



SAFETY DIRECTIVE

Title: Control of Hazardous Energy Lockout/Tagout/Tryout
Issuing Department: Human Resources Department
Effective Date: December 20, 2023
Approved: Curry C. Hale, Human Resources Director
Type of Action: Revision

1.0 PURPOSE

To protect Town of Marana employees and contractors with an energy control procedure. This procedure shall be used while performing service and maintenance of machines and equipment for which the *unexpected* startup or release of stored energy could cause injury. This includes:

- 1.1. Any service and/or maintenance of machines or equipment when the source of energy to the machines or equipment is electrical, mechanical, hydraulic, pneumatic, chemical, thermal, gravity or other energy.
- 1.2. Constructing, installing, setting up, adjusting, inspecting, modifying, maintaining and/or servicing machines or equipment, including lubrication, cleaning or un-jamming of machines or equipment, and making adjustments or tool changes, where employees could be exposed to the unexpected re-energizing or startup of the equipment or release of hazardous energy.

The policies and procedures contained in this section are intended to assist in identifying and complying with OSHA Safety Standards. In all cases where there is a difference between specific OSHA standards and the Lock-out/Tag-out/Try-out policies set forth in this chapter, the stricter of the two shall apply.

2.0 DEPARTMENTS AFFECTED

This Administrative Directive shall apply to all Town of Marana departments and employees.

3.0 REFERENCES

- 3.1 29 CFR 1910.147 – OSHA standard – The Control of Hazardous Energy (lockout/tagout)
- 3.2 29 CFR 1910.333 – OSHA standard – Selection and Use of Work Practice

4.0 DEFINITIONS

- 4.1 Affected employee: An employee who normally operates the machine(s) or equipment on which service is performed under the Lockout/Tagout standard or who performs other job responsibilities in an area where such service is performed.
- 4.2 Authorized employee: An employee who locks out or tags out machines or equipment in order to perform service or maintenance. Physically applies the lock/tag.

4.3 “Capable of being locked out”: An energy-isolating device is considered capable of being locked out if it:

4.3.1 Is designed with a hasp or other means of attachment to which a lock can be affixed;

4.3.2 Has a built-in locking mechanism;

4.3.3 Can be locked without dismantling, rebuilding, or replacing the energy-isolating device or permanently altering its energy control capability.

4.4 Energized: Machines and equipment are energized when they are connected to an energy source or they contain residual or stored energy.

4.5 Energy-isolating device: A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following:

4.5.1 A manually operated electrical circuit breaker;

4.5.2 A disconnect switch;

4.5.3 A manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors;

4.5.4 No pole can be operated independently;

4.5.5 A line valve;

4.5.6 A block;

4.5.7 Any similar device used to block or isolate energy.

Note: Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

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

4.7 Lockout (LO): The placement of a Lock-out 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.

4.8 Lockout device: Any device that uses positive means, such as a lock, blank flanges and bolted slip blinds, to hold an energy-isolating device in a safe position, thereby preventing the energizing of machinery or equipment.

4.9 Normal production operations: Utilization of a machine or equipment to perform its intended production function.

4.10 Other employees: All employees who are or may be in an area where energy control procedures may be utilized.

4.11 Service and/or Maintenance: Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, maintaining and/or servicing machines or equipment, including lubrication, cleaning or unjamming of machines or equipment, and making adjustments or tool changes, where employees could be exposed to the unexpected re-energizing or startup of the equipment or release of hazardous energy.

- 4.12 Tagout (TO): 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 Tag-out device is removed.
- 4.13 Tag-out device: Any prominent warning device, such as a tag and a means of attachment that can be securely fastened to an energy-isolating device to indicate that the machine or equipment to which it is attached may not be operated until the Tag-out device is removed.
- 4.14 Tryout (TO): The process of utilizing the on/off switch to shut-down equipment prior to de-energizing, to ensure the on/off device is functioning as designed *and* the means to test that the equipment has been effectively de-energized after the application of the Lockout/Tagout device, to verify that a zero-energy state has been achieved.

5.0 POLICIES AND PROCEDURES

5.1 Education and Training

- 5.1.1 The Human Resources Department shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees. The training shall include the following:
 - 5.1.1.1 Authorized employees must receive training in the recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.
 - 5.1.1.2 Affected employees must receive training in the purpose and use of the energy control procedure.
 - 5.1.1.3 Other employees (those whose work activities are or may be in an area where energy control procedures may be utilized) shall be instructed about the energy control procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment, which are locked out or tagged out.
- 5.1.2 When tagout systems are used, employees shall also be trained in the following limitations of tags:
 - 5.1.2.1 Tags are essentially warning devices affixed to energy isolating devices and do not provide the physical restraint on those devices that is provided by a lock;
 - 5.1.2.2 When a tag is attached to an energy isolating means, it is not to be removed without authorization and it is never to be bypassed, ignored, or otherwise defeated;
 - 5.1.2.3 Tags must be legible and include the authorized employee's name, the date, signed and understandable by all Authorized Employees, Affected Employees and Other Employees whose work may or may not be in the area. Tags will be replaced when illegible;
 - 5.1.2.4 Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace;
 - 5.1.2.5 Tags may evoke a false sense of security and their meaning needs to be understood as part of the overall energy control program;

- 5.1.2.6 Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.
- 5.1.3 Authorized and Affected Employees shall be re-trained when:
 - 5.1.3.1 There is a change in job assignments;
 - 5.1.3.2 A change in machines, equipment, or processes that present a new hazard;
 - 5.1.3.3 A change in the energy control procedures;
 - 5.1.3.4 Periodic inspections reveal that there are deviations in the energy control procedure;
 - 5.1.3.5 The employer believes that there are deviations from, or inadequacies in, the employee's knowledge or use of the energy control procedures.
- 5.1.4 Employee training shall be documented and kept up to date by the supervisor and forwarded to Human Resources Department for inclusion in the employee's training file. The document shall contain each employee's name, employee number, the date(s) of training and the name of the instructor.
- 5.2 Lockout/Tagout/Tryout Procedure. The following are the general procedures to be followed during the control of hazardous energy while constructing, installing, setting up, adjusting, inspecting, modifying, maintaining and or servicing (including lubricating, cleaning or unjamming of equipment and making adjustments or tool changes) is performed on machines or equipment. See departmental-specific energy control procedures before performing work on equipment. (See Appendix A for examples).
 - 5.2.1 Before an Authorized or Affected employee turns off a machine or equipment, the Authorized employee must have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, the method or means to control the energy, and the effect the equipment shutdown may have on employees or customers.
 - 5.2.2 The machine or equipment must be turned off or shut down using the procedures established for it to avoid any additional or increased hazards to employees as a result of the machine or equipment stoppage. Such procedures may be the equipment manufacturers' instructions, operating manuals, standard operating procedures or any other appropriate procedure.
 - 5.2.3 All energy-isolating devices that are needed to control the machine's energy source must be located. These devices must then be locked out to isolate the machine or equipment from its energy source(s).
 - 5.2.4 Lockout devices must be affixed in a manner that will hold the energy-isolating device in a "Safe" or "Off" position.
 - 5.2.5 Lockout/Tagout/Tryout shall be performed by each Authorized employee prior to the start of any repair or maintenance function in the following manner:
 - 5.2.5.1 The power switch will be turned to the off position in order to verify that the switch is operating as designed, shutting down the equipment.
 - 5.2.5.2 The Lockout device shall be applied to the disconnecting means.
 - 5.2.5.3 The tag shall be applied to the Lockout device, or in cases where a Lockout device cannot be affixed to the equipment, the tag shall be applied.

- 5.2.5.4 Multiple attempts shall be made to start the equipment utilizing the power switch, prior to removing any guard to perform a repair or maintenance function. After multiple attempts, the switch shall be returned and verified to the "off" position.
- 5.2.6 Lockout or Tagout devices must be affixed to each energy-isolating device by Authorized employees. Lockout devices where used, must be affixed in a manner that will hold the energy isolating devices in a "safe" or "off" position. The lock shall be attached so as to prevent persons from operating the disconnecting means unless they resort to undue force or the use of tools. Where Tagout devices are used, it must be affixed in a manner that will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited. Each tag shall contain a statement prohibiting unauthorized operation of the disconnecting means and removal of the tag. If the tag cannot be affixed directly to the energy isolating device, the tag must be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.
- 5.2.7 After the energy-isolating device has been locked out or tagged out, all potentially hazardous stored or residual energy must be relieved, disconnected, restrained, blocked, and/or otherwise rendered safe.
- 5.2.7.1 Stored electric energy which might endanger personnel shall be released. Capacitors shall be discharged and high capacitance elements shall be short-circuited and grounded, if the stored electric energy might endanger personnel.
- 5.2.7.2 Stored non-electrical energy in devices that could reenergize electric circuit parts shall be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device.
- 5.2.8 Before any work begins on machines or equipment that have been locked out or tagged out, an Authorized employee must verify that the machine or equipment has been properly isolated and de-energized by Tryout method or verification of zero voltage by application of a rated meter. A qualified person shall operate the equipment operating controls or otherwise verify that the equipment cannot be restarted.
- 5.2.9 The work area must be inspected to ensure that nonessential items (e.g., tools, spare parts) have been removed and that all of the machine or equipment components are operationally intact.
- 5.2.10 The work area must be checked to ensure that all employees have been safely positioned or have cleared the area. In addition, all Affected employees must be notified that the Lockout or Tagout devices have been removed before the equipment is started.
- 5.2.11 Reenergizing equipment. These requirements shall be met, in the order given, before circuits or equipment are reenergized, even temporarily.
- 5.2.11.1 A qualified person shall conduct tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed, so that the circuits and equipment can be safely energized.
- 5.2.11.2 Employees exposed to the hazards associated with reenergizing the circuit or equipment shall be warned to stay clear of circuits and equipment.
- 5.2.11.3 Each Lockout or Tagout device must be removed from the energy-isolating device by the Authorized employee who applied the device.

- 5.2.12 When the Authorized employee who applied the Lockout or Tagout device is not available to remove it, that device may be removed under the direction of the department, provided that specific procedures and training for such removal have been developed, documented, and incorporated into the employer's energy control program.
 - 5.2.12.1 The department must verify that the Authorized employee who applied the device is not at the facility.
 - 5.2.12.2 The department must make all reasonable efforts to contact the Authorized employee to inform them that their Lockout or Tagout device has been removed.
 - 5.2.12.3 The department must ensure that the Authorized employee knows that the Lockout device has been removed before they resume work at the facilities.
- 5.2.13 There shall be a visual determination that all employees are clear of the circuits and equipment.
- 5.2.14 Prior to re-energizing the Authorized or Affected employee will follow the following safe practice procedure:
 - 5.2.14.1 Stand to the side of the disconnecting means;
 - 5.2.14.2 Avert their face (turn the head) to the side;
 - 5.2.14.3 Take a deep breath;
 - 5.2.14.4 Activate the disconnecting means with the “off” hand.

5.3 Testing of Machines

- 5.3.1 In some circumstances, employees need to temporarily restore energy to a machine or piece of equipment during servicing or maintenance to test and/or reposition the machine or piece of equipment. Lockout or Tagout devices may be removed temporarily in order to perform these tasks:
 - 5.3.1.1 The machine or equipment must be cleared of tools and materials;
 - 5.3.1.2 All employees must be removed from the machine or equipment area;
 - 5.3.1.3 All Lockout or Tagout devices may then be removed;
 - 5.3.1.4 Authorized employees may then proceed to energize, test or position the equipment or machinery.
- 5.3.2 Following testing or positioning, all systems must be de-energized and energy control measures reapplied to continue the servicing and /or maintenance.

5.4 Outside Personnel (Contractors)

- 5.4.1 Whenever contractors and other outside servicing personnel perform tasks covered by the Lockout/Tagout standard, they must adhere to all the standard's requirements.
- 5.4.2 The contractor or outside employer and the on-site employer must inform each other of their respective Lockout or Tagout procedures.
- 5.4.3 The department must ensure that their employees understand the prohibitions of the outside employer's energy control program.

5.5 Group Lock-out/Tag-out Requirements

- 5.5.1 Protection must be utilized which affords multiple employees a level of protection equivalent to that provided by the implementation of a personal Lockout or Tagout device.
 - 5.5.2 Primary responsibility for a set number of employees working under the protection of a group Lockout or Tagout device must be vested in a single Authorized employee.
 - 5.5.3 The single Authorized employee must determine the exposure status of individual group members.
 - 5.5.4 If there will be more than one crew, department, or group involved in the activity, a single Authorized employee must be designated to coordinate affected workforces and to ensure continuity of protection.
 - 5.5.5 Each Authorized employee must affix a personal Lockout or Tagout device as required in the standard when work begins and remove it when work is completed.
- 5.6 Shift and Personnel Changes. Employers must ensure the continuity of employee protection by providing for the orderly transfer of Lockout or Tagout device protection between off-going and incoming employees. This will help to minimize exposure to hazards from the unexpected re-energizing or start-up of the machine or equipment or the release of stored energy.

6.0 RESPONSIBILITIES

- 6.1 The Human Resources Department has overall responsibility for the Town's safety programs. Safety shall consult with the Human Resources Director regarding appropriate changes and amendments to this safety directive.
- 6.2 Department heads, managers and supervisors are responsible for ensuring that the requirements of this directive are fully implemented in their work areas. The Supervisor shall explain all applicable procedures to any employee assigned to a new job site; this will include the following:
 - 6.2.1 Supervision will verify that employees have received training in energy control procedures prior to operating the machinery or equipment and ensure that each employee and contractors engaging in work requiring Lockout/Tagout/Tryout of energy sources understands and adheres to adopted procedures.
 - 6.2.2 Provide and maintain necessary equipment and resources, including accident prevention signs, tags, unique padlocks, seals and/or similarly effective means.
 - 6.2.3 Inspect energy control procedures and practices at least annually to ensure that general and specific Lockout/Tagout/Tryout procedures are being followed:
 - 6.2.4 Inspections shall be carried out by persons other than those employees directly utilizing energy control procedures.
 - 6.2.5 Inspections shall include a review between the inspector and each Authorized employee, of that employee's responsibilities under the energy control procedure being inspected.
 - 6.2.6 Certify that periodic inspections have been performed.
- 6.3 Authorized and Affected Employees are responsible for attending all mandatory training classes, and understanding the policies and procedures outlined in this directive, as well as all Town health and safety procedures.

6.4 Safety is authorized to halt any operation of the Town where there is danger of serious personal injury.

7.0 ATTACHMENTS

Appendix A – Lockout/Tagout/Tryout Procedure

APPENDIX A

Lockout/Tagout/Tryout Procedure

General

The following simple Lockout procedure is provided to assist employers in developing their procedures so they meet the requirements of this standard. When the energy isolating devices are not lockable, Tagout may be used, provided the employer complies with the provisions of the standard which require additional training and more rigorous periodic inspections. When Tagout is used and the energy isolating devices are lockable, the employer must provide full employee protection and additional training and more rigorous periodic inspections are required. For more complex systems, more comprehensive procedures may need to be developed, documented, and utilized.

Lock-out Procedure

Lockout Procedure for _____

Purpose

This procedure establishes the minimum requirements for the Lock-out of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energizing or start-up of the machine or equipment or release of stored energy could cause injury.

Compliance with This Program

All employees are required to comply with the restrictions and limitations imposed upon them during the use of Lockout. Authorized employees are required to perform the Lockout in accordance with this procedure. All employees, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance shall not attempt to start, energize, or use that machine or equipment.

Compliance enforcement to be taken for violation of the above may involve disciplinary time off and/or ultimately lead to termination.

Sequence of Lockout

- (1) Notify all Affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

Name(s)/Job Title(s) of Affected employees and how to notify.

(2) The Authorized employee shall refer to the company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.

Type(s) and magnitude(s) of energy, its hazards and the methods to control the energy.

(3) If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).

Type(s) and location(s) of machine or equipment operating controls.

(4) De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).

Type(s) and location(s) of energy isolating devices.

(5) Lock out the energy isolating device(s) with assigned individual lock(s).

(6) Stored or residual energy (such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.

Type(s) of stored energy - methods to dissipate or restrain.

(7) Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate.

Caution: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

Method of verifying the isolation of the equipment.

(8) The machine or equipment is now locked out.

"Restoring Equipment to Service" When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken.

- (1) Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
- (2) Check the work area to ensure that all employees have been safely positioned or removed from the area.
- (3) Verify that the controls are in neutral.
- (4) Remove the Lockout devices and reenergize the machine or equipment. Note: The removal of some forms of blocking may require re-energizing of the machine before safe removal.
- (5) Notify Affected employees that the servicing or maintenance is completed and the machine or equipment is ready for used.

REVISION HISTORY

<i>REV</i>	<i>DESCRIPTION OF CHANGE</i>	<i>DATE</i>
OR	Original Release	7/1/2014
REV	Revision	12/20/2023

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