LOCKOUT / TAGOUT PROGRAM

1. SCOPE

This Program outlines the purpose, rules, responsibilities and techniques to be followed by all University of Pittsburgh employees to guard against the unexpected energizing, start-up, or release of stored energy that could cause injury.

This Program does not apply to work on cord and plug connected electrical equipment where exposure to the hazards of unexpected energization or start-up of the equipment can be controlled by unplugging the equipment from the energy source and the plug can be under the exclusive control of the employee performing the service or maintenance.

2. PURPOSE

The purpose of this Program is to protect employees from injury during the servicing of equipment by preventing unexpected energization. The procedures shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources, and locked out before employees perform any service or maintenance.

3. DEFINITIONS

The following definitions are applicable to this Program:

3.1 Affected Employee: Persons whose job requires him/her to operate or use a machine or equipment on which service or maintenance is being performed under lockout or tagout conditions.

3.2 Authorized Employee: An employee approved to lock and tag out equipment in order to complete servicing on that equipment.

3.3 Capable of Being Locked Out: An energy-isolating device that has a hasp or other means of attachment to which or through which a lock can be affixed, or a device that has a locking mechanism built into it.

3.4 Energy Isolating Device: A mechanical device that physically prevents the transmission or release of energy, including but not limited to the following: 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 line valve; a block; and any similar device used to block or isolate energy. Push buttons, selector switches and other circuit control devices are not energy isolating devices.

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

3.6 Lockout: The placement of an approved locking device on an energy-isolating device in accordance with an established procedure to ensure that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

3.7 Lockout Device: Device that utilizes a positive means such as a lock to hold an energy-isolating device in the safe position to prevent machinery or equipment from being energized.

3.8 Servicing and/or Maintenance: Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and servicing machines or equipment.

3.9 Tagout: The placement of an approved tagout device on an energy-isolating device in accordance with an established procedure to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

4. BASIC RULES

Each department utilizing the University of Pittsburgh Lock Out Tag Out Program for the control of hazardous energy shall establish and document site-specific procedures for energy isolation. Specialized lockout devices shall be obtained and kept for use within the department.

If an energy-isolating device is capable of being locked out, the authorized employee shall utilize a lockout device. Where an energy control device is incapable of accepting a lock, a tagout device may be used. The tagout device shall be attached at the same location that the lockout device would have been attached.

Lockout/tagout devices provided by the University shall be standardized, singularly identified, and not used for any other purpose. Tagout device attachment means shall be of a non-reusable type, and shall be self-locking with a minimum unlocking strength of no less than 50 pounds.

Implementation of the lockout or the tagout system shall be performed only by authorized employees. The employee applying the lockout device must be in possession of the key and is the only person permitted to remove the device.

At least annually, the supervising department shall conduct observations of a representative number of employees to ensure that the procedures and requirements of this Program are being followed. Retraining on the Program's requirements is necessary if non-compliance is identified. The supervising department shall certify in writing to the Department of Environmental Health & Safety that the annual inspections have been performed.

5. COMPLIANCE

All University employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout or tagout. Failure to comply with the Program could result in disciplinary actions up to and including termination of employment from the University of Pittsburgh.

6. PREPARATION FOR LOCKOUT

Locate and identify all isolating devices to be certain which switch(s), valve(s) or energy-isolating devices apply to the equipment to be locked or tagged out. More than one energy source (electrical, mechanical, or others) may be involved.

In instances where a documented lockout procedure is not available, a pre-lockout evaluation on the equipment needing service or maintenance must be conducted by an authorized employee.(Appendix A) Begin by locating and identifying all isolating devices to be certain which switch(s), valve(s) or energy-isolating devices apply to the equipment to be locked or tagged out. More than one energy source (electrical, mechanical, or others) may be involved. This evaluation is not necessary when ALL of the following elements exist:

6.1 The machine or equipment has no potential for stored or residual energy (or accumulation of stored energy) that could endanger employees after shut down.

6.2 The machine or equipment has a single energy source, which can be readily identified, isolated and locked out.

6.3 The lockout device is under the exclusive control of the authorized employee performing the service or maintenance.

7. LOCKOUT PROCEDURES

Only authorized employees can implement the lockout or tagout program. The application of lockout/tagout shall be done in the following sequence:

7.1 **Notification:** All affected employees shall be informed that service or maintenance is required on a piece of equipment and that the equipment must be shut down and locked out to perform the service or maintenance.

7.2 **Preparation for shutdown:** The authorized employee shall a) refer to the University procedure (if available) to identify the type and magnitude of the energy that the machine or equipment utilizes, b) understand the hazards of the energy, and c) know the methods to control the energy.

7.3 **Machine or equipment shutdown:** If the equipment is operating, it must be shut down by normal stopping procedure. Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, capacitors, and air, gas, steam, or water pressure) must be dissipated or restrained.

7.4 **Lockout/tagout device application:** Each authorized employee shall affix lockout or tagout devices to each energy-isolating device. Lockout devices shall be affixed in a manner that will hold the energy in a "safe" or "off" position. Tagout devices shall be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the 'Safe" or "off" position is prohibited.

7.5 **Verification of isolation:** Ensure that the equipment is disconnected from the energy source(s) by checking that no personnel are exposed, then verifying the isolation of the equipment by operating the push button or other normal operating control(s).

//// **CAUTION** ////

It is critical that operating control(s) be returned to "NEUTRAL" or "OFF" position after verifying the isolation of the equipment.

8. RESTORING EQUIPMENT TO NORMAL OPERATION

Before lockout or tagout devices are removed and energy is restored to the machine or equipment, this procedure shall be followed:

8.1.1 The work area shall be inspected to ensure that nonessential items have been removed, and that components of the machine or equipment are operationally intact.

8.1.2 The work area shall be inspected to ensure that all employees have been safely positioned or removed.

8.1.3 Before lockout or tagout devices are removed and before machines or equipment are energized, affected employees shall be notified.

8.1.4 Verify that the controls are in the "OFF" or "NEUTRAL" position.

8.1.5 Remove the lockout devices and tags.

8.1.6 Re-start the machine or equipment.

9. GROUP LOCKOUT OR TAGOUT

Group lockout shall be utilized where complex Lockout/Tagout (LO/TO) operations involve many employees and/or numerous energy- isolating devices. This procedure shall afford the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. This shall be accomplished by either the application of a multi-lock accepting device or, the use of a group lockout box by the primary authorized employee. Each authorized employee shall affix a personal lockout or tagout device when they begin work, and shall remove those devices when they stop working on the machine or

equipment. The primary authorized employee will remove his/her lock when all service or maintenance has been completed

10. **LOCKOUT CONTINUITY DURING SHIFT CHANGES**

Specific procedures shall be utilized during shift or personnel changes to ensure the continuity of lockout or 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.

Whenever work is performed over a period of time and is not continuous, **the primary authorized employee** shall inspect the affected work area(s) to verify effective isolation prior to beginning work

11. LOCK REMOVAL EXCEPTION

Locks or tags can only be removed by the authorized employee who installed the lock or tag.

If an emergency requires the re-energizing of a machine or piece of equipment, the authorized employee's supervisor may remove his/her lock or tag under the following conditions:

11.1 Attempts to contact the employee whose lock and tag are in question have failed or are not practical.

11.2 The authorized employee's supervisor will conduct a review to ensure that removal of the lock will not jeopardize the safety or health of any individual.

11.3 When it has been determined by the authorized employee's supervisor that it is safe to do so, the lock and tag may be removed.

11.4 The authorized employee's supervisor shall notify the authorized employee that his/her lock and tag have been removed as soon as possible.

12. **CONTRACTORS**

Whenever outside contractors are engaged in activities covered by the scope and application of this Program, the supervising department and the outside contractor's representative shall inform each other of their respective lockout or tagout procedures.

In situations where contractor and University employees will be working on the same equipment or machinery, the responsible University Project Manager will coordinate the de-energization and lockout/tagout of the appropriate devices.

13. **EMPLOYEE TRAINING**

All **authorized employees** must be knowledgeable and understand the hazards associated with the unexpected release of energy by machines, equipment, pipelines, and electrical circuits.
Training for authorized employees shall include:

13.1.1 Recognition of hazardous energy sources.

13.1.2 Identification of the types and magnitude of energy sources in the workplace.

13.1.3 Explanation of the methods and means for isolation and control of hazardous energy.

Affected employees shall be instructed on the purpose and use of the lockout/tagout procedures.

Other employees working in an energy-control area shall be instructed on the lockout/tagout procedures and shall be informed of prohibitions on tampering with energy isolating devices.

Employee retraining must occur when there is a change in job assignments or a change in equipment, machines or processes that presents a new hazard. Retraining must also occur when program audits indicate non-compliance or a lack of knowledge about this Lockout Tagout Program.

Appendix A:Lock out/Tag out Daily Checklist

Questions	**Yes**	**No**	**NA**
Is someone assigned responsibility for removing and transferring locks and tags?			
Have all energy sources been properly isolated?			
Are all the necessary lockout devices in place and properly secured?			
Have you informed all affected workers about the lockout procedure?			
If an energy-isolating device cannot be locked out, is a tagout procedure used?			
Prior to starting work on machines that have been locked out or tagged out, have you verified that isolation of the equipment has been done?			
Are lockout devices strong enough to prevent removal without the use of excessive force?			
Do tagout devices warn against hazardous conditions if the machine or equipment is energized and include a legend such as “Do not start” or “Do not operate?”			