LOCKOUT/TAGOUT PROGRAM

Rose-Hulman Institute of Technology
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LOCKOUT TAGOUT PROGRAM

1.0 Purpose

The purpose of this program is to establish Lockout/Tagout procedures to prevent the unintended release of stored energy, which may energize a machine or equipment, causing injury to an employee. It is used to ensure that employees performing any service or maintenance activities shall be protected from energy related potential hazards.

2.0 Regulatory Reference

OSHA 29 CFR 1910.147

3.0 Scope

Operations that are under the jurisdiction of OSHA are required by law (29 CFR 1910.147) to provide to all employees (maintenance personnel and supervisors) who ensure that machines or equipment are isolated from a potentially hazardous energy, and locked-out or tagged-out before the unexpected energization, start-up, or release of stored energy occurs. This program was developed to meet and conduct the training necessary to comply with federal law set by the Department of Labor, Occupational Safety and Health Administration. Lockout is the preferred method of isolating machines or equipment from energy sources. To assist employers in developing a procedure which meets the requirements of the standard, 29 CFR 1910.147, the following simple procedure is provided for use in both lockout and tagout programs. This procedure may be used when there is a single power source. For more complex systems, a more comprehensive procedure will need to be developed, documented, and utilized.

4.0 Responsibility

The Rose-Hulman Office of Environmental Health & Safety, in conjunction with the Department of Facilities, is responsible for the establishment, implementation, and review of this program.

5.0 Definitions

Authorized employee: An employee who locks or tags machines or equipment in order to perform servicing or maintenance.

Affected employee: An employee who is required to use machines or equipment on which servicing is performed under the Lockout/Tagout standard or who performs other job responsibilities in an area where such servicing is performed.

Other employees: All employees who are or may be in an area where energy control procedures may be utilized.

Energized: Machines and equipment are energized when they are connected to an energy source or they contain residual or stored energy.
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 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 control circuit type devices are not energy isolating devices.

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

Lockout: The placement of a lockout device on an energy-isolating device, in accordance with an established procedure, ensuring that the energy-isolating device and the equipment being controlled cannot be operated until the lockout device is removed.

Lockout device: Any device that uses positive means, such as a lock, blank flanges and bolted slip blinds, to hold an energy-isolating device in a safe position, thereby preventing the energizing of machinery or equipment. Never remove a lockout that does not belong to you.

Normal production operations: Utilization of a machine or equipment to perform its intended production function.

Servicing and/or maintenance: Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, maintaining and/or servicing machines or equipment, including lubrication, cleaning or unjamming of machines or equipment, and making adjustments or tool changes, where employees could be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

Tagout: The placement of a 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.

Tagout device: Any prominent warning device, such as a tag and a means of attachment that can be securely fastened to an energy-isolating device to indicate that the machine or equipment to which it is attached may not be operated until the tagout device is removed. Never remove a tagout that does not belong to you.

6.0 Written Program

The written program contains the following items:

1. Conduct a survey of the entire facility to determine locations of all hazardous energy sources.
2. Devise methods to control unintended operation of machines or equipment being serviced or maintained.
3. Establish procedures for affixing appropriate lockout or tagout device, and to otherwise disable machines or equipment to prevent unexpected energization, startup, or release of stored energy in order to prevent injury to employees. This may include blocking of movable parts which may create a hazard.
4. Survey, locate, and identify all isolating devices to be certain which switch(es), valve(s), or other energy isolating devices apply to the equipment to be locked or tagged out. Keep in mind that more than one energy source may be involved.

7.0 Energy Control Devices

Protective material and devices that are available to use are as follows:

- Locks
- Self-locking Fasteners
- Chains
- Wedges
- Key Blocks
- Adapter Pins
- Tags
- Flange Plates

All lockout/tagout devices shall be identified and used only for the purpose that they are intended.

1. Durable lockout/tagout devices shall be capable of withstanding the environment, which they are used.
2. Tags shall be capable of withstanding weather, damp locations, and corrosive environments.
3. All lockout/tagout devices shall be uniform whether in color, shape, or size.
4. Lockout/tagout devices shall only be removable by their installer.
5. Lockout devices shall be substantial enough to prevent inadvertent or accidental removal and shall indicate the identity of the employee using the device and a warning of what precautions to take.
6. Lockout procedures shall be used in preference to Tagout procedures where possible.

8.0 Potential Energy Sources

The potential energy sources present at Rose-Hulman:

- Electrical
- Hydraulic
- Pneumatic (air)
- Natural gas
- Chemical
- Thermal
- Mechanical
- Water/Steam

9.0 Annual Inspections

1. All annual inspections will be performed by the Manager of Environmental Health & Safety.
2. An authorized employee other than the one(s) using the energy control procedure being inspected will perform an annual inspection of energy control procedures.
3. The annual inspection shall be designed to correct any observed deviations or inadequacies.

4. Where lockout is being used for energy control, the annual inspection shall include a review between the inspector and each authorized employee and of each employee’s responsibilities under the energy control procedure being inspected.

10.0 Training

The goal of this training program is to make sure that before any employee performs any servicing or maintenance on a machine or equipment where the unexpected energizing, start-up, or release of stored energy could occur and cause injury, the machine or equipment has been isolated and rendered inoperative.

This training program has been designed to cover the information and skills necessary to ensure that employees know the proper machine or equipment isolation procedures.

After the training, each employee will be able to do the following:

- State the purpose of the lockout/tagout program.
- Define what is meant by lockout/tagout.
- Identify hazardous energy sources.
- Describe injuries resulting from energized equipment.
- Describe the different types of lockout/tagout equipment.
- Identify the employees’ responsibility in the lockout/tagout procedures.
- Demonstrate on-site the use of lockout/tagout equipment effectively.

Each affected employee shall be instructed in the purpose and use of the energy control procedures. All other employees whose work operations are, or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

Tagging limitations shall be communicated at the time of training. These limitations are to include:

- Inform employees that tags do not afford the same protection as a lock.
- Tags are not to be removed without the authorization of the installer.
- Tags must be legible and be made familiar to all employees whose work is affected or may be in the affected areas.
- Tags and means of attachment must be capable of withstanding the environmental conditions of the workplace.
- Tags often evoke a false sense of security and their importance needs to be clearly understood by employees.

A record of employee training including employee name and date of training is maintained in the Office of Environmental Health & Safety.
11.0 Retraining

Retraining should be established under the following conditions:

- There is a change in job assignment.
- A change in machines or equipment.
- Equipment or processes present a new hazard.
- A change in energy control procedures.
- There are deviations or inadequacies detected in the procedures.
- New or revised control methods are used.

A record of employee retraining including employee name and date of retraining is maintained in the Office of Environmental Health & Safety in the event any of the above is present.

12.0 Energy Control

1. Elements and Actions

   a) Make employees aware of the type and magnitude of hazardous energy.
   b) All affected employees shall be informed of the physical locations of energy isolating devices.

2. Lockout/Tagout of Energy Isolating Devices

   a) Only trained and authorized employees shall affix energy isolating devices.
   b) Devices are to be affixed in such a manner that it will hold the energy isolating device in a “safe” or “off” position.
   c) Where Tagout devices are used, the energy isolating device is to be fastened at the same point at which a lock would have been attached.
   d) If a tag cannot be affixed directly to the energy isolating device, it should be located where it will be immediately obvious to potential operators.

3. Stored Energy

   a) After Lockout or Tagout devices have been applied, stored energy or residual energy shall be relieved, disconnected restrained, and rendered safe whenever possible.
   b) If reaccumulation of stored energy to a hazardous level can take place, verification or isolation shall continue when service or maintenance is performed until work is completed.
   c) Prior to servicing or maintaining machines or equipment, employees must verify that energy isolation and deenergization of the machine or equipment have been accomplished.
13.0 Release from Lockout Tagout

Before removing Lockout/Tagout devices from machines and equipment, authorized employees must take certain precautions:

1. Inspect the work area to ensure non-essential items have been removed.
2. Check the work area to see if all employees have been safely positioned or removed.
3. Before removing Lockout/Tagout devices, notify all affected employees.

Before Lockout/Tagout devices are removed and energy is restored, procedures shall be taken by authorized employees to ensure the following:

1. If the employee who applied the device is unavailable, the device may only then be removed under the direction of management.
2. Management will verify that the employee who applied the device is not at the facility.
3. Management has made all reasonable efforts to contact the employee to inform them that their device has been removed.
4. Management will inform the employee that the device has been removed before they return to work.

14.0 Outside Contractors

Rose-Hulman management and contractors will inform each other of their respective Lockout/Tagout procedures. Management will train all affected employees on restrictions and prohibitions of contractor’s energy control procedures.

15.0 Group Lockout Tagout

When servicing or maintenance of equipment or machinery is performed by more than one employee, a procedure shall be utilized to afford each employee a level of protection equivalent to that provided by personal lockout or tagout.

Group requirements shall include but are not limited to the following:

1. Primary responsibility shall be vested in one authorized employee for a number of employees under a group program with one employee having an operation’s lock.
2. The authorized employee must ascertain the exposure level of individual group members.
3. If more than one group of employees is involved in a job-associated assignment, one authorized employee shall be designated to coordinate the affected employees.
4. Each involved employee shall affix a lockout or tagout device to the group lockout device when beginning work and remove it when work is completed on the machine or equipment being serviced or maintained.
16.0 Shift or Personnel Changes

When a shift or personnel change occurs, a designated employee should ensure the continuity of lockout or tagout protection. The designated employee shall provide for the orderly transfer of lockout or tagout devices between off-going and on-coming employees to minimize risk to employees from stored energy.

17.0 Exclusions

The following are conditions for possible exclusions:

1. Normal production operations including repetitive, routine, minor adjustments and maintenance that would be covered under OSHA’s machine guarding operations.

2. Work on cord or plug connected electric equipment when it is unplugged, and the employee working on the equipment has complete control over the plug.

3. Hot tap operations involving gas, steam, water, or petroleum products when the employer shows that continuity of service is essential, that shutdown is impractical, and documented procedures are followed to provide proven effective protection for employees.

18.0 Annual Review

The Office of Environmental Health & Safety is responsible for conducting annual reviews and making revisions where necessary.

19.0 Lockout Procedures

1. A lockout procedure will prevent someone from unknowingly operating a machine that is being worked upon. The following procedure will be followed for lockout:

   a) Every applicable employee will be provided their own lock and key.
   b) Before turning the power off, the worker should check to be sure that no one is operating the machine.
   c) Bleed, drain, or clean out air or hydraulic lines.
   d) Any mechanism under tension or pressure, such as; springs, should be released.
   e) Every person involved in working on the machine shall affix his or her lock to the lockout device.
   f) All energy sources, which would activate the machine, should be locked out.
   g) The main valve or main electrical disconnect should be tested to be sure that the power is off to the machine.
   h) The circuit should always be checked with good electrical testing equipment.
   i) When working on machinery, such as power presses or welding presses that have a ram that could fall, the ram should be supported with a safety block or pin.
   j) As a last step, press the activation button(s) to be sure that the machine or equipment is not energized.
2. Pulling a fuse is not enough; it can be replaced. Do not rely on throwing a circuit breaker or turning off a switch or valve. Someone’s mistake or slip might turn the machine on again. A warning tag is only a paper safeguard. The only safe way is a lock on the device and to keep the key in your pocket.

20.0 Management Approval

This plan has the full approval of management at a level of authority to commit the necessary resources to fully implement it.

Title: ______________________________

Signature: __________________________

Date: ______________________________