



# CITY OF NEW LONDON

# LOCKOUT/TAGOUT

# PROGRAM

(HAZARDOUS ENERGY CONTROL)

May 1, 2003

# LOCKOUT/TAGOUT PROGRAM (HAZARDOUS ENERGY CONTROL)

## I. PURPOSE

The purpose of this Hazardous Energy Control Program is to establish the minimum requirements for the lockout/tagout of energy control devices whenever maintenance or servicing is performed on machines or equipment. This program shall be used to ensure that machines or equipment are de-energized and isolated from all potentially hazardous energy sources and locked and/or tagged 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.

**NOTE:** This program will be available to all employees for review and a copy will be located in the following area(s):

### Location(s)

1. City Hall – Human Resources
2. Waste Water Treatment Plant Office
3. Street Garage Office
4. Park Department Office
5. Building and Grounds Supervisors Office
6. Cemetery Sexton's Office

## II. AUTHORITY & REFERENCE

Occupational Safety and Health Administration (OSHA) 29 CFR 1910.147

Department of Commerce (DCOMM) 32.15

This standard covers the servicing and maintenance of machines and equipment in which the unexpected energizing or start up of a machine(s) or equipment, or release of stored energy could cause injury to employees. This standard does not cover the following:

- A. Construction, agriculture and maritime employment.
- B. Installation under the exclusive control of electric utilities for the purpose of power generation, transmission and distribution, including related equipment for communication or metering.
- C. Exposure to electrical hazards from work on, near, or with conductors or equipment in electrical utilization installations.

D. Oil and gas well drilling and servicing.

### III. APPLICATION

This program applies to the control of energy during servicing and/or normal maintenance of machines and equipment if:

1. An employee is required to remove or bypass a guard or other safety device.
2. 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 being performed at or upon the point of operation, or when an associated danger zone exists during a machine operating cycle.

**EXCEPTION:** Minor tool changes and adjustments which take place during normal production operations are not covered by the DCOMM/OSHA standard if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection.

**NOTE:** The DCOMM/OSHA Lockout/Tagout Standard (See 29 CFR 1910.147) does not apply to work on cord and plug connected electrical equipment when the employee performing the service or maintenance unplugs the equipment from the energy source and the plug is under his/her exclusive control. The standard also does not apply to hot tap operations involving transmission systems from substances such as gas, steam, water, or petroleum when these operations are performed on pressurized pipelines.

However, the employer must demonstrate that:

- A) The continuity of service is essential
- B) That shutting off of the system is impractical
- C) That special equipment is used which provides effective protection.

Sources of Energy and Stored Energy Requiring Lockout

3. Electrical: service panels, outlets, transformers, motors, capacitors
4. Mechanical: spring-loaded equipment, tensioning devices
5. Hydraulic: rams, oil-powered equipment
6. Pneumatic: compressed-air equipment
7. Kinetic/Gravity: counterweights, flywheels
8. Fluids/Steam: heating pipes, steam lines

#### IV. RESPONSIBILITY FOR COMPLIANCE

- A. All employees are required to comply with restrictions and limitations imposed upon them during the use of lockout procedures. Employees authorized to lockout machines/equipment are required to perform the lockout in accordance with the specific procedures established for each machine or piece of equipment. Upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance, employees shall not attempt to start, energize or use that machine or equipment. **Failure to comply with this policy will result in disciplinary action.**
- B. The Human Resource Coordinator will be responsible for the following:
1. Development of facility-specific energy control policy.
  2. Scheduling of training of supervisors and employees on facility policy and procedures for hazardous energy control.
  3. Implementation of the Energy Control Policy and review of supervisory/employee performance.
  4. Master file maintenance of specific policies, lockout procedures review and training records.
- C. The Department Superintendent shall:
1. Identify specific hazards and develop hazard isolation procedures within the City of New London.
  2. Assure that the City of New London's hazardous energy control policy and procedures are communicated to employees in the work unit.
  3. Monitor hazard isolation procedures for effectiveness.
  4. Enforce hazard isolation procedures within his/her work unit and between work units or employees in the case of outside contractors.
  5. Maintain work unit files documenting employee training.
  6. Specify controls capable of being locked out when replacing or updating equipment controls.

7. Definition and procurement of authorized lockout and tagout devices.
8. Assurance that newly acquired equipment or overload equipment can accommodate locks.

D. Transfer of Lock/Tagout Responsibility:

No employee shall remove a lockout or tagout device affixed by another employee unless authorized. Responsibility for lockout or tagout remains that of the authorized employee who affixes the lockout or tagout device subject to the following exception.

When an incoming authorized employee is to assume lock/tagout responsibilities on a piece of equipment from a departing employee due to shift or personnel changes, the incoming employee shall affix his/her properly labeled locks and/or tag devices to the equipment. If it is intended that the equipment remain securely locked out until the departing employee returns, responsibility does not need to be passed on to the incoming employee.

## V. ENERGY CONTROL PROCEDURES

Procedures will be developed and documented when employees are engaged in activities that potentially could be hazardous, due to exposure from an energy source. The following exceptions to this required documentation include:

1. The machine or equipment has no potential for stored or residual energy or re-accumulation and is isolated.
2. The machine or equipment has a single energy source, which can be readily identified and isolated.
3. The isolation and locking out of that energy source will completely de-energize and deactivate the machine or equipment.
4. The machine or equipment is isolated from that energy source and locked during servicing or maintenance.
5. A single lockout device will achieve a locked-out condition.
6. The lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance.
7. The servicing or maintenance does not create hazards for other

employees.

8. The employer, in utilizing this exception, has had no accidents involving the unexpected activation or re-energizing of the machine or equipment during servicing or maintenance.

Energy control procedures shall clearly and specifically outline the purpose, rules and techniques to be utilized for the control of hazardous energy (**See Form #1**).

These procedures must include the following:

1. A specific statement of the intended use of the procedures.
2. Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy.
3. Specific procedural steps for the placement, removal and transfer of lockout or tagout devices and who will take the responsibility for them.
4. Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices and other energy control measures.

## VI. EQUIPMENT FOR LOCKOUT/TAGOUT

- A. For the purpose of achieving lockout/tagout, authorized employees will be provided with appropriate lockout equipment. Equipment shall include, but not be limited to:

- |                             |                            |
|-----------------------------|----------------------------|
| 1. Padlocks                 | 3. Lockout hasps           |
| 2. Lockout tags/<br>devices | 4. Circuit breaker lockout |

- B. *Padlocks* – One or more padlocks will be issued to each authorized employee. Each employee will have an individual key. Only one key per lock shall be issued. These locks may be used for lockout purposes. Locks will be identified by a number assigned to each employee and/or by the use of a nametag. Only the authorized person may apply and remove the lock, and the key ***may never*** be given to another person.

- C. *Lockout Clamps* – These devices are designed to accommodate more than one lockout padlock when more than one person is working on deactivated equipment. Each person, to assure his or her safety, will apply a lock and warning tag and remove it when the task is completed.

- D. *Warning Tags* – Authorized employees will be issued warning tags which

must be used whenever a padlock cannot be applied. The tag must be affixed as closely as possible to the energy disconnect with a single purpose 50-pound strength plastic tie. Extra caution must be exercised since there is no physical restraint when only a tag is used and energy can be restored without removing a padlock. In addition, where possible, energy source components should be altered, removed, or obstructions should be placed to restrict access to energy disconnects. Electricians may remove fuses but must attach a tag to the panel involved and remove it when the machine is ready for service and the fuse is replaced.

Tag legends may include, but are not limited to:

**DANGER** Do Not Start  
**DANGER** Do Not Open  
**DANGER** Do Not Close

**DANGER** Do Not Energize  
**DANGER** Do Not Operate  
**DANGER** Hands Off

Warning tags shall bear the name of the authorized person and the date of application. Tags must be durable, weather proof and not easily damaged.

## VII. SEQUENCE OF LOCKOUT

- A. The authorized employee shall 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.
- B. The authorized employee shall identify the type and magnitude of the energy that the machine or equipment utilizes, understand the hazards of each energy source and shall know the methods to control the energy.
- C. When the electrical disconnect is attached (or adjacent) to the equipment, the motor stop button shall be depressed and the disconnect handle placed in the "OFF" position. The disconnect handle should be operated while standing to one side of the disconnect rather than in front of the switch. This is a safety precaution in case the parts in the switch explode. The authorized employee should attach his/her lock to the handle of the disconnect and remove the key.
- D. If a switch or disconnect cannot be locked out for any reason, a lockable breaker must be installed before any work is started.
- E. Stored or residual energy such as that in capacitors, springs, rotating flywheels and hydraulic systems, and in air/gas, steam or water pressure lines must be dissipated or restrained by methods such as grounding, repositioning, blocking or venting. If there is a possibility of accumulation

of stored energy, isolation must be verified continuously until servicing or maintenance is completed.

- F. Equipment using hydraulic pressure shall be locked out by placing the hydraulic pump motor electrical disconnect switch in the "OFF" position, applying a lock to the disconnect and bleeding off residual pressure in the piping system if the energy could potentially endanger personnel.
- G. The authorized employee shall ensure that the equipment is completely disconnected from all energy source(s) by operating the push button or other normal operating controls or by otherwise testing to make certain the machine/equipment will not operate.
- H. Return operating control(s) to neutral or "OFF" position after verifying the isolation of the equipment.
- I. The machine is now locked out and service or repairs can safely begin.
- J. If there are any doubts about the above procedure, the authorized employee shall contact his/her supervisor before proceeding.

#### **VIII. PROCEDURES INVOLVING MORE THAN ONE PERSON (GROUP LOCKOUT/TAGOUT)**

If more than one authorized employee is required to lockout or tagout machines and/or equipment, the following organizational procedures/structure shall be followed:

1. A primary authorized employee shall be designated to exercise primary responsibility for the implementation and coordination on the lockout/tagout of hazardous energy sources and for the equipment to be serviced.
2. The primary authorized employee would coordinate with equipment operators before and after completion of servicing and maintenance operations, which require lockout/tagout.
3. A verification system shall be implemented to ensure the continued isolation and deenergization of hazardous energy sources during maintenance and servicing operations.
4. Each authorized employee shall be assured of his/her right to verify individually that the hazardous energy has been isolated and/or deenergized.



5. When more than one crew, craft, department, etc. is involved, each separate group of servicing/maintenance personnel would be accounted for by a principal authorized employee from each group. **Note:** The principal authorized employee is an authorized employee who oversees or leads a group of servicing/maintenance workers such as plumbers, electricians, etc. Each principal employee is responsible to the primary authorized employee for maintaining accountability of each worker in that specific group. No authorized employee may attach or remove another authorized employee's lock/tag unless the provisions of the exception to 29 CFR 1910.147(e)(3) are met.

The group lockout/tagout process for each authorized employee shall include:

1. Each authorized employee shall place his/her own personal lockout device or tagout device on the energy isolating device(s).
2. When an energy-isolating device cannot accept multiple locks or tags, a multiple lockout or tagout device (hasp) may be used.
3. If locked protection is used, a single lock may be used to lockout the machine or equipment with the key being placed in a lockout box or cabinet which allows the use of multiple locks to secure the box or cabinet.
4. Each authorized employee will then use his/her own lock to secure the box or cabinet. As each authorized employee no longer needs to maintain his/her lockout protection, that person will remove his/her lock from the box or cabinet and verifies or observes deenergization of the equipment.

## **IX. RESTORING EQUIPMENT TO SERVICE**

When servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps shall be taken by the authorized person:

1. Visually inspect the machine or equipment and the immediate area around the machine or equipment to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.
2. Visually inspect 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 device(s) and re-energize the machine or equipment.

**NOTE:** The removal of some forms of blocking may require re-energization of the machine before safe removal.

5. Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready to use.

## **X. ABANDONED LOCK REMOVAL PROCEDURES**

If a safety lock has been left in place by an employee who has departed the building, it shall be removed only by adherence to the following procedure:

Before the lock is removed:

1. A thorough inspection of the equipment must be made by the supervisor responsible for the area.
2. The supervisor must confirm that the authorized employee who applied the lock-out device is not at the facility.
3. The supervisor shall remove the lock providing he/she has determined starting up the equipment will not endanger other personnel.
4. Each time it is necessary to remove/cut a safety lock, the person authorized to remove the lock shall prepare a written report and a copy will be sent to the Human Resource Coordinator.
5. The supervisor shall make a reasonable effort to contact the employee who originally applied the lock to inform him/her that the device had been removed. This contact is necessary so that the affected employee would be informed that this has occurred prior to resuming work at this facility.

## **XI. TRAINING**

- A. Each affected employee will 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. The training will be documented.
- B. Each affected employee will be instructed in the purpose and use of the energy control procedure. The training/instruction will be documented.

- C. All other employees whose work operations are or may be in an area where energy control procedures may be utilized, will be instructed about the procedure and about the prohibition relating to attempts to restart or re-energize machines or equipment which are locked out. The instruction will be documented.
- D. When employees are assigned to work in or on equipment that could potentially endanger personnel should it be activated, the supervisor assigning employees to this work is responsible for ensuring that these workers are provided with specific equipment and instructions to comply with this power lockout procedure.
- E. Authorized and affected employees will be retrained whenever there is a change in their job assignments that could affect their lockout responsibilities, a change in the machine that presents a hazard or when there is a change in energy control procedures.
- F. Additional retraining will be conducted whenever the periodic inspection reveals that there are deviations from or inadequacies in the employee's knowledge or use of energy control procedures.

## **XII. PERIODIC INSPECTIONS**

The Human Resource Coordinator will conduct a comprehensive inspection/audit of the energy control procedures at least annually to ensure that the facility is in compliance with the DCOMM/OSHA Power Lockout/Tagout Standard and the procedures outlined in this policy. The results of the annual inspection will be recorded on the Annual Power Lockout/Tagout Certified Inspection Worksheet. (See Form #2)

## **XIII. CONTRACTOR RELATIONS**

The requirements and procedures described in this policy will be explained to contractors who come into the facility to perform installation, service and/or maintenance work. Contractors must also inform management of their own lockout/tagout procedures. The exchange of this information will be documented on Form #3.

#### **XIV. DEFINITIONS**

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 servicing or maintenance is being performed.

Authorized Person:

A knowledgeable individual to whom the authority and responsibility to perform lockout procedures has been given.

Disconnecting Means:

A device that cuts off the source of power to equipment such as an electrical disconnect or an approved air valve.

Energy Control Device:

A physical device that prevents the transmission or release of energy. Manually operated disconnect switches, line valves, blocks and slide gates are examples of energy control devices that provide a visible indication of the position of the device. "On/Off" buttons, selector switches and other control circuit devices are not energy control devices.

Energy Source:

Any electrical, mechanical, hydraulic, pneumatic, chemical, nuclear, thermal or other potential energy source that could have potential to endanger personnel.

Entry Point of Power:

The point at which energy enters the system, machine or unit, such as the main electrical disconnect. Changes in power routing at the entry point should be shown on the circuit diagrams for the machines.

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.

Other Employees:

All other employees whose work operations are or may be in an area where control procedures may be utilized.

Power:

Any type of energy that can operate equipment, cause movement, or cause injury directly from the energy source. Common types of power are electricity, air or gas under pressure, gravity, springs, oil or water under pressure and steam.

Residual Electrical Power:

Electrical energy which is retained in a system, machine or unit when the supply line disconnect is placed on the "OFF" position. Power capacitors and electric or magnetic fields are examples that may have residual power if not properly dissipated.

Residual Pressure:

The differential pressure remaining within a component after the pressure source is closed off.

**LIST OF SAMPLE FORMS:**

- Form 1**      Specific Energy Control Procedures
- Form 2**      Annual Power Lockout/Tagout Certified Inspection Worksheet
- Form 3**      Documentation of Information Given to Contractors Pertaining to Lockout/Tagout Procedures

**SPECIFIC ENERGY CONTROL PROCEDURES  
FOR EACH PIECE OR TYPE OF MACHINE OR EQUIPMENT**

Procedure Number: \_\_\_\_\_ Date: \_\_\_\_\_

Completed By: \_\_\_\_\_

Machine(s) or Equipment utilizing this procedure: \_\_\_\_\_

\_\_\_\_\_

Number of Locks required: \_\_\_\_\_

Other Lockout Devices required: \_\_\_\_\_

**PROCEDURES FOR CONTROLLING HAZARDOUS ENERGY**

**1. Source(s) of Hazardous Energy (Check (✓) all that apply).**

- |                                       |                                      |                                  |
|---------------------------------------|--------------------------------------|----------------------------------|
| <input type="checkbox"/> Electrical   | <input type="checkbox"/> Natural Gas | <input type="checkbox"/> Springs |
| <input type="checkbox"/> Hydraulic    | <input type="checkbox"/> Gravity     | <input type="checkbox"/> Steam   |
| <input type="checkbox"/> Chemical     | <input type="checkbox"/> Pneumatic   | <input type="checkbox"/> Thermal |
| <input type="checkbox"/> Other: _____ |                                      |                                  |

**2. Notify affected employees that the machine/equipment is about to be shut down and locked out.**

Specific Instructions: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**3. Shut down the machine/equipment using normal stopping procedures.**

Specific Instructions: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**4. Isolate all energy sources listed above.**

**Specific Instructions:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**5. A) Apply locks to all isolate devices operated in Step Four.**

**Specific Instructions:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**B) If a tag is used in lieu of a lock when the energy isolating device is incapable of lockout, the following additional safety precaution will be taken:**

**Specific Instructions:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**6. Block or dissipate all stored energy in rams, flywheels, springs, pneumatic or hydraulic systems and steam or gas lines.**

**Specific Instructions:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**7. Verify that the machine/equipment is locked out by testing the machine operating controls.**

**RETURN ALL CONTROLS TO THE "NEUTRAL" OR "OFF" POSITION AFTER TESTING.**

**Specific Instructions:** \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

## PROCEDURE FOR REMOVING LOCKS/TAGS

1. Check the machine/equipment to be sure it is operationally intact, tools have been removed, and guards have been replaced.

Specific Instructions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

2. Check to be sure all employees are safely positioned.

Specific Instructions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Notify all affected employees that locks/tags are going to be removed and the machine equipment is ready for operation.

Specific Instructions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

4. Remove all locks, blocks, or other energy restraints.

Specific Instructions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. Restore all energy to the machine/equipment.

Specific Instructions: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_





## ANNUAL POWER LOCKOUT/TAGOUT INSPECTION WORKSHEET

DATE: \_\_\_\_\_ ORGANIZATION: \_\_\_\_\_

MACHINE/EQUIPMENT NAME(S): \_\_\_\_\_

REVIEW WITH EMPLOYEE(S) PERFORMING SERVICE OR MAINTENANCE ON THE FOLLOWING:

- **HAVE YOU HAD LOCKOUT TRAINING?** YES \_\_\_\_\_ NO \_\_\_\_\_
- **DO YOU HAVE A SAFETY LOCK?** YES \_\_\_\_\_ NO \_\_\_\_\_
- **ARE LOCKOUT PROCEDURES FOR THE ABOVE MACHINE/EQUIPMENT AVAILABLE AND/OR POSTED?** YES \_\_\_\_\_ NO \_\_\_\_\_
- **DO YOU KNOW AND UNDERSTAND YOUR LOCKOUT RESPONSIBILITIES?** YES \_\_\_\_\_ NO \_\_\_\_\_

**OBSERVATION:**

**WERE LOCKOUT PROCEDURES FOLLOWED?** YES \_\_\_\_\_ NO \_\_\_\_\_

**NONE REQUIRED:** \_\_\_\_\_

**LIST DEVIATION(S) OR INADEQUACIES OBSERVED:** \_\_\_\_\_

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**CORRECTIONS/CHANGES/COMMENTS:** \_\_\_\_\_

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**EMPLOYEE(S) OBSERVED:**

**NAME:** \_\_\_\_\_ **DEPT.:** \_\_\_\_\_

**NAME:** \_\_\_\_\_ **DEPT.:** \_\_\_\_\_

**NAME:** \_\_\_\_\_ **DEPT.:** \_\_\_\_\_

**NAME:** \_\_\_\_\_ **DEPT.:** \_\_\_\_\_

**NAME:** \_\_\_\_\_ **DEPT.:** \_\_\_\_\_

**INSPECTED BY:**

**NAME:** \_\_\_\_\_

**JOB TITLE:** \_\_\_\_\_

Form #3

**DOCUMENTATION OF INFORMATION GIVEN TO CONTRACTORS  
PERTAINING TO LOCKOUT/TAGOUT PROCEDURES**

Date	Contractor	Information Given

**Contractor's Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Authorized Employee Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_

**Authorized Supervisor's Signature:** \_\_\_\_\_ **Date:** \_\_\_\_\_