based tools to help educate employers and employees about the lockout/tagout standard and how to apply it in their workplace. These include the following:

- » The Lockout/Tagout Interactive Training Program, which includes a tutorial, five abstracts with a detailed discussion of major lockout/tagout issues involved, and interactive case studies;
- » The Lockout/Tagout Plus Expert Advisor, an interactive, expert, diagnostic software package to help users understand and apply OSHA standards that protect workers from the release of hazardous energy; and
- » The Lockout/Tagout electronic Compliance Assistant Tool (eCAT), an illustrated tool to help businesses identify and correct workplace hazards.

These tools are available on the OSHA website at www.osha.gov.

For the Lockout/Tagout Interactive Training Program, click on Technical Links. For the Expert Advisor and eCAT, click on eTools.



Failure to control hazardous energy accounts for nearly

10%

of the serious accidents in many industries.



COMMONLY USED TERMS

COMMONLY USED TERMS

Affected employee. An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

Authorized employee. A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance covered under the standard.

Capable of being locked out. An energy-isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy-isolating devices are capable of being locked out, if lockout can be achieved, without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

Energized. Connected to an energy source or containing residual or stored energy.

Energy-isolating device. A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: a manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors, and in addition, no pole can be operated independently; a line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other control circuit-type devices are not energy-isolating devices.

Energy source. Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Hot tap. A procedure used in the repair, maintenance, and services activities, which involve welding on a piece of equipment (pipelines, vessels, or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

Lockout. The placement of a lockout device on an energy-isolating device, in accordance with an established procedure, ensuring that the energy-isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device. A device that uses a positive means such as a lock, either key or combination type, to hold an energy-isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

Normal production operations. The utilization of a machine or equipment to perform its intended production function.

Servicing and/or maintenance. Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubricating, cleaning or unjamming machines or equipment and making adjustments or tool changes where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

Setting up. Any work performed to prepare a machine or equipment to perform its normal production operation.

Tagout. The placement of a tagout device on an energy-isolating device, in accordance with an established procedure, to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout device. A prominent warning device, such as a tag and a means of attachment, which can be securely fastened to an energy-isolating device in accordance with an established procedure, to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.