

**THE CONTROL OF HAZARDOUS ENERGY (LOCKOUT /TAGOUT POLICY)**

**Standard 29CFR §1910.147**

**The Office of Environmental Health & Safety**



*The University of Texas Southwestern Medical Center wishes to provide the safest possible work environment for our workers. Pursuant to that desire, this policy institutes the minimum requirements necessary to ensure that any employee performing test, installation, servicing, or maintenance on energized sources recognize potential electrical hazards and take appropriate actions to isolate those hazardous energy sources.*

**I. PURPOSE**

The purpose of the Lockout/Tagout policy is to establish provisions for safely isolating energized sources. Employees are required to adhere to the procedures that will warrant the equipment or machinery in which the “unexpected” energization or premature start up of the machines or equipment, or release of stored energy is controlled to prevent injuries and accidents from occurring during servicing or maintenance of equipment, for example, HVAC systems, Air Handler Units, Boilers, Cage Washes, Mechanical Equipment.

**II. SCOPE**

This program includes provisions for employees to take steps to prevent the unexpected energization, start-up, or release of stored energy which could cause serious harm or injury to employees. All employees or contractors of the University who maintain or service equipment or machinery are subject to the procedures outlined in the policy. Failure to utilize lockout devices to render the machinery or equipment inoperable or to isolate an energy source will result in disciplinary actions, which may include dismissal.

**III. GENERAL REQUIREMENTS**

All equipment shall be locked out or tagged out to protect unexpected or inadvertent operation to energized sources that could potentially injure or harm an employee. Employees are advised to not attempt to operate any energized isolated device where it is locked or tagged out. All authorized and affected employees shall be trained in accordance with improving their ability to recognize actual and potential electrical hazards and the skills required for the safe application, usage, and removal of energy controls.

#### **IV. Departments who hire or oversee outside contracted projects**

This policy applies to any and all UT Southwestern departments and outside vendors. Whenever outside contractors are engaged in activities that require lockout/tagout, the department that is authorizing the outside personnel should inform each other of their respective lockout/tagout procedures.

The outside contractors should comply with all provisions of the University's Lockout/Tagout Policy and ensure that his/her employees are fully trained in lockout/tagout procedures. Outside contractors must provide their own locks/tags and they must contact Physical Plant prior to servicing any equipment.

#### **V. DEFINITIONS**

**Affected Employee:** An employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout/tagout.

**Authorized Employee:** A person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment

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

**Energized:** Connected to an energy source or containing residual or stored energy.

**Energy Isolating Device:** A mechanical device that physically prevents the transmission or release of energy.

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

**Hot Tap:** A procedure used in the repair, maintenance, and service activities which involves welding on a piece of equipment under pressure, in order to install connections or accessories.

**Lockout:** The placement of a lockout device on an energy isolating device, ensuring that the energy isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

**Lockout Device:** A device that utilizes positive means such as lock, key, or combination type, to hold an energy isolating device in a safe position and prevent the energizing of a machine or equipment.

**Normal Production Operations:** The utilization of a machine or equipment to perform its intended production function.

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

**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, indicating that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

**Tagout Device:** A warning device, such as a tag and a means of attachment, indicating that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

## **VI. SEQUENCE of LOCKOUT/TAGOUT PROCEDURES**

Notify the CDAS Operator on duty that the equipment at this location is hereby requested to be shutdown for (give reason.)

Lockout the equipment at the appropriate places (breaker, disconnect, etc.) If an energy isolation device is not capable of being locked-out, a tagout procedure must be used.

Tag the lock on the disconnect lever. The worker must indicate his/her name, date, job type, time and location where the work is being performed on the tag itself with a permanent marker, not pencil. If there is no disconnect between the motor and the motor control center, place the on/off/auto, switch to the off position. Pull the disconnect lever on the motor control panel to the off position.

If CDAS Operator cannot shut down the equipment or CDAS has no control, go to the motor control center and place the on/off/ auto, on/off switch, or start and stop button to the off or stop position. After equipment is down and out of service, pull disconnect lever and TAG.

Clear everyone from the piece of equipment being worked on.

Try to start the equipment to make sure that Lockout/Tagout is adequate.

### **VERIFY THAT THERE IS NO STORED ENERGY REMAINING.**

Removal of locks and tag will be done by the person who initially placed the lock and tag. Removing another person's lock and tag will result in disciplinary action.

## **VII. LOCKOUT/TAGOUT PROCEDURES**

After work has been completed, double check to ensure that all personnel are clear of equipment. Remove Tag, disconnect lever and place lever to the "on" position. Place on/off/auto, on/off switch to the "on" or "auto" position. Call the CDAS Operator and inform him/her that all work has been completed and that equipment can be re-started.

If CDAS did not stop equipment, double check to ensure that all personnel are clear of equipment, remove tag from disconnect lever and place disconnect lever to the on position. Place on/off/auto, on/off, or start and stop button to the on or start position. Equipment should be back on line.

Before leaving the area re-inspect equipment to ensure proper operation. Notify the CDAS Operator that the equipment/system is backing service and that you are leaving the area.

## VIII. LOCKOUT/TAGOUT PROCEDURES for PADLOCK and KEY CONTROL

Padlocks will be issued to each repairman, corresponding equipment for example will be available when needed; padlocks will be identified with a number and the name of the shop.

Each repairman must lock out all equipment controls with his own padlock(s)

Each repairman must maintain personal custody of the keys to the padlock at all times. He should never allow anyone else to remove the padlock, and should remove it only after he is assured that the equipment is safe to be re-energized.

Duplicate keys must be kept by the supervisor and used only in emergency situation, for example, if the original key is lost. If a key is lost, the padlock must be destroyed or re-keyed before further use. Do not make a duplicate key.

The Division Superintendent will retain a master key for his/her shop(s).

The Associate Director will retain a master key for all divisions.

The campus standard key system will not be used. A different and unique keying system will be provided for "lock-outs."

Each repairman will be instructed that he/she must place the padlock and tag on the equipment controls, regardless of the fact he/she is working alone.

## IX. EQUIPMENT and MACHINES TO BE LOCKED/TAGGED OUT

Forms of energy sources requiring lockout/tagout include potential and kinetic energy; some energy example types include:

**Electrical** Energy is energy that is generated through the conversion of other forms such as, mechanical, chemical, or thermal energy. Typical electrical energy sources include.

- a. Valve actuators
- b. breakers/ electrical disconnects
- c. generators

### **Mechanical**

2 Types of Mechanical Energy

1. Kinetic Energy is energy of moving equipment that can cause.
  - a. amputations
  - b. lacerations
  - c. fractures
  - d. loss of life
2. Potential Energy is energy that can be released during work causing injury or death:
  - a. Energy stored in machinery
  - b. Weights & springs
  - c. Pistons under pressure
  - d. Hydraulic controls

**Chemical Energy have energy that can:**

- a. start fires
- b. cause skin burns
- c. generate harmful gases or fumes
- d. Before working make sure to release, drain or vent chemicals safely.

**Thermal Energy is energy of heat (and cold):**

- a. hot equipment and fluids will burn you
- b. cold fluids can cause injury also
- c. quick release of compressed gases can freeze your skin
- d. So, allow equipment to reach a safe temperature before starting work.

**Pneumatic Energy is energy of compressed gases**

- a. uncontrolled release can cause injury
- b. rapid de-pressurization creates extreme low temperature
- c. Properly vent all systems before starting work

**Hydraulic (Oil) Energy is energy of liquids under pressure**

- a. pressure can cause equipment to move
- b. rapid release can cause injury
- c. or ejection of system parts
- d. Relieve pressure slowly into a proper container

**Radiation is a flow of atomic and subatomic particles and waves such as**

- a. heat rays
- b. light rays and
- c. X-rays
- d. Common industrial sources include X-ray systems and lasers

**X. EXCEPTIONS:**

Plug and cord equipment do not require lockout/tagout procedures. Maintenance jobs involving small portable types of machines and equipment need not be locked or tagged if the energy source presents no real threat of possible injury.

**Lubricated Equipment**

If no “moving parts” are involved or possible rotation of machine or equipment exists, then lubrication may be done without lockout/tagout.

However, if you’re not completely sure about existing hazards, if any, then proceed to lockout/tagout according to specified procedures.

**XI. TRAINING (The initial training will be provided by the employee’s supervisor )**

The authorized and affected employee must receive a level of training that is appropriate for his/her job function. The employee should possess the knowledge and skills necessary for the safe application, use and removal of energy sources.

## **XII. RE-TRAINING**

Employees should be retrained whenever there is a change in their job assignment, equipment or processes that present a new hazard, or when there is a change in the energy control procedures. The objective for retraining is to make the employees aware of any changes in procedures, and to make sure the authorized employee(s) is still able to perform safe lockout-tagout procedures.

Supervisors must certify that training of employee(s) has been accomplished and is being kept up to date. The certification should contain the employee's name and dates of training. Retraining or Refresher course training will be provided EH&S.

## **XIII. SUPERVISORS RESPONSIBILITIES**

Supervisors are responsible for ensuring that all affected employees (including new and transferred employees) are trained in the safety significance, purpose, and use of lockout/tagout procedures.

Supervisors are responsible for ensuring that all authorized lockout/tagout employees receive the appropriate level of training, and that the employees are provided with the proper equipment and personal protective equipment (PPE) to perform the job safely.

Supervisors are responsible for ensuring that only qualified high voltage electrical workers work on high voltage systems (>600 volts) and only authorized lockout/tagout employees work on systems that contain hazardous voltages equal to or below (600 volts.)

## **XIV. ENVIRONMENTAL HEALTH and SAFETY (EH&S) RESPONSIBILITIES**

### **EH&S is responsible for:**

Assisting Physical Plant with creating guidelines and procedures that will give specific methods for safe locking/tagging out of equipment.

Assisting Physical Plant in the coordination of appropriate training for authorized lockout/ tagout employees, and provide training for the assigned lockout/tagout coordinator.

Overseeing and managing the implementation of the intent of this program and resolving any situations not directly addressed by this program; and

Performing annual review of all electrical work, including lockout/tagout procedures for specific equipment, and high voltage systems.

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