LOCKOUT TAGOUT PROCEDURE

PROCEDURE NUMBER EHS-101
INITIAL RELEASE AUGUST 13, 2012

Jerry Goodwin, Manager Environmental, Health & Safety

8/13/2012

A. INTRODUCTION:

This lockout procedure is provided to meet the general requirements of OSHA Lockout Tagout regulations at 29 CFR 1910.147, “The Control Of Hazardous Energy.”

B. PURPOSE:

This procedure establishes the minimum requirements for the lockout and tagout (LOTO) of energy sources when maintenance or servicing is done on machines or equipment with energy sources that must be shut down. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and “locked out” or “tagged out” before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury. This procedure is intended to contribute to a safer working environment for maintenance employees.

NOTE: Although electricity might be the most common energy source, there are other energy sources to consider. Energy sources include “any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.”

C. DEFINITIONS:

Authorized employee: a person who is trained, and locks out or tags out machines or equipment in order to service or perform maintenance under this Lockout Tagout Procedure.

Affected employee: an employee who works in the area where maintenance is performed under lockout tagout.

Equipment-specific instructions: a set of instructions for a piece of equipment for locking out, tagging out, and restoring equipment to service. The instructions should also describe any unique safety requirements of the equipment, such as two or more independent power sources or any safety issue that might not be obvious to someone working on the machine for the first time.
The intention is for maintenance personnel to provide supervisors with information to assist in the generation of these instructions. These instructions may be included in the shop’s program manual, attached to the Facilities Services PM work orders or attached to the equipment.

While the long-term goal is to generate these instructions for all significant pieces of equipment, a realistic short-term goal is to have instructions for all multiple source equipment written and in place within 13 months of the initial release of this procedure. This can be facilitated by making notes the first time equipment needs maintenance.

**LOTO-Designated locks:** color-coded locks provided by UMSL. Do not use personal locks for LOTO.

**Program manual:** a notebook that contains this procedure, all available equipment-specific instructions, and the list of employees and the lock numbers in their custody. The manual will include a log for employees to document start and finish of LOTO activities.

The program manual typically covers one shop (i.e., one supervisor’s employees) and the supervisor shall be responsible for maintaining the program manual and the equipment-specific instructions. However, if multiple groups work on the same equipment, a combined notebook for equipment-specific instructions separate from the program manual is acceptable, as long as the instructions are available to personnel from both groups.

**D. COMPLIANCE:**

1. When service or maintenance work must be done on a machine or equipment with an energy source(s) and that machine or equipment must be shut down and locked out to perform the servicing or maintenance safely, it may only be done by an authorized employee utilizing this lockout procedure, and:
   (a) employee is knowledgeable about the machine and its energy sources; and
   (b) employee has a safe method to lock out the energy source(s).

Employees shall notify their supervisor if they have any questions about the machine or equipment, or the energy source(s) prior to servicing. Supervisor will visit location to inspect and assess the equipment, at employee’s request.

2. Contractors and other non-UMSL personnel who work on UMSL equipment are covered by Section K of this procedure.

3. Any person who sees a machine or piece of equipment, which is locked out, or tagged out, shall not attempt to start, energize, or use that machine or equipment.

4. If work is done on equipment that may be unplugged and the plug is under direct control of the employee doing the work and there is no other source of energy, i.e. battery backup, this procedure is not required, but may be used.
E. LOCKOUT PROCEDURE:

1. The employee shall review the equipment-specific instructions and the PM work order, if available. The employee shall identify the type of energy source(s) that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy. Record machine ID, the date, your name, and other required information in the shop’s LOTO program manual log.

2. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).

3. Isolate the machine or equipment from the energy source(s). (For example, throw the circuit breaker.)

4. Lock out the energy isolating device(s) with your personal, LOTO-designated lock(s). Never use a lock assigned to someone else. Attach a tag stating that the machine has been locked out for maintenance work and include your name and date.

5. Dissipate or restrain stored or residual energy (such as that in electrical capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) by methods such as grounding, repositioning, blocking, bleeding down, etc.

6. Verify that the equipment is isolated from the energy source(s).
   - First check that no personnel are at risk.
   - Verify the isolation of the equipment by turning it on, to make certain the equipment will not operate.
   - Turn the equipment off after verifying the isolation of the equipment.

7. The machine or equipment is now locked out. Make sure you have filled out the shop’s LOTO program manual log.

F. RESTORING EQUIPMENT TO SERVICE

1. Check the machine or equipment and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact.

2. Refer to equipment instructions, if available, for correct sequence to restart equipment.

3. Notify any affected employees before removing the lockout device.

4. Check the work area to ensure that all affected employees have been safely positioned or removed from the area.

5. Verify that the controls are off, or in neutral.
6. Remove the lockout devices and reenergize the machine or equipment. Notify any affected personnel or area supervisor that the machine or equipment is ready for use.

7. Add date and time equipment returned to service in program manual log.

8. **NEVER REMOVE ANOTHER EMPLOYEE’S LOCK WITHOUT SUPERVISORY PERMISSION!** IN CASE OF EMERGENCY, IN WHICH YOU BELIEVE ANOTHER PERSON’S LOCK SHOULD BE REMOVED FOR SAFETY REASONS, NOTIFY YOUR SUPERVISOR, THE OTHER EMPLOYEE’S SUPERVISOR OR THE DIRECTOR OR ASSISTANT DIRECTOR OF FACILITIES. THE SUPERVISOR MUST VERIFY THAT THE EMPLOYEE IS NOT ON CAMPUS AND MAKE A REASONABLE ATTEMPT TO CONTACT THE EMPLOYEE AND INFORM THEM THAT THEIR LOCK IS BEING REMOVED. THE SUPERVISOR MUST ALSO NOTIFY THE EMPLOYEE AT THE BEGINNING OF THE EMPLOYEE’S NEXT WORK DAY THAT THE LOCK HAS BEEN REMOVED. ATTACH A TAG WHERE ORIGINAL LOCK WAS ATTACHED AND ANOTHER TAG ON THE MACHINE BEFORE REMOVING THE LOCK. AFTER RECEIVING APPROVAL, OBTAIN MASTER KEY. BOLT CUTTERS MAY BE USED ONLY WITH SUPERVISOR’S PERMISSION AND ONLY IF MASTER KEY IS NOT AVAILABLE.

G. TAGOUT PROCEDURE:

The tagout procedure does not provide employee with the same level of protection as lockout procedure. This procedure may only be utilized for equipment authorized for tagout in program manual. Contact your supervisor before using tagout procedure. A tagout device (tag) is a prominent warning device, such as a highly visible tag, that can be securely fastened to the equipment being locked out. Such a tag must have space for employee’s name.

1. Employees utilizing tagout procedure shall notify affected employees in the area of the tagged equipment and discuss the prohibition of attempting to restart or re-energize the equipment.

2. Restoring equipment to service shall be the same as for lockout procedure described above.

NOTE: Identifying defective or inoperable equipment is not covered by this section or this procedure. Other types of tags shall be used for this purpose.

H. SHIFT CHANGES AND GROUP LOCKOUT:

1. **Group lockout or tagout:** If more than one employee must work simultaneously on a machine or equipment, supervision or management will provide lockout equipment that will provide the same level of protection as the single lockout provides. If available equipment is not practical, contact supervisor.
2. Shift change, when only one employee working on equipment: It is permissible to leave your lock on equipment at end of your shift if no one else will be working on the equipment until you return.

3. Shift or personnel changes when more than one employee will be working on the same equipment: The preferred method is for the incoming employee to apply his/her lock before the outgoing employee removes his/her lock. This is not always possible. If this is not possible, employee, supervisor, or management will generate procedure to ensure the continuity of lockout or tagout protection for all employees concerned.

I. MATERIALS AND HARDWARE:

1. Lockout devices and tagout devices: Locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware shall be provided by UMSL.

2. Lockout devices and tagout devices:
   - Shall be standardized;
   - The LOTO lock will have a unique color band for each shop;
   - Shall be identified for a single owner; (supervisors will maintain a list of lock numbers and owners in the shop’s program manual;)
   - Shall be the only devices used for controlling energy;
   - LOTO locks shall have only one key for each lock. (The supervisor will destroy any duplicate keys, but retain a master key;) Shall not be used for any other purpose; and,
   - Shall be durable and shall be capable of withstanding the environment to which they are exposed for the maximum time that exposure is expected.

   NOTE: Do not use personal locks for LOTO.

3. Tagout devices:
   - Shall be substantial enough to prevent inadvertent or accidental removal; and,
   - Shall be capable of withstanding wet or corrosive environments, as appropriate.

4. Supervisors shall maintain a list of lock numbers and the name of the employee it is assigned to in their program manual and provide an electronic copy of the list to the Environmental Health & Safety Department (EHS) and campus police.

J. TRAINING, INSPECTION, RECORDKEEPING, AND ANNUAL REVIEW:

1. TRAINING. Training will be provided to all authorized employees (and their supervisors) who do maintenance work on equipment with an energy source(s) that require lock-out. The training should help employees understand the procedure, as well as their rights and responsibilities. Supervisors will routinely provide employees with information regarding the type and magnitude of known energy sources at this facility. The training shall be documented and contain the date(s) of training and employee names.

2. REFRESHER TRAINING. Refresher training shall be conducted annually or after an employee has failed a Supervisory Inspection. Discussing lockout/tagout procedures, near
misses and other issues at a safety meeting will satisfy this requirement. Refresher training shall also be conducted when there is a change in job assignments, a change in machines, equipment or process that presents a new hazard. Refresher training shall also be conducted whenever a periodic inspection reveals a deviation from this procedure or reveals an inadequacy in an employee’s knowledge or use of this procedure. Refresher training shall also be documented as described for initial training.

3. INSPECTIONS. Supervisors shall conduct documented periodic inspections to ensure this procedure is being followed. This inspection shall include a review between the supervisor and each authorized employee of the employee’s responsibilities under this procedure. If tagout is used, the periodic inspection shall include a review of employee’s responsibilities under the tagout procedure. These inspections shall be documented. The documentation shall include the date, the machine that was locked or tagged out, and the employees included in the inspection. Supervisors shall notify the Environmental, Health and Safety Department (EHS) if problems are observed and if the procedure needs revisions.

4. ANNUAL REVIEW. EHS shall conduct a review of this procedure at least annually, and retain the documentation of the review.

5. RECORDKEEPING. EHS will maintain all required records, including documentation of initial and refresher training, inspections, and annual reviews.

K. CONTRACTORS AND OTHER OUTSIDE PERSONNEL WORKING ON CAMPUS:

1. If contractor intends to lock out any UMSL equipment, contractor shall provide UMSL contracting department (i.e. Facilities Services) with a paper or electronic copy of contractor’s lockout tagout procedure prior to lockout. Contracting department will retain this copy for the life of the contract plus at least six months. UMSL supervisors will alert UMSL employees working near contractor-locked-out-equipment that contractors might be working near their area and instruct them not to remove or disable contractor’s locks.