CORTLAND COUNTY LOCKOUT / TAGOUT POLICY

A. PURPOSE

Lockout/Tagout is designed to prevent injuries caused by the unexpected energization, start-up of equipment or machines, release of stored energy, or the entry of fluids or gases into a work area. This procedure establishes the minimum requirements or lockout or tagout of energy-isolating devices. It shall be used to ensure that machinery or equipment is isolated from all potentially hazardous energy sources, and locked out before employees of the county or contractors are permitted to perform service or maintenance that could expose them to a hazard that could lead to injury or death. This procedure complies with 29 CFR 1910.147 on lockout/tagout.

B. RESPONSIBILITY

Safety Office is responsible for ensuring that lockout procedures are established and Department Heads will enforce this policy in all work areas under their control and in all other work areas where employees of their department are engaged in the servicing or maintenance of machinery or equipment. It is the responsibility of all department heads and supervisors to ensure that all appropriate employees are thoroughly instructed in the requirements of this procedure. It is also the responsibility of all employees performing the work to comply with the Lockout/Tagout requirements.

C. DEFINITIONS

1. Authorized employee - A person who has been trained to lockout or tagout machinery or equipment to perform the servicing or maintenance of that machine or equipment. This person must receive specific instruction in the established procedure for lockout/tagout.

2. Affected Employee - An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance may be performed under lockout or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed. An authorized employee and an affected employee may be the same person.

3. Other employee - An employee who works in an area where lockout/tagout procedures may be used.

4. Energy source - Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

5. Energized - Connected to an energy source or containing residual or stored energy.

6. Energy isolating device - Energy control that physically prevents the transmission or release of energy. (e.g. electrical circuit breaker, disconnect switch, line valve, a block, etc.)

7. Residual or stored energy - Any energy that is left over after any primary and other energy sources have been disconnected such as energy stored in springs, spinning wheels, electrical capacitors, heat or cold (thermal energy), gravity devices, etc.

8. Normal production - Utilization of a machine or equipment to perform its intended production function.

9. Servicing or maintenance - Activities which require an employee to remove or bypass guards or other safety devices or to otherwise expose himself/herself to hazardous machine elements.

10. Lockout - The placement of a lockout device on an energy isolating device, in accordance with established procedure preventing the operation of the energy control and the machine or equipment. See LOCKOUT/TAGOUT TAG (fig. 9-8).

11. Lockout device - When properly applied prevents the operation of the energy-isolating device.

12. Tagout device - A prominent warning indicating that the energy isolating device and the machine or equipment should not be operated. It does not physically block the operation of the energy-isolating device.

GENERAL SUMMARY

1. Supervision - The department head or supervisor should locate and identify all isolating devices to be certain which switch(s), valve(s), or other energy isolating devices apply to the machinery or equipment to be serviced or maintained. More than one energy source (electrical, mechanical, hydraulic, pneumatic, chemical, thermal or others) may be involved. All energy sources must be identified and locked/tagged out prior to any work. Authorized employees shall be informed of the types and locations or all energy isolating devices in advance to performing any work on the machinery or equipment.

2. Authorized Employees - Prior to starting and work on machinery or equipment that requires lockout/tagout, authorized employees should

identify the hazards by discussing the problem with knowledgeable persons and by checking the appropriate prints, schematics, diagrams and drawings. After familiarizing yourself with the operation of the machinery or equipment and the energy isolation devices, then the energy control sequence must be allowed.

E. PROPER SEQUENCE FOR LOCKOUT/TAGOUT

STANDARD SEQUENCE

1. Before proceeding with the lockout/tagout of the machine, the authorized employee must check with the department supervisor who is responsible for the machinery or equipment to get him/her to release the machine or equipment for lockout. After getting a release, the authorized supervisor or authorized employee shall notify all affected and other employees that a lockout or tagout system is going to be utilized and the reason for implementing the procedure. The authorized employee(s) shall know the type and magnitude of the energy that the machine or equipment utilizes and shall understand the hazards prior to implementing the energy control system.

2. If the machine or equipment is operating, an authorized person using the normal stopping procedure (e.g. operating stop button) shall shut it down. The machinery or equipment and the work area must be checked to make sure that all employees are clear of any hazardous locations or pinch points.

3. Operate the switch, valve, or other energy isolating device(s) so that the equipment or machinery is isolated from its energy source(s). Stored energy (such as that in springs, elevated machine members, rotating wheels, pneumatic systems, hydraulic systems, capacitors, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, discharging, etc. Systems that could permit fluids to enter a confined work area where employees are working must be shut down and the piping must be physically blanked or capped to prevent the flow of fluids from entering the work area or process vessel in which employees are working.

4. Lockout and/or tagout the energy isolating devices and the control panel with assigned individual lock(s) and/or tag(s). Be sure to lockout the primary energy source and any other sources of energy including backup energy systems. Each individual worker shall maintain control of the only available key(s) for his/her individual lockout device(s). If a spare key is maintained it must be kept locked

up and under the control of the department head. Lockout is the preferred method and should be used whenever possible. Tagout shall be used only when there is no possible means of locking out the energy source. Extra care and instruction of all workers in the area will be required whenever tagout is used since tagout is only a warning device that does not offer any physical restraint of the energy source.

Note: The methods selected e.g. locks, tags, each department for each type of service or maintenance procedure requiring lockout/tagout should identify additional safety measures.

5. After ensuring that no personnel are 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.

CAUTION: BE SURE TO RETURN OPERATING CONTROLS TO THE NEUTRAL OR OFF POSITION AFTER THE TEST.

6. When it is necessary to operate equipment intermittently for making adjustments or for testing or checking the operation, the person authorized to do so shall be responsible for the control of the equipment during this period, subject to restrictions made by the operating and/or maintenance supervisor. Employees performing servicing or maintenance during normal operation shall be protected from injury by guards or other means.

   The generally accepted best means to minimize the potential for inadvertent activation is to ensure that all power to the machine or equipment is isolated, locked, or blocked and dissipated at points of control, using a method that cannot readily be removed, bypassed, overridden, or otherwise defeated.

7. When work extends beyond the shift on which it was started, provision should be made for the removal of the locks and tags placed by the shift and for their replacement with those of the oncoming shift or a departmental lockout/tagout device. Lockout/tagout devices must not be removed by anyone other than the authorized person who placed the device. No individual is permitted to remove any other individual's lockout/tagout device. Supervisors are not permitted to obtain and use spare keys unless it can be proven that the employee is not at the facility and only if a specific procedure and training for such removal has been developed and implemented. The authorized employee that applied the lockout/tagout device must be notified prior to returning to work that

his/her device has been removed.

8. As each individual or group completes their assigned work and leaves the job, they should remove their lock(s) and/or tag(s).

9. Before restoring energy to the equipment, the affected and other employees in the area should be notified that power is about to be restored. After all locks and tags have been removed, the appropriate supervisor should thoroughly check the machinery or equipment to ensure that guards have been replaced, tools have been removed, workers are clear and that it is otherwise safe for operation. The authorized supervisor or authorized employee should check to be sure that all start-up buttons, switches, and other controls are in the off position. Then remove his/her lock(s) and tag(s), being sure not to remove the control panel locks and/or tags until ready to test the equipment or machinery, restore the energy isolation devices to the "normal or on" position, and test the equipment for proper operation.

PROCEDURE INVOLVING MORE THAN ONE PERSON

1. If more than one person is required to lockout or tagout equipment, each individual shall place his/her own personal assigned lockout device or tagout device on the energy isolating device(s). When an energy-isolating device cannot accept multiple locks or tags, a multiple safety lockout device (hasp) shall be used. If a safety lockout hasp cannot be used, a single lock may be used to lockout the machine or equipment with the key being placed in a lockout box or cabinet.
2. Each person involved will then attach his/her lock to the lockout box or cabinet. As each person no longer needs to maintain his or her lockout protection, that person will remove his/her lock from the box or cabinet. Employees involved in-group lockout must be instructed in the group lockout procedures. Only trained and authorized employees shall participate in-group lockout procedures.

PROCEDURES FOR SPECIFIC ENERGY SOURCES

1. Locking/Tagging Out Electrical Energy Sources:

   a). Trace electrical wires, cables and conduit back to the control panel, toggle disconnect switch, circuit breaker, fuse, standard electrical plug and/or buss disconnect. Only qualified persons should remove buss disconnects.

   b). Lockout standard plug by removing it from the power source

and applying a lockable plug cover. Apply lock, hasp and tap.

c). Lockout/tagout panels, switches and circuit breakers by placing the disconnect in the OFF position and by locking the panel or disconnect switch with a lock, hasp and tag. Switches may be covered with a locking metal or plastic cover.

d). Lockout a right-hand panel disconnect by: grasping the disconnect handle with the left hand and positioning yourself to the right of the panel; turn your face from the panel; pull handle down to the OFF position; lockout using lock, hasp and tag. Some panel disconnects may have a double through and are OFF in the middle position. Make sure the handle is in the OFF position and is locked out by trying to move it.

e). Disconnect and lock out all other energy sources including backup energy sources provided by generators and batteries.

f). Discharge capacitors using only an insulated grounding wand that is properly grounded.

g). Before attempting to verify the energy lockout make sure all employees are in the clear. Attempt to restart the machine or equipment and if you notice sound, lights or movement you must locate and isolate any remaining energy sources.

2. Locking/Tagging Out Mechanical Energy Sources:

a). Springs that are compressed, twisted or extended are a source of residual energy that must be returned to the relaxed position.

b). Momentum is the energy stored in moving and rotating parts that must be allowed to come to rest.

c). Gravity is the energy that attracts an object to ground. Objects that can be attracted by gravity must be released, pinned, blocked or supported by safety stands so that they cannot fall or rotate.

d). Check to be sure that the object is not being held by another form of energy such as electrical, hydraulic or pneumatic energy. After locking out all forms of energy allow the object to come to a complete stop.

e). Never use an unauthorized hoist, crane, or chain to hold up

equipment or parts that you must work beneath.

f). Use safety blocks, safety pins or safety stands to support equipment that is normally elevated by mechanical, pneumatic or hydraulic energy.

g). After making sure that all employees are clear of hazardous locations verify that energy has been dissipated or secured before performing work on the equipment or machinery.

3. Locking/Tagging Out Pneumatic Energy Sources:

a). Pneumatic components include air supply lines, tubing, piping, valves, counter balances, surge tanks, accumulators, and cylinders. Trace all air supply lines back to the source. All charged devices must be locked out, blanked off or separated and capped to prevent the release of energy.

b). Make sure that all elevated parts are blocked, pinned or supported using safety devices and that all switches and controls are in the OFF or NEUTRAL position.

c). Supply and in-line valves should be moved to the OFF position and locked out with a lock, hasp and tag. Non-lockable valves may be locked out using chains to prevent movement or with metal/plastic covers attached with a chain.

d). Quick disconnects can be used to disconnect flexible tubing and hoses.

e). Make sure that all pressure is released from charged pneumatic devices before starting work.

f). Check for and lock out other energy sources supporting pneumatic equipment.

g). Check to make sure employees are clear of hazardous locations before attempting to verify lockout.

h). Slowly separate pipe unions and listen for air being released. After air is released, retighten the pipe union.

i). Attempt to restart the equipment and if you notice sounds or movement, locate and lockout all remaining energy sources. Make another attempt to restart the equipment.

4. Locking/Tagging Out Hydraulic Energy Sources:

a). Manual or powered hydraulic control valves are usually located near the hydraulic unit. Non-lockable valves may be locked out using chains to prevent movement or with metal/plastic covers attached with a chain. To avoid an error identifying the hydraulic controls, always trace the supply lines back to the source.

b). The drive motor is usually electrically powered, and sometimes pneumatically powered, so be sure to lockout the power source for the drive motor and the pump motor.

c). Use safety blocks, pins or supports to prevent movement of parts normally held in place by hydraulic pressure before disconnecting and locking out hydraulic energy.

d). Be sure to isolate accumulators and actuators by moving the isolation valves to the OFF position. Then lockout the isolation valves.

e). Release pressure in the accumulator and actuator lines by slowly opening dump valves or bleeder valves. If there is no dump or bleed valves, slowly break open pipe union to release pressure in the system.

f). After checking to make sure that all employees are clear of hazardous locations, attempt to restart the system to verify lockout. If sound or motion is detected, check for, locate and isolate any other energy sources. Perform the restart verification procedure again.

5. Lockout/Tagout of Piping Systems:

a). Downstream valves must be locked out first.

b). Non-lockable supply valves upstream from the work area should be locked out. Non-lockable valves may be locked out using chains to prevent movement or with metal or plastic covers attached with a chain.

c). Pipes should be traced to make sure there are no other pipes joining the system that need to be locked out.

d). Blanks or pancakes must be attached if the rest of the system must remain operational or if the section of pipe is servicing a confined space where you are working.

e). Only specially trained qualified persons are permitted to work on gas systems or systems containing hazardous materials.

f). After checking to make sure that all employees are clear of hazardous locations, verify that lockout is complete.

g). When available, check all gauges to see that pressure is at zero. Do not rely solely on pressure gauges.

h). If bleed-off valves are not provided to release and check for stored energy, slowly separate pipe unions to verify that pressure has been released and that lockout has been completed.

6. Lockout/Tagout of Thermal Energy Sources:

a). Lock out electrical, piped and/or any other appropriate thermal energy source using the applicable procedures.

b). Use air movers to dissipate thermal energy or allow natural dissipation of thermal energy before performing any work.

c). Thermometers or heat sensors should be used to verify safe temperatures before beginning work.

d). Be sure to verify lockout of other energy sources by following the appropriate procedures.

F. SUMMARY OF BASIC RULES FOR USING LOCKOUT/TAGOUT

1. All equipment shall be locked out or tagged out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy-isolating device that is locked or tagged out. All employees in work area where lockout/tagout procedures may be used shall be instructed in the basic rules.

2. Master key systems or personal locks must never be used for lockout procedures. Employees must use only their assigned safety lock.

G. TRAINING

Note: The following training information and energy control procedures should be carefully checked and modified to meet the requirements and needs of each operation. Additional requirements and procedures may to needed to safely, and effectively control energy in machines and equipment in each work area. This is a generic outline provided only to assist county

department heads and supervisors with a guide to implementing an energy control program.

1. Instructors shall be familiar with the OSHA 1910.147 Control of Hazardous Energy Source (Lockout/Tagout) regulations and the applications applicable to the machines and equipment in the work area.

2. Department heads or supervisors should locate and identify all isolating devices so that he/she can explain and/or show authorized employees how to lockout and/or tagout equipment or machinery. Remember that more than one type of energy source or residual energy may be involved.

   NOTE: The following training outline shall be modified to specifically meet the needs of each Lockout/Tagout application and the department(s) where Lockout/Tagout will be used.

3. General training for authorized and affected employees:

   a). Discuss the purpose of Lockout/Tagout procedures.

   b). Discuss the employee's responsibility to comply with the Lockout/Tagout procedures.

   c). Define authorized, affected and other employees.

   d). Show and demonstrate the locks, safety lockout hasps, tags, blocks, safety pins and any other lockout/tagout devices used to comply with the procedure.

   e). All employees must be informed and must understand that only authorized supervisors and employees are permitted to implement and remove lockout/tagout devices, and that no employee is permitted to operate or attempt to operate any equipment or machinery that is locked or tagged out of service. Failure to comply may result in disciplinary action.

   f). Explain that affected and other employees in work areas where lockout/tagout procedures are implemented must be notified prior to equipment or machinery being locked out and prior to energy being restored.

4. Technical training for authorized supervisors and employees:

   a). Discuss the definitions.

b). Discuss the documented Compliance Requirements.

c). Train employees to utilize the documented Proper Energy Control Sequence or Lockout/Tagout.

d). Train employees to utilize the group lockout/tagout procedures, if appropriate.

e). Train each employee to utilize the lockout/tagout procedures for the specific energy sources that are appropriate to the type of service or maintenance expected to be performed by the employee.

f). Although a test is not required, it is a good practice to require authorized employees to complete a test. Instructors should at least have employees demonstrate that they know and understand the procedures. Observe employees during implementation and be sure to take action if the procedures are not followed. Retraining may be necessary since repetition is the key to learning.