



# LOCKOUT/TAGOUT PROGRAM

## TABLE OF CONTENTS

- How Climate Engineers & Climate River Valley complies with the LOTO Standard
- Hazard Assessment
- Written Procedures
- Employee Training
- Inspection
- What is Lockout/Tagout
- Why is Lockout/Tagout So Important?
- When to Lockout/Tagout
- How to Lockout/Tagout

## EXAMPLES

- Examples of LOTO Tags
- Example of Climate Engineers LOTO Checklist
- Examples of Climate River Valley LOTO Checklist

## **HOW CLIMATE ENGINEERS & CLIMATE RIVER VALLEY COMPLIES WITH THE LO/TO STANDARD**

It is the intent of Climate Engineers & Climate River Valley to comply with OSHA's Control of Hazardous Energy Standard (1910.147). The following describes each element which makes up our lockout/tagout program.

### **HAZARD ASSESSMENT**

By analyzing each potential lockout/tagout situation we can develop specific procedures to eliminate hazards associated with energized machines and equipment. The analysis will include the number and types of machines and the sources of energy which pose a hazard.

Specific procedures for more complex energy sources are outlined in Appendices E through H. Methods of identifying locks and tags are contained in Appendix I.

### **WRITTEN PROCEDURES**

Climate Engineers & Climate River Valley written lockout/tagout procedures detail specific procedures to control each form of energy. These procedures cover OSHA's six steps to energy isolation - as well as the four steps to re-energize. The purpose of these written procedures is to eliminate the possibility of misunderstanding on the part of the employees about what they are required to do.

Note: Machinery, equipment and/or processes without lockout capability require specific procedures for tagout of subject hazardous energy source (see Appendices G and H).

Appropriate employees shall be instructed in the safety significance of the lockout or tagout procedure. Appendix A is a list of names and job titles of employees authorized to lockout and tagout. Each new or transferred affected employee and other employees whose work operations are or may be in the area shall be instructed in the purpose and use of the lockout or tagout procedure. The job titles of the affected employees are contained in Appendix B. Prior to lockout/tagout the senior authorized individual will brief all affected employees in person. In the event of tagout system only, the authorized individual will also brief, in person, all other personnel potentially exposed to the hazard. The procedures noted in the SEQUENCE OF LOCKOUT OR TAGOUT SYSTEM PROCEDURE will be followed.

### **EMPLOYEE TRAINING**

Training shall be given to all authorized, affected and other personnel as required by 29CFR1910.17 © (7). Appendix I provide Key Points for Lockout/Tagout Training Programs and shall be used as a training outline along with the appropriate sections of the standard. In addition, a copy of the illustrated overview of the standard is provided in Appendix J.

An outside safety consultant will conduct training and prepare a record and certify that the employee training has been accomplished. The certification will be made on Appendix K (Training Record). The safety consultant will conduct retraining whenever reestablishment of employee(s) proficiency and whenever new or revised control methods and procedures are developed.

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## INSPECTION

### Initial Evaluations

Initially all machines with multiple sources of power and stored energy shall be evaluated by Appendix D, the Energy Source Determination Checklist. This evaluation will be made by an authorized employee who is not involved in the lockout/tagout of subject equipment. Those involved in the lockout/tagout and those affected by the lockout/tagout may participate in the evaluation if necessary.

### Periodic Evaluations

Periodically (at least annually) the effectiveness of the entire program will be evaluated by Peter Watson. These annual evaluations will be conducted during the month of March each year. The date of the inspection/evaluation will be documented on the Annual Inspection Report (Appendix C) and maintained as a part of this program until the next annual evaluation replaces it.

## WHAT IS LOCKOUT/TAGOUT?

When you block the flow of energy from the power source to the equipment - and keep it blocked out - that's lockout. Lockout devices are usually a key or lock arrangement that secures a valve, lever, switch, or start button in the off position.

Tagout means placing a tag on the power source to warn co-workers and others not to turn the power on. Tags do not provide the physical restraint that locks provide, but they are just as important. You might find one of the following written on a tag:

**DO NOT START  
DO NOT OPEN  
DO NOT CLOSE  
DO NOT ENERGIZE  
DO NOT OPERATE**

The information on the tag might also include the name of the worker who put it there, the date and time the work began, and the type of work being performed.



3

A tag is sometimes used alone when it's not possible to lockout the energy source, or when it has been demonstrated that a tag alone will effectively prevent accidental start-up. It's a good idea to use a tag along with a lock for double protection and to provide co-workers with more detailed information about the lockout/tagout procedure. Tags should be treated like locks. They are not to be removed without authorization - tags are never to be bypassed or ignored.

## WHY IS LOCKOUT/TAGOUT SO IMPORTANT?

The Occupational Safety & Health Administration, (OSHA) estimates that by following the proper procedures for lockout/tagout, the following may be prevented each year:

- **120 fatalities**
- **28,000 serious injuries**
- **32,000 minor injuries**

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It's very important to remember that Lockout/tagout rules apply to everyone, not just to the person working on the piece of machinery or equipment.

Making any exception to the rules could result in serious injury or death.

## WHEN TO LOCKOUT/TAGOUT

Knowing when to apply the lockout/tagout rules is vital to performing your job safely. The following is a list of several situations that must always include lockout/tagout procedures. Please add any specific situations that you can think of and add them to the list.

- **WHEN MAKING REPAIRS**
- **WHEN PERFORMING ROUTINE MAINTENANCE**
- **WHEN CLEARING A JAMMED OR BLOCKED MACHINE**
- **TO KEEP PEOPLE OUT OF A DANGEROUS AREA**
- **TO PREVENT THE USE OF EQUIPMENT BY UNAUTHORIZED PERSONS**

You should follow lockout/tagout procedures whenever an unexpected start-up or release of stored energy could injure you or a co-worker.

Always use the locks assigned to you, your department or the specific machine. Never rely on a co-worker's lock to protect you; your co-worker could remove his or her lock leaving you unprotected.

## HOW TO LOCKOUT/TAGOUT

Before we get started with specific guidelines, we first need to define a few terms.

**AUTHORIZED EMPLOYEES = those** workers who actually perform lockout/tagout procedures on the machines and equipment they maintain or service.

**AFFECTED EMPLOYEES = those** employees or others who work in or near an area where lockout/tagout procedures are applied. Generally, this category includes all workers who do not actually perform lockout/tagout.

**ENERGIZED = Machines** and equipment are energized when (1) they are connected to an energy source or (2) they contain residual or stored energy.

**ENERGY SOURCE = Any** source so electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

**SERVICING AND/OR MAINTENANCE =** Activities such as constructing, installing, setting up, adjusting, inspecting, modifying, lubricating, cleaning, unjamming, or changing tools on machinery or equipment. All of these servicing and maintenance activities are covered under the lockout/tagout standard, since they can expose a worker to the unexpected energization or start-up of the equipment, or to the release of hazardous energy.

By following these general guidelines of lockout/tagout you will ensure that all energy in the machine is under control. Each situation that is encountered needs to be addressed with

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specific procedures. The space that has been provided is to help you identify those specific procedures.

### **STEP 1: TURN OFF THE EQUIPMENT AND DISCONNECT THE ENERGY SOURCE**

- Notify all affected employees that a lockout procedure is beginning and why.
- Locate and identify all switches, valves, and other devices that will have to be locked and/or tagged. More than one energy source may be involved.
- Shut the machine down by the normal stopping procedures. Pull the plug, flip the power switch, break the circuit, close a valve, or otherwise neutralize stored energy - do whatever is necessary to turn off the equipment and disconnect the energy source.
- Then test the %on+switch and turn it back to %off.+

**Remember:** Know the machines and their power sources - some may have more than one source of power. Be sure to disconnect all sources of power before you continue.

### **STEP 2: LOCKOUT ENERGY SOURCES**

- Snap your lock on the control lever or on the multiple-lock adapter. Use a lock to prevent the flow of energy from being restored.
- Test and disconnect to be sure it can't be moved to the %on+position. Make it impossible for the flow of energy to be reestablished without your knowledge.
- Flipping a circuit breaker or pulling a fuse is no substitute for locking out.

**Remember:** If you come across a closed valve or a switch that has been turned off but doesn't have a lock, assume that someone has turned it off for a reason. Find out why the source or energy has been turned off before you restore power.

### **STEP 3: TAG THE DISCONNECT POINT**

- A tag provides vital information and extra protection. Make sure your tag has the following information included on it:
  - your name
  - time and date work began
  - type of work being performed
- Use your own lock. Never borrow or lend your lock to anyone. If you lose your key, report it immediately to your supervisor.

**Remember:** When it's physically impossible to use a lock, a tag is absolutely essential.

### **STEP 4: RELEASE RESIDUAL ENERGY**

ZERO ENERGY STATE = placing the machine in a state in which the possibility of an unexpected mechanical movement has been reduced to a minimum.

Some equipment doesn't run by electricity alone. Hydraulic and pneumatic devices may also be involved. These types of stored energies can present a dangerous situation that is often overlooked. Here's how to protect yourself:

- Be sure the machine has stopped moving completely before starting work on it.
- Release stored energy that could cause sudden movement. Block or remove the energy in those parts and lock out.
- Secure loose and movable parts before you begin.

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- Be sure material that is supported or controlled by the machine cannot move or cause the machine to move.
- Lock out or reduce accumulators and air surge tanks to atmospheric pressure. Also block off all process, hydraulic, air, or other potential energy sources in piping. Lock all valves, activators, and other flow controls.
- Don't overlook remote controls such as timers.

**Remember:** Chemicals and vapors must also be taken into consideration. For example, if you must clean a tank, refer to Climate Engineers/Climate River Valley Confined Space Program before entering the vessel.

### STEP 5: TEST EQUIPMENT

It's necessary to test equipment to make sure it won't run before working on it. The wrong switch could have been thrown, or a disconnect switch could be defective, leaving the circuit energized.

- Turn on the switch or push the start button to make sure you've successfully blocked out all energy sources.
- Return the switch to the off position.

**Remember:** Be aware of hidden energy sources.

### STEP 6: RESTORE ENERGY SAFELY

- Check to make sure all tools used for repairs have been removed.
- Make sure all lines have been reconnected or unblocked.
- Make sure all guards have been replaced.
- Remove all other workers from the area before taking off lock and tag.
- Notify all affected people in the area that you intend to turn the machine on.

**Multiple Lockout Situations:** If your lock is the last one remaining on the lockout device, it's a good idea to check the machine and to notify your supervisor before restoring energy. Stay on the safe side!

**Remember:** Every one of these steps is important. Follow them - every time you have to clean, repair, service, inspect, or clear equipment.

### WHEN CAN I REMOVE A LOCKOUT OR TAGOUT DEVICE THAT WAS APPLIED BY ANOTHER AUTHORIZED EMPLOYEE?

When the authorized employee who applied the device is not available to remove it the lockout or another authorized employee may remove tagout device as long as the employer incorporates such a procedure into the written energy control program. The procedure must include at least the following elements:

- Employer verification that the authorized employee who applied the device is not at the facility
- All reasonable efforts to contact the authorized employee to inform him or her that the lockout or tagout device has been removed

Ensuring that the authorized employee knows of the removal before resuming work at that facility.

**PROTECT YOUR MOST PRIZED POSSESSION - YOUR LIFE.  
ALWAYS FOLLOW LOCKOUT/TAGOUT PROCEDURES.**

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## EXAMPLES OF LOTO TAGS

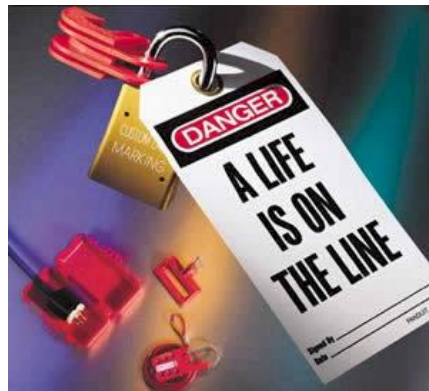
### SAMPLES OF TAGS:



### SAMPLES OF TAGS BEING USED CORRECTLY:



### REMEMBER...



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# LOTO CHECKLIST

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## EQUIPMENT TO BE LOCKED OUT \_\_\_\_\_

### NOTIFICATION

I have notified all affected employees that a lockout is required and the reason for the lockout.

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Signature: \_\_\_\_\_

### SHUTDOWN

I understand the reason the equipment is to be shutdown following normal procedures.

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Initial: \_\_\_\_\_

### DISCONNECTION OF POWER SOURCES

I have operated the switch, valve, or other energy isolating device(s) so that each energy source (electrical, mechanical, hydraulic, etc.), has been disconnected or isolated from the equipment. I have dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc. all stored energy (such as capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems and air, gas, steam or water pressure).

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Initial: \_\_\_\_\_

### LOCKOUT

I have locked out the energy isolating devices with assigned and check marked individual locks.

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Initial: \_\_\_\_\_

### SAFETY CHECK

After ensuring that no personnel are exposed, and as a check on having disconnected all energy sources, I have operated the start button or other normal operating controls to make certain that the equipment will not operate.

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Initial: \_\_\_\_\_

## **THE EQUIPMENT IS NOW LOCKED OUT**

### *RESTORING EQUIPMENT TO SERVICE*

### JOB COMPLETION & CERTIFICATION

The Job has been completed and the equipment has been tested by me and found to be in proper working order.

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Initial: \_\_\_\_\_

### EQUIPMENT & PERSONAL CHECK

All equipment and personnel have been cleared from the area and there is no danger to either one.

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Initial: \_\_\_\_\_

### STARTUP

All locks have been removed and the energy isolating devices may now be operated to restore energy to the equipment.

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Initial: \_\_\_\_\_

### SIGN-OUT

All employees have signed out *individually* at the plants office.

Date: \_\_\_\_\_ Time: \_\_\_\_\_ Initial: \_\_\_\_\_