**County of Henrico**

**Department of \_\_\_\_\_\_\_\_\_\_\_\_\_**

**Lockout/Tagout Program**

**for the**

# Control of Hazardous Energy



**1910.147**

**The Control of Hazardous Energy (Lockout/Tagout)**

**This Lockout/Tagout program template is provided so that County of Henrico agencies and departments can comply with the requirements of 29 CFR 1910.147, as well as to provide other helpful information. Department Heads (or other responsible persons) should review the Virginia Occupational Safety & Health standards for the specific requirements applicable to their individual situations and adjust this program so that it is tailored to their needs and becomes an effective, comprehensive program for all affected employees.**

**1910.147**

**The Control of Hazardous Energy (Lockout/Tagout) Procedure**

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# County of Henrico

**Department of *(Name)***

**Lockout/Tagout Program**

**I.** **OBJECTIVE**

The objective of this program is to prevent the accidental starting or activating of machinery or systems while they are being repaired, cleaned and/or serviced. This program serves to:

1. Establish safe methods to shut down machinery, equipment and systems.
2. Prohibit unauthorized personnel or remote control systems from starting machinery or equipment while it is being serviced.
3. Provide a secondary control system (tagout) when it is impossible to positively lockout the machinery or equipment.
4. Establish responsibility for implementing and controlling lockout/tagout procedures.
5. Ensure that only approved locks, standardized tags and fastening devices provided by the county will be utilized in the lockout/tagout procedures.

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.

**II. ASSIGNMENT OF RESPONSIBILITY**

A. ***Responsible Person*** will be responsible for implementing the lockout/tagout program.

B. ***Responsible Persons*** are responsible for enforcing the program and insuring compliance with the procedures in their departments/agencies.

C. ***Responsible Person*** is responsible for monitoring the compliance of this procedure and will conduct the annual inspection and certification of the authorized employees.

D. ***Authorized employees*** (those listed in Attachment A) are responsible for following established lockout/tagout procedures. An authorized employee is defined as 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 1910.147, The Control of Hazardous Energy (lockout/tagout).

E. ***Affected employees*** (all other employees) are responsible for insuring they do not attempt to restart or re-energize machines or equipment that are locked out or tagged out.An affected employee is defined as a personwho operates or uses a machine or equipment on which the service or maintenance requires lockout or tagout, or whose job requires him/her to work in an area in which such service or maintenance is being performed.

#### III. PROCEDURES

The ensuing items are to be followed to ensure both compliance with the VOSH Control of Hazardous Energy Standard and the safety of County of Henrico employees.

## A. Preparation for Lockout or Tagout

Employees who are required to utilize the lockout/tagout procedure (see Attachment A) must be knowledgeable of the different energy sources and the proper sequence of shutting off or disconnecting energy means. The four types of energy sources are:

1. electrical (the usual form of energy);

2. hydraulic or pneumatic;

3. fluids and gases; and

4. mechanical (including gravity).

More than one energy source may be utilized on some equipment and the proper procedure must be followed to identify energy sources and lockout/tagout accordingly. See Attachment F for specific procedure format.

1. **Electrical**

1. Shut off power at machine and disconnect.

2. Disconnecting means a lock or tag is in place.

3. Press start button to see that the system(s) is locked out.

4. All controls must be returned to their safest position.

5. Points to remember:

1. If a machine or piece of equipment contains capacitors, they must be drained of stored energy.
2. Possible disconnecting means include the power cord, power panels (look for primary and secondary voltage), breakers, the operator's station, motor circuit, relays, limit switches, and electrical interlocks.
3. Some equipment may have a motor isolating shut-off and a control isolating shut-off.
4. If the electrical energy is disconnected by simply unplugging the power cord, the cord must be kept under the control of the authorized employee. If that is not feasible, the plug end of the cord must be locked out or tagged out.
5. **Hydraulic/Pneumatic**

1. Shut off all energy sources (pumps and compressors). If the pumps and compressors supply energy to more than one piece of equipment, lockout or tagout the valve supplying energy to the piece of equipment being serviced.

2. Stored pressure from hydraulic/pneumatic lines shall be drained/bled when release of stored energy could cause injury to employees.

3. Make sure controls are returned to their safest position (off, stop, standby, inch, jog, etc.).

1. **Fluids and Gases**

1. Identify the type of fluid or gas and the necessary personal protective equipment.

2. Close valves to prevent flow, and lockout/tagout.

3. Determine the isolating device, then close and lockout/tagout.

4. Drain and bleed lines to zero energy state.

1. Some systems may have electrically controlled valves. If so, they must be shut off and locked/tagged out.

6. Check for zero energy state at the equipment.

1. **Mechanical Energy**

Mechanical energy includes gravity activation, energy stored in coiled springs, etc.

1. Block out or use die ram safety chain.

2. Lockout or tagout safety device.

3. Shut off, lockout or tagout electrical system.

4. Check for zero energy state.

5. Return controls to safest position.

1. **Release from Lockout/Tagout**

1. Inspection: Make certain the work is completed and inventory all tools and equipment that were used during maintenance.

2. Clean-up: Remove all towels, rags, work-aids, etc.

3. Replace guards: Replace all guards possible. Sometimes a guard may need to be left off until the start sequence is over due to possible adjustments. However, all other guards should be put back into place.

4. Check controls: All controls should be in their safest position.

5. The work area shall be checked to ensure that all employees have been safely positioned or removed and notified that the lockout/tagout devices are being removed.

6. Remove locks/tags. Authorized employees only may remove only the lock or tag.

1. **Service or Maintenance Involving More than One Person**

When service and/or maintenance is performed by more than one person, each authorized employee shall place his/her own lock or tag on the energy isolating source. This shall be done by utilizing a multiple lock scissors clamp if the equipment is capable of being locked out. If the equipment cannot be locked out, then each authorized employee must place his/her tag on the equipment.

1. **Removal of an Authorized Employee’s Lockout/Tagout Device by Another Person**

Each location must develop written emergency procedures that comply with 1910.147(e)(3) to be utilized at that location. Emergency procedures for removing lockout/tagout should include the following:

1. Verification by the supervisor that the authorized employee who applied the device is not in the facility.

2. Make reasonable efforts to advise the employee that his/her device has been removed. (This can be done when he/she returns to the location).

3. Ensure that the authorized employee has this knowledge before he/she returns to the location.

1. **Shift or Personnel Changes**

If applicable, each facility must develop written procedures based on specific needs and capabilities for shift changes. Each procedure must specify how the continuity of lockout or tagout protection will be ensured at all times. See 1910.147(f)(4).

1. **Procedures for Outside Personnel/Contractors**

Outside personnel/contractors shall be advised that the county has and enforces the use of lockout/tagout procedures. Contractors will be informed of the use of locks and tags and notified about the prohibition of attempts to restart or re-energize machines or equipment that are locked out or tagged out.

The county will inform outside personnel/contractor about the lockout/tagout procedures and advise affected employees of this information.

Outside personnel/contractors will sign a certification form (see Attachment E) to document that the county’s Lockout Tagout Program is understood and shall be followed. If outside personnel/contractor has previously signed a certification that is on file, additional signed certification is not necessary.

## K. Training and Communication

Each authorized employee who will be utilizing the lockout/tagout procedure will be trained in the recognition of applicable hazardous energy sources, type and magnitude of energy available in the work place, and the methods and means necessary for energy isolation and control.

Each affected employee (all employees other than authorized employees utilizing the lockout/tagout procedure) shall be instructed in the purpose and use of the lockout/tagout procedure, and the prohibition of attempts to restart or re-energize machines or equipment that are locked out or tagged out.

Training will be certified through the county’s on-line system or by using Attachment B (Authorized Personnel) or Attachment C (Affected Personnel). All certifications will be retained in departmental records.

## L. Periodic Inspection

A periodic inspection (at least annually) will be conducted of each authorized employee under the lockout/tagout procedure. This inspection shall be performed by (the) ***(Responsible person)*** . If ***(Responsible person)***  is also using the energy control procedure that is being inspected, then the inspection shall be performed by another party.

The inspection will include a review between the inspector and each authorized employee of that employee's responsibilities under the energy control (lockout/tagout) procedure. The inspection will also consist of a physical inspection of the authorized employee while performing work under the procedures.

The ***(Responsible person)*** shall certify in writing that the inspection has been performed and dated. The written certification (Attachment D) shall be retained in the individual's personnel file.

ATTACHMENT A

**List of Authorized Personnel**

**for**

**Lockout/Tagout Procedures**

NAME JOB TITLE

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ATTACHMENT B

**Certification of Training**

**(Authorized Personnel)**

I certify that I received training as an authorized employer under ***Department or Agency***  Lockout/Tagout program. I further certify that I understand the procedures and will abide by those procedures.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

AUTHORIZED EMPLOYEE (PRINT) DATE

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AUTHORIZED EMPLOYEE (SIGNATURE) DATE

ATTACHMENT C

**Certification of Training**

**(Affected Personnel)**

I certify that I received training as an Affected Employee under  ***Department or Agency***  Lockout/Tagout Program. I further certify and understand that I am prohibited from attempting to restart or re-energize machines or equipment that are locked out or tagged out.

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AFFECTED EMPLOYEE (PRINT) DATE

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AUTHORIZED EMPLOYEE (SIGNATURE) DATE

ATTACHMENT D

**Lockout/Tagout Inspection Certification**

I certify that  ***Equipment***  was inspected on this date utilizing lockout/tagout procedures. The inspection was performed while working on

***Equipment*** .

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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INSPECTTOR (PRINT) DATE

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INSPECTOR (SIGNATURE) DATE

ATTACHMENT E

**Outside Personnel/Contractor Certification**

I certify that and (outside personnel/contractor) from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ have been informed of the County of Henrico’s respective lockout/tagout procedures.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

AUTHORIZED EMPLOYEE (PRINT) DATE

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AUTHORIZED EMPLOYEE (SIGNATURE) DATE

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INSPECTOR SIGNATURE DATE

ATTACHMENT F

**Equipment Specific Procedure**

**for**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

***(Date)***

**Machine Identification**

General Description: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Manufacturer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Model Number: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Serial Number:\* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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*\* If more than one piece of same equipment, list all serial numbers.*

Location of equipment: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Operator Controls**

The types of controls available to the operator need to be determined. This should help identify energy sources and lockout capacity for the equipment.

List types of operator controls: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Note: Complete this page for each type of machine.**

**Energy Sources**

The energy sources, such as electrical, steam, hydraulic, pneumatic, natural gas, stored energy, etc.) present on this equipment are:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ENERGY SOURCE** | **LOCATION** | **Lockable**  **Yes No** | | **Type lock or block needed** |
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**Shutdown Procedures**

List the steps in order necessary to shut down and de-energize the equipment. Be specific. For stored energy, be specific about how the energy will be dissipated or restrained.

Procedure: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Lock Type & Location: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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How Will De-Energized State Be Verified? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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***NOTIFY ALL AFFECTED EMPLOYEES WHEN THIS PROCEDURE IS IN EFFECT***.

**Start Up Procedures**

List the steps in order necessary to reactivate (energize) the equipment. Be specific.

Procedure: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Energy Source Activated: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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***NOTIFY ALL AFFECTED EMPLOYEES WHEN THIS PROCEDURE IS IN APPLICATION***.

**Procedures For Operations and Service/Maintenance**

List those operations where the procedures above do not apply [See 29 CFR 1910.147 (a)(2)]. Alternate measures which provide effective protection must be developed for these operations.

Operation Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Affected and Authorized Employees**

List each person affected by this procedure and those authorized to use this procedure.

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| **AFFECTED EMPLOYEES** | |
| **Name** | **Job Title** |
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| **AUTHORIZED EMPLOYEES** | |
| **Name** | **Job Title** |
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Approved by Date

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Approved by Date