Section I
Lockout/Tagout Procedure

Introduction

The purpose of this program is to reduce the number of injuries caused by accidental start-up of a machine of piece of equipment which is undergoing servicing or routine maintenance. The accidental start-up of machines or equipment can occur from the release of stored energy or when equipment controls are accidentally activated. This program establishes the minimum requirements for the control of such energy.

Proper lockout/tagout devices shall be used to ensure that any machine or piece of equipment is isolated from all potentially hazardous energy. These devices shall be used before employees perform any servicing or maintenance activities where the unexpected energization, start-up or release of stored energy could cause injury.

A "lockout device" is a looking device that provides positive means for rendering a switch, valve, or any energy source inoperable. The device may be a padlock, restraining bar, or any device that positively prevents a machine or piece of equipment from becoming energized or from releasing stored energy.

A "tagout device" serves as a visual means of identifying who locked out the equipment or piece of machinery and for what reason. The tag also identifies the date and time of the lockout and the department that is performing the lockout. There is additional information that may be placed on the tag such as a beeper number, extension number, etc. Tags must be made of a durable material and can be securely fastened to the locking mechanism so as to not be removed easily.

Locks and tags are *never* to be removed by *anyone* except the individual who is responsible for the lockout/tagout procedure.

Policy

Equipment, machinery, and circuits will be isolated, de-energized, or otherwise shut down when work is to be performed that could result in personal injury or equipment damage. Each individual working on a piece of equipment must be protected from injury by following this lockout/tagout is used**.** In either case, each individual must verify that equipment is safe from all energized energy before proceeding with their task. Employees of Eastern Kentucky University shall follow lockout/tagout procedures:

- During servicing and/or maintenance of machines and equipment.
- During removal or bypassing of a machine guard or other safety device.
- When placing any part of their body into an area where work is actually performed (point of operation) including danger zones with respect to a machine's normal operating cycle.

Full Employee Protection

When a tagout device is used on an energy isolation device which is *incapable* of being locked out, the tagout device shall be attached at the same location that the lockout device would have been attached, and Physical Plant shall demonstrate that the tagout program will provide a level of safety equivalent to that obtained by using a lockout program.

Protective Materials and Hardware

Locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware shall be provided by Physical Plant for isolating, securing, or blocking of machines or equipment from energy sources. Lockout and tagout devices shall be singularly identified; shall be the only devices used for controlling energy; shall not be used for other purposes; and shall meet the following requirements:

- Durable
    1. 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.
    2. Tagout devices shall be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag become illegible.
    3. Tags shall not deteriorate when used in corrosive environments such as areas where acid and alkali chemicals are handled and stored.
- Standardized

  Lockout and tagout devices shall be standardized throughout EKU 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
    1. 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.
    2. 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, attached by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds.

Responsibility

The supervisor of the effected department or shop shall be responsible for training employees or outside contractors in the EKU Lockout/Tagout Program. Appropriate employees shall be instructed in the safety significance of the lockout/tagout procedure. Each new or transferred affected employee and other employees whose work operations are or may be in the area shall be instructed in the purpose and use of the lockout/tagout requirements of equipment that they will be servicing. Appropriate documentation will be made of the training (See Sample #1).

Preparation for Lockout/Tagout

It is the responsibility of the employee(s) who is/are servicing the equipment or machinery to complete a survey prior to performing their duties. This is to be done for each piece of equipment or machinery requiring lockout/tagout. There may be more than one energy source (electrical, mechanical, hydraulic, or others) involved. The following information must be included in each survey:

- Name of machine or equipment; and
- Energy sources for each piece of machinery and equipment, and their location; and
- The procedure or method required for lock/tagout; and
- The date of the survey and the signature of the above-mentioned employee acknowledging the accuracy of the information in this form.

Sequence of Lockout/Tagout System Procedure

1. Notify all affected employees that servicing or maintenance is required on a machine or equipment and that the machine or equipment must be shut down the type and magnitude of energy that the machine or equipment utilizes and shall understand the hazards thereof.
2. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open toggle switch, etc.). See Section II for reduction in transmitting power to safe exposure limits.
3. Operate the switch, valve, or other energy isolating device(s) so that the equipment is isolated from its energy source(s). Stored energy (such as that in springs; elevated machine members; rotating flywheels; hydraulic systems; and air, gas, stream, or water pressure, etc.) must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc.
4. Lockout and/or tagout the energy isolating devices with assigned individual lock(s) or tag(s).
5. After ensuring that no personnel are 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. *Return operating control(s) to "neutral" or "off" position after the test.*
6. The equipment is now locked out and/or tagged out.

Restoring Machines or Equipment to Normal Production Operations

1. After the servicing and/or maintenance are complete and equipment is ready for normal production operations, check the area around the machines or equipment to ensure that no one is exposed.
2. After all tools have been removed from the machine or equipment, guards reinstalled and employees are in the clear, remove all lockout/tagout devices. Operate the energy isolating devices to restore energy to the machine or equipment. A lock or tag is to be removed only by an employee who placed and tagged it. In an exceptional circumstance where the employee is not on the facility property and cannot be reached, the lock or tag may be removed only after a full evaluation and agreement by appropriate levels of management. This will include at least the supervisor of the absent employee. This decision will be made after both personally examining the equipment and determining that operation of the equipment will cause no personal injury or property damage. Approval to remove the lock or tag shall then be documented. The individual who originally placed the lock or tag shall be informed of this decision upon their return to work.

Procedure Involving More Than One Person

In the preceding steps, if more than one individual is required to lockout or tagout equipment, each shall place their own personal lockout or tagout device on the energy isolating device(s). When an energy-isolating device cannot accept multiple locks or tags, a multiple lockout or tagout device (hasp) may be used. If lockout is used, a single lock may be used to lockout the machine or equipment with the key being placed in a lockout box or cabinet which allows the use of multiple locks to secure it. Each employee will then use their own lock to secure the box or cabinet. As each person no longer needs to maintain their lockout protection, that person will remove their lock from the box or cabinet.

Basic Rules for Using Lockout/Tagout System Procedure

All equipment shall be locked or tagged out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy-isolating device where it is locked or tagged out.

Enforcement

Any violation of lockout/tagout procedures is to immediately be reported to the supervisor. Appropriate disciplinary procedures will be used for employees who knowingly and willingly violate lockout/tagout procedures.

Questions and/or problems should be directed to the Safety and Health Office, Million House, telephone 622-5523.

Section II
Lockout/Tagout Procedure for the EKU FM Broadcast Transmitting Facility

Incorporation of Section I

Purpose, policy, responsibility, preparation, shutdown sequence, restoration of power, procedures involving more than one person, basic rules of enforcement of the EKU lockout/tagout procedure previously stated in Section I of the EKU Lockout/Tagout program also apply, with noted exceptions, to Section II. Maintenance operations requiring total shutdown of transmitters will follow Section I Lockout/Tagout Procedure.

Need for Section II

When work is to be accomplished on towers that have EKU FM broadcast antennas attached, there are places where non-ionizing radio frequency radiation will exceed safe human exposure limits. When the output power of the transmitters is reduced to 10% of authorized power, this non-ionizing radio frequency radiation is within the range or safe exposure, according to most recent ANSI standards.

Training Methods

Each affected person who will have access to or need to perform a task on towers where EKU has FM broadcast antennas shall be instructed in the tagout procedure. Each new or transferred employee, and contractors whose work operations are or may be in the area, shall be instructed in the purpose and use of the tagout procedure. It will be the responsibility of the Chief Engineer for WEKU-FM/WEKU or a designated representative to train all affected persons. Training will be documented on an appropriate for (example attached) ***before*** allowing affected persons access to the tower (See Sample 2).

Coordination Procedures

Towers that have EKU FM broadcast antennas also contain other transmitting antennas that may have non-ionizing radio frequency radiation that exceed safe human exposure limits. Kentucky Authority for Educational Television (KET) is the primary agent that will control access to these towers. When any of KET's employees, contractors, or other tenants on the tower are to engage in work on the tower, KET is to notify EKU in writing in advance of the scheduled date and time this task is to be performed in order that EKU may perform lockout/tagout procedures. When EKU has a need for an employee or contractor to access the tower, KET will be advised in writing in advance indicating the scheduled date and time of required access in order that KET may perform its lockout/tagout procedures.

Sequence of Tagout Procedure for EKU FM Broadcast Operations

1. Notify all affected employees, or contractors, that a tagout system is going to be utilized and the reason therefore. The authorized employee shall know the type and magnitude of energy that the particular FM transmitter utilizes and shall understand the hazards thereof.
2. The FM transmitters are remotely controlled by telephone dial-up. To interrupt control of each transmitter by an outside agent, the on-site telephone instrument will be taken off-hook and placed inside. A tagout placard will be secured over the on-site telephone cradle hook in plain view to serve as a notice that outside agent control of the transmitter is interrupted.
3. On the transmitter proper, there is a local/remote pushbutton switch. By depressing this pushbutton, a lamp will ignite signifying the transmitter is under local control only. This serves as a redundant means to interrupt an outside agent from controlling the transmitter. A tagout placard will be secured to this switch in plain view to serve as notice that an outside agent has no control over the transmitter.
4. The Chief Engineer for WEKU-FM/WEKU, or designated representative in charge will reduce transmitter power to 10% as indicated on the transmitter front panel Percent Power Meter.
5. The transmitter is now tagged out to a safe level for non-ionizing radio frequency radiation human exposure limits, so that the affected persons may now commence activities and have access to the tower.
6. Restoring transmitter to normal operations. When the affected persons have completed activities and have cleared the tower, and the tower access point has been secured, the following actions are to be taken by the Chief Engineer for WEKU-FM/WEKU or designated representative:
    - Raise transmitter power to authorized limits.
    - Remove tagout label on the Local Remote Switch, and activate switch to Remote (lamp extinguished).
    - Check transmitter parameters for normal operation and check to clear any alarms stored in the remote control unit. Then, remove tagout placard from telephone cradle, and hang up instrument. Restoration of normal operation is now complete.

Question and/or problems should be directed to the EKU FM Radio Station Chief Engineer (telephone 622-1665) or the EKU Safety and Health Office (telephone 622-5523).

Section II
State Regulations
29CFR 1910.147

Section IV
Samples

Sample One

Training Record
Section One
Minimal Lockout/Tagout Procedure for EKU

I, _____, received training on _____ concerning the EKU Lockout/Tagout Program, Section I.

I understand the various parts of the program, including:

- Purpose
- Policy
- Responsibility
- Preparation for lockout/tagout
- Sequence of lockout/tagout system procedure
- Restoring machines or equipment to normal production operation
- Procedure involving more than one person
- Basic rules for using lockout/tagout system procedure
- Enforcement
- Other _____

_____ _____
Signature Date

_____ _____
Signature Date

Sample Two

Training Record
Section One and Two
Minimal Lockout/Tagout Procedure and Specific Tagout Procedure
For EKU FM Broadcast Transmitting Facilities

I, _____, received training on _____ concerning the EKU Lockout/Tagout Program, Section I and II.

I understand the various parts of the program, including:

Section I

- Purpose
- Policy
- Responsibility
- Preparation for lockout/tagout
- Sequence of lockout/tagout system procedure
- Restoring machines or equipment to normal production operation
- Procedure involving more than one person
- Basic rules for using lockout/tagout system procedure
- Enforcement

Section II

- Need for Section II
- Training methods
- Coordination procedures
- Sequence of tagout procedure for FM broadcast operations

_____ _____
Signature Date

_____ _____
Signature Date