Energy Control Program

POLICY

This program covers the operation, servicing and maintenance of all machines, equipment and systems in which the unexpected start-up or release of stored energy could cause injury to employees. This program also establishes minimum performance requirements for the control of such hazardous energy. Normal production operations, such as minor tool changes and adjustments, and other minor servicing activities, are only included when an employee is required to remove or bypass a guard, or to place any part of his/her body into a dangerous point of operation within the cycle of the equipment's operation.

This program does not apply to any of the following:

1. Work on cord and plug connected electrical equipment when the hazard is controlled by the unplugging the equipment from its single energy source and by the plug being under the exclusive control of the one and only employee performing the servicing.
2. Hot tap operations on pressurized pipelines used to transmit and distribute substances such as gas, steam, water, or petroleum products if the university can demonstrate that all of the following apply:
    - Continuity of service is essential.
    - Shutdown of the system is impractical.
    - Proven effective employee protection is provided by following documented procedures and using special equipment.
3. Service and maintenance of fire alarms, extinguishing systems and their components if:
    - Employees depend on these systems for fire safety; *and*
    - Employees working on fire extinguishing systems are protected from the unexpected release of hazardous energy by appropriate alternative measures.

RESPONSIBILITIES

Safety Manager: The Safety Manager/designee will be responsible for providing training to employees, documenting training sessions, periodically auditing the program to ensure its effectiveness, and maintaining the written energy control program. He/she will also be responsible for addressing unsafe situations with the employee's supervisor, or in the case of an emergency, addressing the situation directly with the employee and notifying the supervisor in a timely manner following the emergency.

Supervisors: Supervisors who oversee authorized employees will be familiar with this program and its contents. Supervisors will also be responsible for assigning locks and energy isolation devices, ensuring energy control plans are developed for specific pieces of equipment and processes, ensuring authorized employees have received training, and coordinating with contractors affected by this program.

Authorized employees: Employees who are authorized to use energy isolating equipment will be required to do so in a manner that is consistent with this program. Authorized employees will also

be responsible for completing energy control plans for specific pieces of equipment and processes, notifying Facilities Services when equipment needs servicing, following all lockout/tagout procedures for specific pieces of equipment, and adhering to directions on all locks and tags.

Affected employees: Affected employees must not tamper with or try to reactivate equipment while it is being serviced. Affected employees will also be required to follow safe shutdown and startup procedures, and must communicate with other employees who may also be affected.

Other employees: Employees who do not operate or service equipment shall not tamper with or remove lockout or tagout devices.

LOCKOUT AND TAGOUT

Lockout is one way to control hazardous energy. In practice, lockout is the isolation of energy from the system (a machine, equipment, or process) which physically locks the system in a safe mode. The energy-isolating device can be a manually operated disconnect switch, a circuit breaker, a line valve, or a block. In most cases, these devices will have loops or tabs which can be locked to a stationary item in a safe position (de-energized position). The locking device (or lockout device) can be any device that has the ability to secure the energy-isolating device in a safe position.

Tagout is a labelling process that is used when lockout is required. The process of tagging out a system involves attaching or using an indicator, usually a standardized label, which includes the following information:

- Why the lockout/tagout is required (repair, maintenance, etc.).
- Time of application of the lock/tag.
- The name of the authorized person who attached the tag and lock to the system.

The authorized individual who placed the lock and tag onto the system is the one who is permitted to remove them. This procedure helps ensure the system cannot be started up without the authorized individual's knowledge.

PROCEDCURES AND REQUIREMENTS

1. **Energy Control Procedures**

   Departments that perform lockout/ tagout **must** develop written energy control procedures to protect employees from potentially hazardous energy while performing service and maintenance on machines and equipment. Written procedures must be developed for **each** machine and piece of equipment unless all of the following apply:

   - The machine or equipment has a single energy source that is easily identified and can be isolated;
   - The machine or equipment is completely de-energized and deactivated by isolating and locking out the energy source;
   - There is no stored or residual energy that could be a hazard to employees, and the machine or equipment cannot re-accumulate such energy after it is been shut down;
   - The energy source can be locked out with a single lockout device;

- The machine or equipment is isolated from the energy source and locked out during service or maintenance;
- The authorized employee doing the service or maintenance has exclusive control of the lockout device;
- The service or maintenance does not create a hazard for other employees; *and*
- The machine or equipment has never been unexpectedly energized or activated during service or maintenance.

The energy control procedures **must** specifically identify at least the following elements:

- When the procedure must be used;
- What the specific steps are for shutting down, isolating, blocking and securing the machine or equipment;
- Placing, removing and transferring lockout or tagout devices and who is responsible for them; *and*
- How to test the machine or equipment to verify the effectiveness of lockout devices, tagout devices, and other energy control measures.

Similar machines and equipment may be covered by a single written procedure if all of the following apply:

- They use the same magnitude of energy;
- They have the same or similar controls; *and*
- The specific machines and equipment covered by the procedures are identified by at least type and location.

2. Protective Equipment

The supervising department shall provide locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware for isolating, securing, or blocking of machines or equipment from energy sources.

Lockout devices and tagout devices must be singularly identified and the only device(s) used for controlling energy, and shall not be used for other purposes. In addition lockout and tagout devices shall also be:

- Durable;
- Standardized;
- Substantial; *and*
- Identifiable.

Note: See definitions for further explanation of these descriptors.

3. General Lockout/Tagout Procedures

The following procures must be incorporated into the specific procedures developed by departments.

Steps before servicing equipment

1. Inform all affected employees of equipment shutdown;
2. Identify the source, magnitude, hazards of the energy, and the methods needs to control the energy;
3. Shut down the equipment;
4. Isolate or block hazardous energy;
5. Lockout and tagout the energy sources;
6. Remove any potential stored energy;
7. Verify the equipment is isolated from hazardous energy and de-energized; *and*
8. Return the controls to the off or neutral position.

Steps after servicing equipment

1. Remove tools and replace components;
2. Notify co-workers about removing energy control devices;
3. Ensure all workers are clear of the work area;
4. Verify power controls are off or in a neutral position;
5. Remove the lockout or tagout device; *and*
6. Re-energize the equipment.

Note: Only authorized employees may place locks and tags, remove locks and tags, and verify the machine or equipment is isolated from all energy sources. See section 8 if an authorized employee accidently leaves a lock or tag on a device that must be reactivated.

4. Running Adjustment Procedures

Running adjustment procedures are limited to applications requiring the energization of equipment to complete a task that cannot be done while the equipment is locked out. This requires appropriate personal protective equipment. Some examples of the procedures are:

- A machine which must be in motion to make final adjustments.
- A machine which must be in motion to remove production materials.
- A machine which must be in motion to "thread-on" new carrier ropes, belts, etc.
- An electrical circuit that must be energized to test for continuity.
- A pipeline system that must be filled for testing or inspection purposes.

When standard lockout procedures cannot be used to accomplish the necessary task, the following procedures shall be used:

1. The operating controls will only be operated by a qualified operator.
2. The qualified operator will attend the controls at all times when the controls are not logged out.
3. The equipment will be operated at the slowest speed possible consistent with performing the job.

4. All personnel will remain in view of the person operating the controls, or other means of communication will be established.
5. Extension tools which minimize personnel exposure will be used where possible.
6. All personnel will be trained in the exact procedure to be followed.
7. All personnel will be positioned beyond the reach of other machine elements or sections which are not locked out and offer the potential for exposure. In any instance where a necessary work position offers exposure to other sections or elements of the machine, such other sections will be locked out before exposure occurs.
8. Anytime that communications are lost between the operator and work crews, or anytime that established procedures cannot be followed, all work offering potential exposure will be stopped until agreement is reached on how to proceed.

5. Group Lockout/Tagout

When servicing and maintenance is performed by a group of employees, a procedure shall be utilized which affords the employees a level of protection equivalent to that provided by implementation of a personal lockout/tagout device.

Group lockout shall be utilized where complex lockout/tagout operations involve many employees and numerous energy-isolating devices. In such situations the supervising department must designate a primary authorized employee, with the responsibility for a set number of employees working under the group logout/tagout device(s). The primary authorized employee must implement and coordinate the lockout/tagout of hazardous energy sources and verify that the steps taken, in accordance with the specific written energy control procedure, have in fact isolated the machine or equipment effectively from the hazardous energy sources. This must be accomplished before authorized employees participating in the group lockout/tagout affix their personal lockout device to the group box and before performing service and maintenance activities.

In addition to the primary authorized employee, each authorized employee participating in the group lockout/tagout must be informed of their right to verify the effectiveness of the lockout measures. Each authorized employee must be allowed to personally verify that hazardous energy sources have been effectively isolated, if they choose. An authorized employee, who opts to verify the effectiveness of the isolation measures, must perform this verification after affixing his or her personal lockout device to the lock box and before performing service and maintenance activities.

Each authorized employee shall affix a personal lockout or tagout device to the group lockout device, group lockbox, or comparable mechanism before he or she begins work, and shall remove those devices when he or she finishes working on the machine or equipment being serviced or maintained.

Multiple groups

If more than one group works on a machine or equipment that must be locked or tagged out, an employee must be assigned as the group coordinator with overall responsibility to coordinate the different work groups and maintain continuous lockout or tagout protection.

An authorized employee must also be assigned in each group and will be responsible for the overall safety of the group.

6. Coordinating with Contractors

Whitworth must inform outside contractors of the University's lockout/tagout procedures if the machine or equipment being repaired is required to be locked or tagged out. Whitworth's group lockout/tagout procedures will be followed when outside contractors perform work with University employees.

Contractors are required to provide Whitworth with a copy of their lockout/tagout program before conducting lockout or tagout procedures for the University. Whitworth's Safety Manager must review the contractor's program prior to the beginning of the project.

7. Shift Changes

Specific procedures shall be utilized during shift or personnel changes to ensure the continuity of lockout/tagout protection. This shall include provision for the orderly transfer of lockout or tagout device protection between off-going and oncoming employees, to minimize exposure to hazards from the unexpected energization or start-up of the machine or equipment, or the release of stored energy.

An authorized employee must be present at all times whenever work is being performed. When changing shifts the supervising department may, through an orderly transfer, designate a new primary authorized employee. This new primary authorized employee must attach their personal lockout device to the group lockout/tagout box before the previous primary authorized employee removes their lockout device. The new primary authorized employee will assume responsibility for the safety of the operation.

Whenever work is performed over a period of time and is not continuous, the primary authorized employee shall walk through the affected work area(s) to verify effective isolation prior to beginning work. Each applicable energy isolation device must be verified to assure effective energy isolation.

8. Removing Locks

When a lock or tag is accidently left on a device that must be reactivated, the supervising department may have the lockout or tagout device removed by someone other than the authorized employee who applied it if all of the following conditions are met:

- The energy control program has documented, specific procedures and training for this situation; *and*
- You can show that the specific procedures used are as safe as having the device removed by the authorized employee who applied it.

The specific procedures will include at least the following:

- Verifying the authorized employee who applied the device is not at the facility.
- Making all reasonable efforts to contact and inform the authorized employee that the lockout or tagout device is being removed.

- Making sure the authorized employee is informed, before resuming work at the facility, that the lockout or tagout device has been removed.

Do the following before energizing or starting the machine or equipment:

- Notify affected employees that the lockout or tagout devices have been removed.

9. Equipment Replacement and Repair

Equipment and machines must be designed to accept lockout devices if they are newly installed or have undergone major replacement, repair, renovation or modification.

TRAINING

Whitworth University shall provide training to ensure that the purpose and function of the energy control program are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of energy controls are acquired by employees. Training shall include the following:

1. Supervisors who oversee authorized employees will receive training from the university's Safety Manager and must have sufficient knowledge to implement all aspects of this program within their departments.
2. 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 necessary for energy isolation and control.
3. Each affected employees shall be instructed in the purpose and use of the energy control program.
4. Supervising departments shall maintain a current list of authorized employees. A copy of the list of authorized employees shall be forwarded to the Safety Manager in Human Resource Services.

Retraining shall 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 presents a new hazard, or when there is a change in the energy control procedure.

Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever the supervising department has reason to believe, that there are deviations from, or inadequacies in the employee's knowledge or use of the energy control procedures. The training shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

Training records for the lockout and tagout program will be created and maintained by the Safety Manager/designee in conjunction with department Supervisors.

RECORD KEEPING

Departments with authorized employees are responsible for maintaining written energy control procedures and a current list of authorized employees.

All other records for the lockout and tagout program shall be kept and maintained by the Safety Manager/designee.

PROGRAM EVALUATION

The lockout/tagout program will be evaluated at least annually by the Safety Manager/designee to ensure it is effective in practice and that it complies with all applicable regulations.

Periodic inspections of the energy control procedures must be conducted at least annually by an authorized employee other than the ones using those procedures. The inspection must be documented and include the following information:

- Machine or equipment the energy control procedure was used for;
- Date of the review;
- Employees included in the review; *and*
- Person doing the review.

Supervisors must notify the university's Safety Manager in writing when the annual reviews are complete.

DEFINITIONS

Affected Employee - An employee who is required to operate, use, or be in the area where a machine or equipment could be locked or tagged out for service or maintenance.

Authorized Employee - An individual who is specifically qualified through proper training and to whom management has designated authority and responsibility to lockout and tagout machines and equipment.

Capable of being lock out - An energy isolating device is capable of being locked out if it has a hasp or other attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it.

Durable - Lockout and tagout devices shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.

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

Energy isolating device - A mechanical device that physically prevents the release of energy, including but not limited to the following: A manually operated electrical circuit breaker; a disconnect switch; a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated

independently; a slide gate; a slip blind; a line valve; a block; and any similar device used to block or isolate energy.

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

Hot tap - A procedure which involves welding on pressurized pipelines, vessels, or tanks to install connections or accessories. It is commonly used to replace or add sections of pipeline used in air, gas, water, steam, and petrochemical distribution systems without interrupting service.

Identifiable - Lockout devices and tagout devices shall indicate the date installed and the identity of the employee(s) applying the device(s). Tagout devices shall warn against hazardous conditions if the machine or equipment is energized and shall include a legend such as the following: “Do Not Start”, “Do Not Open”, “Do Not Energize”, or “Do Not Operate”.

Lockout - A device that uses a positive means, such as a key or combination lock, to hold an energy-isolating device in the “safe” or “off” position. This includes blank flanges and bolted slip blinds.

Normal production operations - Using a machine or equipment for its intended production function.

Primary authorized employee - An authorized employee who has overall responsibility for meeting the requirements of the lockout/tagout procedures.

Service and maintenance - Activities such as constructing, installing, setting-up, adjusting, inspecting, modifying, maintaining, and servicing machines or equipment. It also includes lubricating, cleaning, unjamming, and making tool changes.

Setting up - Work done to prepare a machine or equipment for normal production operations.

Standardized - Lockout and tagout devices shall be standardized in at least one of the following criteria: color, shape, or size; and additionally, in the case of tagout devices, print and format shall be standardized.

Substantial - Lockout devices shall be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters or other metal cutting tools. Tagout devices, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal. Tagout device attachment means shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds having the general design and basic characteristics of being at least equivalent to a one-piece, all-environment-tolerant nylon cable tie.

Tagout - Placing a tagout device on an energy-isolating device using an established procedure to indicate that the energy-isolating device and the machine or equipment being controlled may not be operated until the tagout device is removed.

Tagout device - A prominent warning device, such as a tag and a means of attachment. It can be securely fastened to an energy-isolating device to indicate that the energy-isolating device and the machine or equipment being controlled may not be operated until the tagout device is removed.

REFERENCES

WAC 296-803

If you have questions regarding Whitworth University's lockout and tagout program please contact the university's Safety Manager in the Human Resources office at 777-3236.

Approved By: Vice President for Finance & Administration **Date:** 11/23/2016