ANTIOCH COLLEGE

Lockout Tagout Program

SCOPE AND APPLICATION

The lockout/tagout standard covers the servicing and maintenance of machines and equipment in which the unexpected energization or startup of the machines or equipment, or release of stored energy could cause injury to employees. This standard applies to general industry and does not cover construction.

- This standard applies to the control of energy during servicing and/or maintenance of machines and equipment. Normal production operations are not covered by this standard. Servicing and or maintenance which takes place during normal production operations is covered by this standard only if:
- An employee is required to remove or bypass a guard or other safety device.
- 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).
- The employee is required to place any part of his or her body into a danger zone associated with a machine operating cycle.
- This standard does not apply to the following situations:
- While servicing or maintaining **cord** and **plug** connected electrical equipment provided that the equipment is unplugged from the energy source and the plug remains under the exclusive control of the employee performing the servicing and maintenance.
- During **hot tap operations** that involve the transmission and distribution systems for gas, steam, water, or petroleum products where they are performed on pressurized pipelines, provided that the continuity of service is essential, shutdown of the system is impractical, and employees are provided with alternative protection that is equally effective.

Antioch College maintenance staff performing minor tools changes, adjustments, and/or other minor servicing activities that are routine, repetitive, and integral to the use of the production equipment are not covered by this standard if the activity occurs during normal production operations. However, the work must be performed using alternative measures that provide effective protection.

RESPONSIBILITIES

Management and/or the Safety program Coordinator is responsible for identifying the machines and equipment that fall within the scope of this program and identify the Antioch College maintenance staff authorized to perform lockout/tagout procedures. Management and/or the safety coordinator will also oversee the documentation of procedures for locking/tagging out the equipment and ensuring that employee training and periodic inspections are conducted.

Supervisors will ensure that all equipment being serviced that falls within the scope of this program is locked/tagged out as required. In addition, the supervisor is responsible for informing affected employees that equipment is being serviced and that lockout/tagout procedures are being used.

Maintenance Employees that are authorized to service equipment must comply with the lockout/tagout procedures detailed in this program. Authorized and affected employees must not attempt to energize equipment being serviced or attempt to remove locks and tags placed on equipment by other authorized employees.

ENERGY CONTROL PROGRAM

The purpose of the energy control program is to ensure that whenever the possibility of unexpected machine or equipment startup or the release of stored energy exists, the equipment is isolated from its energy source and made inoperable prior to servicing or maintenance. At a minimum, the energy control program must include documented energy control procedures, an employee training program, and periodic inspections of the use of the energy control procedures.

ENERGY CONTROL PROCEDURES

- Energy control procedures must be developed, documented, and used to control potentially hazardous energy whenever workers perform activities covered by this standard. The written procedures must identify the scope, purpose, authorization, rules, and techniques utilized to control hazardous energy sources and the means to enforce compliance. These procedures must identify the information that the authorized employees must know to control hazardous energy sources during servicing or maintenance activities. If this procedure is the same for various machines or equipment then a single energy control procedure may be sufficient. However, if there are multiple energy sources, different connecting means, or different sequential steps required to shut down the machine or equipment, then a separate energy control procedure must be developed.
- The energy control procedures must include at least the following elements:
- A statement on how the procedures will be used.

- The procedural steps needed to shutdown, isolate, block, and secure machines or equipment.
- The steps designating the safe and effective placement, removal, and transfer of lockout/tagout devices and who has the responsibility for them,
- The specific requirements for testing machines or equipment to determine and verify the effectiveness of locks, tags, and other energy control measures.
- Notifying affected employees before lockout/tagout devices are applied and after they are removed from the machine or equipment.
- The procedural steps for shutting down and securing machines or equipment must include the following steps:
- Preparing for and shutting down the machine or equipment.
- Applying the lockout/tagout devices to the energy-isolating device.
- Safely releasing all potentially hazardous, stored, or residual energy.
- Verifying the effective isolation of the machine or equipment prior to the start of servicing or maintenance activities.
- Before lockout or tagout devices are removed and energy is restored to the machines or equipment, the following steps must be taken after serving is complete:
- Ensure that machines or equipment components are operationally intact.
- Verify that all employees are safely positioned or removed from the equipment.
- Ensure that the lockout or tagout devices are removed from the energy-isolating device by the employee who applied the device.

ENERGY ISOLATING DEVICES

If an energy isolating device is not capable of being locked out, the energy control program must utilize a tagout system. If an energy isolating device is capable of being locked out, the energy control program must utilize lockout, unless the employer can demonstrate that the utilization of a tagout system will provide full employee protection.

Full Employee Protection

When a tagout device is used on an energy-isolating device that is capable of being locked out, the tagout device shall be attached at the same location that the lockout device would have been attached. The employer must also demonstrate that the tagout program will provide a level of safety equivalent to that obtained by using a lockout program. In demonstrating that an equivalent level of safety is achieved, full compliance with the tagout provisions of this standard is required. Additional means to be considered shall include the implementation of additional safety measures such as removal of an isolating circuit element, blocking of a control switch, opening of an extra disconnecting device, or removal of a valve handle to reduce the likelihood of inadvertent energization.

After January 2, 1990, whenever replacement or major repair, renovation or modification of a machine or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machine or equipment must be designed to accept a lockout device.

REQUIREMENTS FOR LOCKOUT/TAGOUT DEVICES

Antioch College shall provide locks, tags, chains, wedges, key blocks, self-locking fasteners, or other hardware for isolating, securing, or blocking of machines or equipment from energy sources.

The devices must be capable of withstanding the environment to which they are exposed during use. Lockout and tagout devices shall be standardized in at least one of these criteria: color, shape, or size. In the case of tagout devices, print and format shall be standardized. The devices shall be assigned to authorized employees and will be used only for energy control and not for other purposes. Both lockout and tagout devices shall be substantial. Lockout devices shall not be removable without the use of excessive force and tagout devices shall be substantial enough to prevent accidental or inadvertent removal.

Tagout devices shall be constructed and printed to remain legible when exposed to weather, wet/damp conditions, or corrosive elements. The tag attachment must be a non-reusable type, attached by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds (equivalent to a one piece, all environment-tolerant nylon cable ties). The tags must warn against hazardous conditions if the machine or equipment is energized and shall include a legend such as: **Do Not Start, Do Not Open, Do Not Close, Do Not Energize, Do Not Operate.**

Lockout devices and tagout devices must indicate the identity of the employee applying the device.

EMPLOYEE TRAINING

- Antioch College Safety Program Administrator will provide training to ensure that the purpose and function of the energy control program are understood by the employees and that the employees have the knowledge and skills required for the safe application, use, and removal of the energy controls. Training records will be kept in the Physical Plant Office. The training must include the following:
- Each authorized employee shall 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 for energy isolation and control.
- Each affected employee shall be instructed in the purpose and use of the energy control procedure.

- All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment that are locked out or tagged out.
    - When tagout systems are used, employees must also be trained in the following limitations of tags:
    - Tags are essentially warning devices affixed to energy isolating devices and do not offer the physical restraint on those devices that is provided by a lock.
    - When a tag is attached to an energy isolating device, it is not to be removed without the authorization of the person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
    - In order to be effective, tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area.
    - Tags and their means of attachment must be made of materials that will withstand the environmental conditions encountered in the workplace.
    - Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.
    - Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.

Retraining must 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. Additional retraining shall also be conducted whenever a periodic inspection reveals deviations from the energy control procedures, or whenever an employer has reason to believe that there are inadequacies in the employee's knowledge or application of the energy control procedures. The retraining must reestablish employee proficiency and introduce new or revised control methods and procedures.

The employer must certify that training has been given and is being kept up to date. The training certification must include the name of the employee and the dates of the training.

PERIODIC INSPECTIONS

A periodic inspection of the energy control procedures must be conducted at least annually to ensure that the procedures and requirements of this standard are being followed. The inspection must be designed to identify and correct any deviations or inadequacies observed. An authorized employee other than the one(s) using the energy control procedure must perform the inspection.

When lockout is used for energy control, the periodic inspection shall include a review between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected. When a tagout procedure is being

inspected, a review on the limitations of tags, in addition to the above requirements, must also be included with each effected and authorized employee.

The inspection must be documented to certify that the inspection has been completed and must identify the machines or equipment involved in the inspection, the date, the employees involved, and the name of the person performing the inspection.

ADDITIONAL REQUIREMENTS

Testing or Positioning of Machines, Equipment, or Components

- In situations in which lockout or tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine, equipment, or components, the following sequence of actions must be followed:
- Clear the machine or equipment of tools and materials.
- Remove employees from the machine or equipment area.
- Remove the lockout/tagout devices as specified in the written procedures.
- Energize and proceed with the testing or positioning of the equipment.
- Deenergize all systems and reapply energy control measures to continue the servicing and/or maintenance.

Outside Contractors or Other Personnel

Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of this standard, Antioch College and the outside employer (or contractor) must inform each other of their respective lockout/tagout procedures. Antioch College shall ensure that his/her employees understand and comply with the restrictions and the prohibitions of the outside employer's energy control program.

Group Lockout or Tagout

When servicing and/or maintenance is performed by a crew, department, or other group, they must utilize a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. Group lockout or tagout devices must be used as specified in the written procedures. When more than one crew or department is involved, one authorized employee shall be responsible for coordinating the overall job-associated lockout or tagout control to ensure continuity of protection.

Each authorized employee shall affix a personal lockout or tagout device to the group lockout device, group lockbox, or comparable mechanism when they start work. Each person must remove the devices when they stop working on the machine or equipment being serviced or maintained.

Shift or Personnel Changes

Specific procedures must be utilized during shift or personnel changes to ensure the continuity of lockout or tagout protection, or requiring that the oncoming shift verify deenergization and application of lockout or tagout devices.

APPENDIX A – SPECIFIC ASSIGNED RESPONSIBILITIES

The following are specific assigned responsibilities under this Lockout/Tagout Program. The purpose of these assigned responsibilities is to increase ownership in the program at all levels as well as ensuring implementation and compliance with the elements of the program.

Associates identified in each tier group are responsible for performing those specific assignments.

Manager:	Assignment:
Safety Program Administrator	***Overall program compliance & training***

Supervisor:	Assignment:
Maintenance Supervisor	**Enforcement of policy and annual inspection of LO/TO procedures.**

Employee:	Assignment:
Electricians (Authorized)	**Perform LO/TO and Compliance with LO/TO procedures**
HVAC Technicians (Authorized)	**Perform LO/TO and Compliance with LO/TO procedures**

Others:	Assignment:
Maintenance & Grounds Staff (Affected Employees)	**Compliance with LO/TO procedures**

APPENDIX B – CERTIFICATE OF TRAINING

Certificate of Training
Antioch College Energy Control Program
OSHA §1910.147

I. Employee Name _____
Print Name Signature

II. Date of Training _____

III. Employer/Location _____

IV. Instructor _____

V. Reason for Training

A. [ ] Initial training
B. [ ] Retraining due to change in job assignment
C. [ ] Retraining due to change in machinery
D. [ ] Retraining due to change in energy control procedure
E. [ ] Retraining due to periodic inspection
F. [ ] Other _____

VI. Training Received

A. [ ] Contents of the Energy Control Program reviewed
B. [ ] Contents of energy control procedures for the following machines/equipment reviewed:

C. [ ] Authorized employees were trained to recognize the applicable hazardous energy sources, the type and magnitude of energy available, and the methods and means for energy isolation and control. Employees were instructed to the limitations of tags.

D. [ ] Employees were instructed how to recognize when lockout/tagout procedures are in effect and the purpose of, and applicable hazards pertaining to the energy control procedures.

I certify that the above training has been completed.

_____ _____
Name of Instructor Date

APPENDIX C – EQUIPMENT SPECIFIC PROCEDURES

Equipment Specific Procedures
Lockout/Tagout/Control of Hazardous Energy Sources

Date: _____

Machine Identification: _____ **Location:** _____

Manufacturer/Model Number: _____

Employees Authorized to Perform Lockout/Tagout Procedures:

Energy Sources

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

ENERGY SOURCE	LOCATION	Lockable Yes	Lockable No	Type lock or block needed

VI. 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:

Lock Type & Location:

De-energized State To Be Verified? How?

NOTIFY ALL AFFECTED EMPLOYEES

VII. Start Up Procedures

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

Procedure:

Energy Source Activated:

NOTIFY ALL AFFECTED EMPLOYEES

APPENDIX D – CERTIFICATE OF INSPECTION

Antioch College Certificate of Inspection
Energy Control Program/Lockout Tagout Program
OSHA 1910.147

1. Name of Inspector _____

2. Date of Inspection _____

3. Equipment and/or machinery being inspected:

4. Energy control procedures reviewed with the following authorized/affected employees:

5. The inspection revealed the following problems and/or deviations between the energy control program and the employee's performance:

6. The following steps are recommended to correct problems identified above:

I certify the above information is true and accurate.

_____

Signature of Inspector

APPENDIX E – GLOSSARY OF TERMS

Glossary of Terms
Control of Hazardous Energy Sources (Lockout/Tagout)

Affected Employee – An employee who performs job duties in an area in which the energy control procedure is implemented and servicing or maintenance operations are performed. An effected employee does not perform servicing or maintenance on machines or equipment and is not responsible for implementing the energy control procedures.

Authorized Employee – An employee who performs servicing or maintenance on machines and equipment. Lockout or tagout is used by these employees for their self-protection.

Capable of Being Locked Out – An energy isolating device is considered capable of being locked out if it meets one of the following requirements:

- It is designed with a hasp to which a lock can be attached.
- It is designed with any other integral part through which a lock can be affixed.
- It has a built in locking mechanism.
- It can be locked out without dismantling, rebuilding, or replacing the energy isolating device or permanently altering its energy control capability.

Energized – Machines and equipment are energized when they are connected to an energy source or when they contain residual or stored energy.

Energy Isolating Device – Any mechanical device that physically prevents the transmission or release of energy. These include, but are not limited to, manually operated electrical circuit breakers, disconnect switches, line valves, and blocks.

Energy Source – Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Energy Control Procedure – A written document that contains those items of information an authorized employee needs to know in order to safely control hazardous energy during servicing or maintenance of machines and equipment.

Energy Control Program – A program intended to prevent the unexpected energization or the release of stored energy in machines or equipment. The program consists of energy control procedures, an employee training program, and periodic inspections.

Hot Tap – A procedure used in the repair, maintenance and services activities that 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, steam, and petrochemical distribution systems.

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 equipment being controlled cannot be operated until the lockout device is removed.

Lockout Device – Any device that uses positive means such as a lock (key or combination type) to hold an energy-isolating device in a safe position, thereby preventing the energization of machinery or equipment. When properly installed a blank flange or bolted slip blind are considered equivalent to lockout devices.

Normal Production Operations – The utilization of a machine or equipment to perform its intended purpose.

Other Employees – An employee who may performs job duties in an area in which the energy control procedure is implemented and servicing or maintenance operations may be performed. These employees do not perform servicing or maintenance on machines or equipment and are not responsible for implementing the energy control procedures.

Servicing and/or Maintenance – Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and /or servicing machine or equipment. These activities include lubrication, cleaning or unjamming of machine or equipment and making adjustments or tools changes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

Setting Up – Any work performed to prepare a machine or equipment to perform its normal production operation.

Tagout – The placement of a tagout device on an energy-isolating device to indicate that the energy-isolating device and the equipment being controlled may not be operated until the tagout device is removed.

Tagout Device – Any prominent warning device, such as a tag and a means of attachment that can be securely fastened to an energy-isolating device. The tag indicates that the machine or equipment to which it is attached is not to be operated until the tagout device is removed in accordance with the energy control procedure.