THE UNIVERSITY OF TEXAS AT DALLAS

LOCKOUT/ TAGOUT POLICY AND PROCEDURES

1. Policy

All employees will be protected from injuries caused by **unexpected** energizing or start up of machines or equipment, or release of stored energy during service, repair, maintenance, operation, and associated activities. This policy establishes minimum performance requirements for the control of such potentially hazardous conditions. This will be accomplished by locking out and tagging out energy isolating devices, and otherwise disabling machines or equipment to prevent unexpected energizing, start-up or release of stored energy.

This policy does not apply to the following:

A. Work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energizing or start up of the equipment is controlled by the unplugging of the equipment from the energy source and by the plug being under the exclusive control of the employee performing maintenance or repair.
B. Hot tap operations involving transmission and distribution systems when they are performed on pressurized pipelines, provided that it has been demonstrated to the

UTD Safety Office that (1) continuity of service is essential; (2) shutdown of the system is impractical; (3) documented procedures are followed, and (4) special equipment is used which will provide proven effective protection for employees.

2. Definitions

a. **Affected Employee:** An employee whose job requires him/her to operate or use a machine or equipment on which maintenance or repair is being performed under this lockout/ tagout policy, or whose job requires him/her to work in an area in which such maintenance or repair is being performed.

b. **Authorized Individual**: A knowledgeable individual to whom the supervisor has given the authority and responsibility to lock or implement a lockout/ tagout procedure on machines or equipment to perform maintenance or repair. An authorized individual and an affected employee may be the same person when the affected employee's duties also include performing maintenance or repair of a machine or equipment that must be locked and tagged out.

c. **Knowledgeable Individual:** An individual who is qualified to operate the controls or equipment and is familiar with the effects of operation.

d. **"Capable of being locked out"**. An energy isolating device will be considered to be capable of being locked out if it has any of the following:
    1. It is designed with a hasp or other attachment or integral part to which, or through which, a lock can be affixed,
    2. It has a locking mechanism built into it, or
    3. If a lockout can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device or permanently alter its energy control capability.

e. **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 electrical circuit breaker, a disconnect switch, a manually operated switch, a slide gate, a slip blind, spectacle flange, a line valve, blocks, and similar devices with a visible indication of the position of the device. **(Push buttons, selector switches, and other control- circuit type devices are not energy isolating devices.)**

f. **Energy Source:** Any electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy source that could cause injury to personnel.

g. **Hot Tap:** A procedure used in repair and maintenance activities that involve 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 and steam distribution systems. Other methods of attachment can also be used.

h. **Lockout Device:** A device that utilizes a lock and key to hold an energy isolating device in the safe position and prevents a machine or equipment from being energized.

i. **Lockout/Tagout:** The placement of a lock and tag on the energy isolating device in accordance with an established procedure, indicating that the energy isolating device shall not be operated until removal of the lock/tag in accordance with an established procedure. (The term "lockout/ tagout requires the combination of a lockout device and a tagout device).

j. **Maintenance and Repair:** Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining machines or equipment. These activities include but are not limited to lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the **unexpected** start-up of the equipment or release of hazardous energy.

k. **Shall**: The word "shall" always implies a mandatory requirement.

l. **Tagout Device:** A prominent warning device, such as a tag, that can be securely attached to equipment or machinery for the purpose of warning personnel not to operate an energy isolating device and identifying the applier or authority who has control of the procedure.

3. Responsibilities

Supervisor (or Acting Supervisor)

1. Maintains awareness of all aspects of the UTD lockout/tagout policy.
2. Ensures that all employees under their supervision understand the requirements for compliance with this policy and are made aware of the lockout/tagout procedure and are issued appropriate locks/tags.
3. Conducts a periodic inspection of the energy control procedure at least monthly to ensure that the procedure and the requirements of this policy are being followed.
4. Certifies that the periodic inspections have been performed.

a. **Employee**

1. Maintains awareness of all aspects of the lockout/tagout policy and complies with all procedures for their personal safety and the safety of all others.

b. **Safety Office**

1. Provides necessary employee training for lockout/tagout procedures.
2. Conducts periodic inspections of work sites to ensure compliance with lockout/tagout procedures.
3. Provides guidance regarding the applicability of the lockout/tagout policy.
4. Approves/disapproves exceptions of the lockout/tagout policy.
5. Can override lockout/tagout application for emergency conditions and/or extended employee absences.

4. General

Lockout/Tagout

1. Only authorized employees shall perform implementation of lockout/tagout.
2. Before any employee performs any maintenance or repair of a machine or equipment where unexpected start up or release of stored energy could occur and cause injury, the machine or equipment shall be isolated, and rendered inoperative.
3. If an energy-isolating device is capable of being locked out, then this policy requires that a lockout and tagout be utilized. If an energy-isolating device is not capable of being locked out, then a tagout shall be utilized.
4. Whenever major replacement, repair, renovation or modification of machines or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machines or equipment shall be designed to accept a lockout device.
5. Devices, which contain high voltage power supplies that can be tagged out, but not locked out, shall include at least two persons. One person shall be at the disconnect area, while the other person performs repair and/or testing.

a. **Protective Materials and Hardware**

Lockout and tag out devices shall be provided by UTD and shall be the only authorized device(s) used for lockout/tagout of energy devices and shall not be used for other purposes. Each employee will be issued three locks and no two key configurations shall be the same. No one else shall have duplicate keys except the safety office who shall have the only master keys.

Each employee will be issued a personalized tagout device. Each tagout device, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal. Attachment means

shall be a one-piece, nylon cable tie that shall be non-reusable, self-locking and non-releasable with a minimum unlocking strength of no less than 50 pounds.

b. **Periodic Inspections**

1. The Physical Plant will conduct a periodic inspection of the energy control procedure at least annually to ensure that the procedures and the requirements of this policy are being followed.

2. An authorized employee other than the one(s) utilizing the energy control procedure being inspected shall perform the periodic inspections. The inspections shall be designed to correct any deviations or inadequacies observed.

3. Where 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.

4. The inspector shall certify that the periodic inspections have been performed. The certification shall identify the machine or equipment on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection and the person performing the inspection.

5. Copies of the inspection report shall be sent to the Director of the Physical Plant and Safety Office.

c. Training and Communication

1. The Safety Office and Physical Plant will provide joint training to ensure that the purpose and function of the energy control program is understood by employees and that the knowledge and skills required for the safe application, usage, and removal of

energy controls are required by employees. The training will include the following:

a. Physical Plant Management will train each authorized employee in the recognition of hazardous energy sources, the type and magnitude of the energy available in the workplace, and methods and means necessary for energy isolation and control.

b. The Safety Office will jointly instruct each affected employee in the purpose and use of the energy control procedure.

c. The Safety Office shall instruct all other employees whose work operations are or may be in an area where energy control procedures may be utilized, about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment that are locked out or tagged out.

2. The Safety Office will train employees in the limitations of tags when tags are used in lieu of lockout devices.

3. Retraining will 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, or whenever there is reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of the energy control procedures.

4. The Safety Office will certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

5. **Procedures**

Preplanning for Lockout (Preparation for Shutdown)

1. An initial survey shall be made to determine which switches, valves, or other energy isolating devices apply to the equipment being locked out. More than one energy source (electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or others) may be involved. The employees shall clear any questionable identification of sources with their supervisors. Before lockout commences, job authorization should be obtained from the supervisor.

2. Only supervisors or authorized individuals shall prescribe the appropriate duties and responsibilities relating to the actual details of affecting the lockout/tagout. Energy isolating devices shall be operated only by authorized individuals or under the direct supervision of authorized individuals. Where high voltages greater than 480V are involved, Physical Plant Management shall be responsible for turning off the main power controls.

3. All energy isolating devices shall be adequately labeled or marked to indicate their function. The identification shall include the following:
    a. equipment supplied

    b. energy type and magnitude

4. Where system complexity requires, a written sequence in checklist form should be prepared for equipment access, lockout/tagout, clearance, release, and start-up.

a. **Lockout/tagout Procedures**

1. Preparation. Notify all affected employees that a lockout is required and the reason therefore.

Note: Consulting with CDAS should help to identify key elements in the lockout/tagout path. Having CDAS de-energizing equipment may lock out the equipment as an additional level of safety but CDAS control of the equipment is not an acceptable element or alternative to this policy.

2. **Machine or Equipment Shutdown**. If the equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.). Disconnect switches should never be pulled while under load, because of the possibility of arcing or even explosion. Personnel knowledgeable of equipment operation should be involved with shut down or re-start procedures.

3. **Machine or Equipment Isolation**. Operate the switch, valve, or other energy-isolating device so that the energy source(s) (electrical, mechanical, hydraulic, etc.) is (are) disconnected or isolated from the equipment. Stored energy, such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc., must also be dissipated, disconnected, or restrained by methods such as grounding, repositioning, blocking, bleeding-down, etc. Pulling fuses is not a substitute for locking out. A yanked fuse is no guarantee the circuit is dead, and even if it were dead, there's nothing to stop someone from unthinkingly replacing the fuse.

   CAUTION: Intermittently operating equipment such as pumps, blowers, fans, and compressors may seem harmless when dormant. Don't assume that because equipment isn't functioning, it will stay that way.

4. **Application of Lockout/Tagout**. Lockout and tag the energy isolating device with an assigned individual lock, even though someone may have locked the control before you. You will not be protected unless you put your own padlock on it. For some

equipment it may be necessary to construct attachments to which locks can be applied. An example is a common hasp to cover an operating button. Tags shall be attached to the energy isolating device(s) and to the normal operating control and shall be attached in such a manner as to preclude operation.

5. **Control Stored Energy**. Relieve, disconnect or restrain any residual hazardous energy that could be present. Check that all moving parts have stopped. Relieve trapped pressure, blank pipe flanges, block or support elevated equipment, and install ground wires to discharge electrical capacitors. While performing service, check continuously if energy build-up is possible.

6. **Verification of Isolation**. After ensuring that no personnel can be 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.

   If there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation shall be continued until the maintenance or repair is completed, or until the possibility of such accumulation no longer exists.

   CAUTION: Return operating controls to neutral position after the test. A check of system activation (e.g. use of voltmeter for electrical circuits) should be performed to assure isolation.

b. **Release from Lockout/Tagout**

1. **Restore work area**. Before lockout or tagout devices are removed and energy is restored to the machine or equipment, inspect the work area to ensure that nonessential items have been removed and to ensure that machine or equipment components are operationally intact.

2. **Notify personnel**. Check work area to ensure that all employees are in the clear. Notify affected employees that lockout/tagout devices are being removed.

3. **Remove lockout/tagout devices**. The employee who applied the device shall remove each lockout/tagout device from each energy- isolating device. The energy isolating devices may be opened or closed, i.e., circuit breakers, to restore energy to equipment.

c. **Lockout/Tagout Interruption** (Testing of Energized Equipment)
In situations where the energy isolating device(s) is locked/tagged and there is a need for testing or positioning of the equipment/process, the following sequence shall apply:

1. Clear equipment/process of tools and materials.

2. Clear personnel.

3. Clear the control of locks/tags according to established procedure.

4. Proceed with test, etc.

5. De-energize all systems and re-lock/re-tag the controls to continue the work.

d. **Outside Personnel (Contractors, etc.)**

1. Whenever outside service personnel are to be engaged in activities covered by the scope and application of this policy the Physical Plant and all contractors (including on-site contractors) shall inform each other of their respective lockout or tagout procedures.

2. The Physical Plant shall ensure that Physical Plant personnel understand and comply with the restrictions and prohibitions of any contractor's energy control procedures. Contractors shall ensure that their personnel do likewise for UTD policies as well as other contractor's policies.

e. **Procedure Involving More Than One Person**

In the preceding steps, if more than one individual is required to lock out equipment, each shall place a personal lock and tag on the group lockout device when he/she begins work, and shall remove those devices when he/she stops working on the machine or equipment. The supervisor, with the knowledge of the crew, may lock out equipment for the whole crew. In such cases, it shall be the responsibility of the supervisor to carry out all steps of the lockout procedure and inform the crew when it is safe to work on the equipment. Additionally, the supervisor shall not remove a crew lock until it has been verified that all individuals are clear.

f. **Shift Change Coordination**

Supervisors shall ensure the continuity of lockout/tagout protection during shift or personnel changes. Each worker shall be responsible for removing his own padlock and tag at the completion of his shift. If work is to cease until the following day the supervisor shall place his personal padlock and tag on the equipment and the workers shall remove their padlocks and tags. When work resumes the workers shall affix his personal lock and tag to the equipment and the supervisor shall remove his lock and tag.

g. **Conditions for Padlock Removal by the Safety Office**

Only the owner of the device except in the following situations shall remove Lockout/tagout devices:

1. Owner incapacitated by illness, etc.

2. Owner no longer works for UTD

3. Owner is on flex or leaves and cannot be reached by telephone. If the owner is reached and the situation

warrants then he/she will be required to come to work and remove the padlock.

4. Verified emergency by Safety Office

If the Safety Office determines that circumstances warrant the removal of a lockout/tagout device, every effort must be made to contact the owner of the device. After the above conditions have been met the Safety Office may remove the device.

6. **References**

American National Standards Institute (ANSI) "American National Standard for Personnel Protection –Lockout/tagout of Energy Sources -Minimum Safety Requirements", Z244.1-1982 New York, N.Y.

Accident Prevention Manual for Industrial Operations, Engineering and Technology 8th. Ed. Chapters 8 and 15. U.S. Department of Labor, OSHA regulations, 29 CFR 1910.147, "Control of hazardous energy sources (lockout/tagout)" standard .