

# Barkhamsted Fire District

# LOCKOUT/TAGOUT POLICY

## October 1, 2002

In accordance with OSHA 29 CFR 1910.147

### 1. Policy

All employees will be protected from injuries caused by **unexpected** energizing or start up of machines or equipment, or release of stored energy during service, repair, maintenance, operation, and associated activities. This policy establishes **minimum** performance requirements for the control of such potentially hazardous conditions. This will be accomplished by locking out and tagging out energy isolating devices, and otherwise disabling machines or equipment to prevent unexpected energizing, start-up or release of stored energy.

Normal production operations are not covered by this policy. Repairing and/or maintaining equipment during normal production operations are covered by this policy only if:

- A. An employee is required to remove or bypass a guard or other safety device; or
- B. 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 upon the material being processed (point of operation) or where an associated danger zone exists during a machine operating cycle.

This policy does not apply to the following:

- C. Work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energizing or start up of the equipment is controlled by the unplugging of the equipment from the energy source and by the plug being under the exclusive control of the employee performing maintenance or repair.
- D. Hot tap operations involving transmission and distribution systems when they are performed on pressurized pipelines, provided that it has been demonstrated to the Health and Safety Branch (HSB) that (1) continuity of service is essential; (2) shutdown of the system is impractical; (3) documented procedures are followed, and (4) special equipment is used which will provide proven effective protection for employees.

### 2. References

American National Standards Institute (ANSI) "American National Standard for Personnel Protection - Lockout/Tagout of Energy Sources - Minimum Safety Requirements", Z244.1-1982 New York, N.Y.

U.S. Department of Labor, OSHA regulations, 29 CFR 1910.147, "Control of hazardous energy sources (lockout/tagout)" standard.

### 3. Definitions

- a. **Affected Employee:** An employee whose job requires him/her to operate or use a machine or equipment on which maintenance or repair is being performed under this lockout/tagout policy, or whose job requires him/her to work in an area in which such maintenance or repair is being performed.
- b. **Authorized Individual:** A knowledgeable individual to whom the supervisor has given the authority and responsibility to lock or implement a lockout/tagout procedure on machines or equipment to perform maintenance or repair. An authorized individual and

an affected employee may be the same person when the affected employee's duties also include performing maintenance or repair of a machine or equipment which must be locked and tagged out.

- c. **Knowledgeable Individual:** An individual who is qualified to operate the controls or equipment and is familiar with the effects of operation.
- d. **"Capable of being locked out".** An energy isolating device will be considered to be capable of being locked out if it has any of the following:
  - 1. it is designed with a hasp or other attachment or integral part to which, or through which, a lock can be affixed,
  - 2. it has a locking mechanism built into it, or
  - 3. if a lockout can be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.
- e. **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, a slide gate, a slip blind, spectacle flange, a line valve, blocks, and similar devices with a visible indication of the position of the device. **(Push buttons, selector switches, and other control-circuit type devices are not energy isolating devices.)**
- f. **Energy Source:** Any electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy source that could cause injury to personnel.
- g. **Hot Tap:** A procedure used in repair and maintenance activities which involves 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 and steam distribution systems. Other methods of attachment can also be used.
- h. **Lockout Device:** A device that utilizes a lock and key to hold an energy isolating device in the safe position and prevents a machine or equipment from being energized.
- i. **Lockout/Tagout:** The placement of a lock and tag on the energy isolating device in accordance with an established procedure, indicating that the energy isolating device shall not be operated until removal of the lock/tag in accordance with an established procedure. (The term "lockout/tagout requires the combination of a lockout device and a tagout device).
- j. **Maintenance and Repair:** Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining machines or equipment. These activities include but are not limited to lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the **unexpected** start-up of the equipment or release of hazardous energy.
- k. **Shall:** The word "shall" always implies a mandatory requirement.
- l. **Tagout Device:** A prominent warning device, such as a tag, that can be securely attached to equipment or machinery for the purpose of warning personnel not to operate an energy isolating device and identifying the applier or authority who has control of the procedure.

#### 4. Responsibilities

- a. **Chief (or designated person)**
  - 1. Maintains awareness of all aspects of the NIEHS lockout/tagout policy.

2. Ensures that all employees under their supervision understand the requirements for compliance with this policy and are made aware of the lockout/tagout procedure and are issued appropriate locks/tags.
  3. Conducts a periodic inspection of the energy control procedure at least annually to ensure that the procedure and the requirements of this policy are being followed.
  4. Certifies that the periodic inspections have been performed.
- b. Employee**
1. Maintains awareness of all aspects of the lockout/tagout policy and complies with all procedures.
- c. Training division**
1. Provides necessary employee training for lockout/tagout procedures.
  2. Conducts periodic inspections of work sites to ensure compliance with lockout/tagout procedures.
  3. Provides guidance regarding the applicability of the lockout/tagout policy.
  4. Approves/disapproves exceptions of the lockout/tagout policy.

## 5. General

### a. Lockout/Tagout

1. Implementation of lockout/tagout shall be performed only by authorized employees.
2. Before any employee performs any maintenance or repair of a machine or equipment where unexpected start up or release of stored energy could occur and cause injury, the machine or equipment shall be isolated, and rendered inoperative.
3. If an energy isolating device is capable of being locked out, then this policy requires that a lockout and tagout be utilized. If an energy isolating device is not capable of being locked out, then a tagout shall be utilized.
4. Whenever major replacement, repair, renovation or modification of machines or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machines or equipment shall be designed to accept a lockout device.

Procedures during repairs on above devices shall include at least two persons. One person shall be at the disconnect area, while the other person performs repair and/or testing.

### 1. Energy Control Procedure

The authorized employee shall develop, document and utilize procedures to control potentially hazardous energy when employees are engaged in the activities covered by this policy. **Exceptions to this requirement are listed in Appendix 1. It should be noted that most maintenance and repairs at the Fire Stations do not require LOTO procedures.**

1. The procedures shall clearly and specifically outline the scope, purpose, authorization, rules, and techniques to be utilized for the control of hazardous energy, and the means to enforce compliance including, but not limited to the following:
  - a. A specific statement of the intended use of the procedure;
  - b. Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy;

- c. Specific procedural steps for the placement, removal and transfer of lockout devices or tagout devices and the responsibility for them; and
      - d. Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures.
  2. **Protective Materials and Hardware**

Lockout and tagout devices shall be provided and shall be the only authorized device(s) used for lockout/tagout of energy devices and shall not be used for other purposes. Lockout devices are identified by the word "SAFETY" stamped in red on each device. Each lockout device is to be stamped with the employees name and color coded to indicate type of trade or craft. Each employee will be issued two keys and no two key configurations shall be the same. No one else shall have duplicate keys. Proper tags are shown in Appendix 2.

Tagout devices, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal. Attachment means shall be a one-piece, nylon cable tie which shall be non-reusable, self- locking and non-releasable with a minimum unlocking strength of no less than 50 pounds.
  3. **Periodic Inspections**
    1. The authorized employee will conduct a periodic inspection of the energy control procedure at least annually to ensure that the procedures and the requirements of this policy are being followed.
  4. **Training and Communication**
    1. The training division will provide annual training to ensure that the purpose and function of the energy control program is understood by employees and that the knowledge and skills required for the safe application, usage, and removal of energy controls are required by employees. The training will include the following:
      - a. Training authorized employees in the recognition of hazardous energy sources, the type and magnitude of the energy available in the workplace, and methods and means necessary for energy isolation and control.
      - b. Training affected employees in the purpose and use of the energy control procedure.
      - c. All other employees whose work operations are or may be in an area where energy control procedures may be utilized, about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.
    2. The limitations of tags when tags are used in lieu of lockout devices.
    3. Retraining will be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedures.
      - a. Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever there is reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.
    4. Documentation that training will be kept up to date. The record shall contain each employee's name and dates of training.
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## **Procedures (Appendix 3) (Appendix 4 - presents the Lockout/Tagout steps in brief form)**

### **5. Preplanning for Lockout (Preparation for Shutdown)**

1. An initial survey shall be made to determine which switches, valves, or other energy isolating devices apply to the equipment being locked out. More than one energy source (electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or others) may be involved. The authorized employee shall verify any questionable identification of sources. Before lockout commences, job authorization should be obtained from the employee performing the task.
2. Only properly trained or authorized individuals shall prescribe the appropriate duties and responsibilities relating to the actual details of effecting the lockout/tagout. Energy isolating devices shall be operated only by authorized individuals or under the direct supervision of authorized individuals. Where high voltages greater than 480V are involved, the supervisor electrician shall be responsible for turning off the main power controls.
3. All energy isolating devices shall be adequately labeled or marked to indicate their function. The identification shall include the following:
  - a. equipment supplied
  - b. energy type and magnitude
4. Where system complexity requires, a written sequence in checklist form should be prepared for equipment access, lockout/tagout, clearance, release, and start-up.

### **6. Lockout/Tagout Procedures (Appendix 3)**

1. **Preparation.** Notify all affected employees that a lockout is required and the reason therefore.
2. **Machine or Equipment Shutdown.** If the equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.). Disconnect switches should never be pulled while under load, because of the possibility of arcing or even explosion. Personnel knowledgeable of equipment operation should be involved with shut down or re-start procedures.
3. **Machine or Equipment Isolation.** Operate the switch, valve, or other energy isolating device so that the energy source(s) (electrical, mechanical, hydraulic, etc.) is(are) disconnected or isolated from the equipment. Stored energy, such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc., must also be dissipated, disconnected, or restrained by methods such as grounding, repositioning, blocking, bleeding-down, etc. Pulling fuses is not a substitute for locking out. A yanked fuse is no guarantee the circuit is dead, and even if it were dead, there's nothing to stop someone from unthinkingly replacing the fuse.  
**CAUTION:** Intermittently operating equipment such as pumps, blowers, fans, and compressors may seem harmless when dormant. Don't assume that because equipment isn't functioning, it will stay that way.
4. **Application of Lockout/Tagout.** Lockout and tag the energy isolating device with an assigned individual lock, even though someone may have locked the control before you. You will not be protected unless you put your own padlock on it. For some equipment it may be necessary to construct attachments to which locks can be applied. An example is a common hasp to cover an operating

button. Tags shall be attached to the energy isolating device(s) and to the normal operating control and shall be attached in such a manner as to preclude operation.

5. **Verification of Isolation.** After ensuring that no personnel can be exposed and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate.

If there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation shall be continued until the maintenance or repair is completed, or until the possibility of such accumulation no longer exists.

**CAUTION:** Return operating controls to neutral position after the test. A check of system activation (e.g. use of voltmeter for electrical circuits) should be performed to assure isolation.

6. The equipment is now locked out.

**7. Release from Lockout/Tagout**

1. Before lockout or tagout devices are removed and energy is restored to the machine or equipment, inspect the work area to ensure that nonessential items have been removed and to ensure that machine or equipment components are operationally intact.
2. Check work area to ensure that all employees are in the clear.
3. Notify affected employees that lockout/tagout devices have been removed.
4. Each lockout/tagout device shall be removed from each energy isolating device by the employee who applied the device. The energy isolating devices may be opened or closed, i.e., circuit breakers, to restore energy to equipment.

**8. Lockout/Tagout Interruption (Testing of Energized Equipment)**

In situations where the energy isolating device(s) is locked/tagged and there is a need for testing or positioning of the equipment/process, the following sequence shall apply:

1. Clear equipment/process of tools and materials.
2. Clear personnel.
3. Clear the control of locks/tags according to established procedure.
4. Proceed with test, etc.
5. De-energize all systems and re-lock/re-tag the controls to continue the work.

**9. Outside Personnel (Contractors, etc.)**

1. Whenever outside service personnel are to be engaged in activities covered by the scope and application of this policy all contractors (including on-site contractors) shall inform each other of their respective lockout or tagout procedures.
2. The person who obtains the services of a contractor is responsible for informing the contractor of any hazards. Contractors shall ensure that their personnel are competent and follow proper LOTO procedures.

**10. Procedure Involving More Than One Person**

In the preceding steps, if more than one individual is required to lock out equipment, each shall place a personal lock and tag on the group lockout device when he/she begins work, and shall remove those devices when he/she stops working on the machine or equipment. The supervisor, with the knowledge of the crew, may lock out equipment for the whole crew. In such cases, it shall be the responsibility of the (supervisor) to carry out all steps of the lockout procedure and inform the other authorized employees when it is safe to work on the equipment. Additionally, the supervisor shall not remove a crew lock until it has been verified that all individuals are clear.

**11. Shift Change Coordination**

Supervisors shall ensure the continuity of lockout/tagout protection during shift or personnel changes. Each worker shall be responsible for removing his own padlock and tag at the completion of his shift. If work is to cease until the following day the supervisor shall place his personal padlock and tag on the equipment and the workers shall remove their padlocks and tags. When work resumes the workers shall affix his personal lock and tag to the equipment and the supervisor shall remove his lock and tag.

**12. Conditions for Padlock Removal**

Lockout/tagout devices shall be removed only by the owner of the device except in the following situations:

1. Owner incapacitated by illness, etc.
2. Owner will no longer return to the site
3. Owner is on flex or leave and cannot be reached by telephone. If the owner is reached and the situation warrants then he/she will be required to come to work and remove the padlock.

If the Chief, supervising authorized person determines that circumstances warrant the removal of a lockout/tagout device, every effort must be made to contact the owner of the device. After the above conditions have been met the Chief, may remove the device in the presence of a member of the authorized supervisor. A padlock shall not be cut but may be removed by changing the core of the lock.

## **APPENDIX 1**

**EXCEPTION:** It is not necessary to document the required procedure for a particular machine or equipment, when all of the following elements exist:

13. the machine or equipment has no potential for stored or residual energy or reaccumulation of stored energy after shut down which could endanger employees;
14. the machine or equipment has a single energy source which can be readily identified and isolated;
15. the isolation and locking out of that energy source will completely de-energize and deactivate the machine or equipment;
16. the machine or equipment is isolated from that energy source and locked out during servicing or maintenance;
17. a single lockout device will achieve a locked-out condition;

### **APPENDIX 3**

The established procedure for the application of lockout/tagout shall cover the following elements and actions and shall be done in the following sequence.

- 18. Preparation for shutdown.** Before an authorized or affected employee turns off a machine or equipment, the authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.
  - 19. Machine or equipment shutdown.** The machine or equipment shall be turned off or shut down using the procedures required by this standard. An orderly shutdown must be utilized to avoid any additional or increased hazards(s) to employees as a result of equipment de-energization.
  - 20. Machine or equipment isolation.** All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).
  - 21. Lockout or tagout device application.**
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22. **Stored energy.** Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, and otherwise rendered safe.  
If there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.
  23. **Verification of Isolation.** Prior to starting work on machines or equipment that have been locked out or tagged out, the authorized employee shall verify that isolation and de-energization of the machine or equipment have been accomplished.
  24. **Release from lockout or tagout.**
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