Lock Out Tag Out (LOTO)

University of Southern Maine
Environmental Health and Safety Office
Outline

• Importance of Lock Out/Tag Out (LOTO)

• OSHA’s Control of Hazardous Energy standard

• USM’s LOTO Program

• EH&S Assistance
Purpose

• The LOTO program is intended to preserve the safety of individuals involved with servicing or maintenance of equipment or machinery.

• The LOTO program prevents the unexpected start up or release of stored energy that could cause injury to employees.

• LOTO should also be thought of as rendering something to a Zero Mechanical State (ZMS), as LOTO is not just concerned with electricity.
LOTOT Program Enforcement

• A violation of a University employee's responsibility must be reported to the employee's immediate supervisor for appropriate action.

• A violation of a contractor’s responsibility must be reported to the project manager (or the person who hired the contractor) for appropriate action.
Regulatory Agencies

- Federal: Occupational Safety and Health Administration (OSHA)
- State: Bureau of Labor Standards (BLS)
Hazardous Energy Sources

- Electrical
- Mechanical (i.e. motors, drive belts)
- Chemical (i.e. natural gas, propane)
- Thermal
- Pneumatic
- Hydraulic
OSHA’s LOTO Standard
29 CFR 1910.147

• Requires a written energy control program that includes defined energy control procedures.

• Requires documented employee training.

• Requires periodic inspections at least annually.

• Requires certain equipment specifics.
Environmental Health & Safety Responsibilities

• Coordinate the LOTO program;

• Provide guidance to supervisors.

• Training & assistance with annual inspections;

• Maintain copies of equipment specific lock out procedures, annual inspections & training records; and

• Update & evaluate the LOTO program annually.
Supervisor’s Responsibilities

• Complete equipment specific LOTO procedures;
• Conduct annual & periodic inspections;
• Keep a list of authorized employees;
• Issue LOTO devices to employees;
• Ensure all affected employees are properly trained on LOTO procedures;
• Enforce compliance with USM’s LOTO program; and
• Provide employees with copies of the LOTO Program upon request.
Authorized Employee Responsibilities

• Attend required training;

• Follow all LOTO procedures;

• Only perform work which they have been specifically authorized to do by their supervisor;

• Assist supervisor’s in completing equipment specific LOTO procedures;

• Consult supervisors when questions or concerns arise; and

• Notify all affected employees of LOTO activities.
An outside contractor must have a LOTO/ZMS program in place prior to starting work that requires LOTO activities.
Equipment

- Must be singularly identified;
- Must be the **ONLY** devices for controlling energy; and
- Must **NOT** be used for any other purposes.
Equipment

- LO/TO devices must be durable & withstand the environment to which they are exposed.

- LO/TO devices must be standardized by color, shape or size;

- LO/TO devices must be substantial enough to prevent early or accidental removal and removal without excessive force.
Equipment

- Lock out will be accomplished using a lock and key. Chains, or other hardware, may be used in conjunction with the lock to isolate the energy source.
Equipment

- Tagout devices must include a legend such as: **DO NOT START, DO NOT OPEN, DO NOT CLOSE, DO NOT ENERGIZE, DO NOT OPERATE**, etc.

- Tagout devices must have standardized print and format.
An approved warning tag will accompany all lockouts. The warning tag will be attached directly to the lockout device by a nylon tie.
Required TO Device Information

- Name of authorized employee who locked out equipment;

- Authorized employee’s radio or phone number, including contractors;

- Date and time of lockout; and

- Brief description of work being performed.
Procedures

- Notify all affected employees that:
  - Servicing is required;
  - The machine or equipment must be shut down and locked out to perform the servicing; and
  - Not to attempt to remove the lockout device, and not to attempt to start the machine or equipment.
Procedures

• Ensure that all tools and equipment necessary to perform the servicing and/or maintenance have been obtained.

• Shut down the piece of equipment or machinery using the established procedures.
Procedures

- Preparation for shutdown.
- Shutting down the equipment.
- Equipment isolation.
- Application of LOTO devices.
- Release of stored energy.
- Verifying equipment isolation.
Prep For Shutdown

- Know the types and amounts of energy that power specific equipment.
- Know the hazards of that energy.
- Know how the energy can be controlled – review equipment specific procedures if necessary.
- Direct any questions to immediate supervisor.
Shutting Down Equipment

- Notify ALL affected employees that a LOTO procedure is being used and why.

- Shut the equipment down using operating controls.

- Follow proper procedure for the equipment to avoid endangering anyone during the shutdown.
Energy Isolation

• LO & TO energy isolating sources with assigned locks and tags. Usually requires locking out electrical disconnect.

• Be sure to isolate **ALL** energy sources (secondary as well as primary).
Application of Devices

- Use valve covers, plug locks, etc. if the lock can’t be placed directly on the energy control.

- When LO is used, every employee in the work crew must attach their personal lock.
Release of Stored Energy

- Inspect the system to make sure all parts have stopped moving.

- Disperse stored energy (springs, hydraulic systems, air, gas, water pressure, or steam).

- If stored energy can build up again, monitor it to make certain it stays below hazardous levels.
Verifying Equipment Isolation

• Make certain all dangerous areas are clear of personnel.

• Verify that the equipment cannot be turned to the “on” position. Press all “start” buttons and activating controls on the equipment.

• Return all controls to the “off” position after certain that LO is effective.
Removing LOTO Devices / Restoring Equipment

- Safeguard all employees by making certain everyone is clear of the equipment.
- Notify affected employees of impending re-energization.
- Verify that all tools have been removed and all guards reinstalled.
- Remove LOTO devices. Each device must be removed by the person who put it on.
- Energize equipment.
Troubleshooting

• Remove all tools & personnel from the area.

• Notify affected employees of impending re-energization.

• Authorized employees remove the LO device but MUST leave tag in place.

• Energize equipment.

• When finished, de-energize & reapply LO device.
Shift Changes

• Individuals not completing the servicing of equipment by the end of a shift shall:
  ▫ Leave their attached locks until they complete their maintenance or servicing;

  ▫ If another shift will be continuing the work, authorized employee responsibilities are transferred from the off-going to the on-coming shift;

  ▫ The off-going shift will remove their lock and the on-coming shift will install their own lock and tags in accordance with the lockout procedures.
Equipment Specific LOTO

- Equipment Specific LOTO forms must be completed by the supervisor and/or the authorized employee.

- All equipment specific procedures must be easily accessible or posted directly on the equipment.
An Equipment Specific Procedure must contain the following:

- Statement of intended use of the procedure;
- Specific steps for shutting down, isolating, blocking and securing equipment;
- Specific procedural steps for the placement and removal of LOTO devices and the authorized employee’s responsibility; and
- Specific requirements of testing equipment to determine and certify the effectiveness of LOTO devices.
Equipment Specific Procedures

• Procedures must be updated when:
  ▫ New equipment is installed; or

  ▫ New energy sources are added to a facility or individual equipment; or

  ▫ Magnitude of an energy source changes; or

  ▫ Designated isolation points change.
Training

- Supervisors
- Authorized Employees
- All Affected USM Employees
Initial Training

• Preparatory LOTO/ZMS procedures;

• Recognition of hazardous energy sources, the magnitude of the available energy and the methods and means necessary for isolation and control of the available energy;

• Releasing equipment or machinery from LOTO/ZMS procedures; and

• Reviewing the Equipment Specific LOTO Procedures.
Re-Training

- Change in authorized employee’s job assignments or job area that contains sources of hazardous energy;
- Change in machines, equipment or process that presents a new hazard;
- Change in energy control procedures;
- Need for refresher training found during periodic inspections; and/or
- Employer believes there are deviations from, or inadequacies in, the employee’s knowledge or use of LOTO procedures.
Training Documentation

The documentation shall include:

- Subject of training;
- Date of training;
- Employee’s name;
- Name of supervisor providing the training; and
- Periodic program review evaluation information.
Periodic Inspections

• Each department shall perform an annual self-audit or the Equipment Specific, Simple Electrical, and Motor vehicle Powered Industrial Equipment LOTO procedures utilized by their department.
Periodic Inspections

- An inspection will be conducted at least annually by an authorized employee not involved in the procedure being inspected.

- The inspection will identify any deficiencies in or deviations from the program.

- The supervisor must certify that the inspections have been performed.

- Self-audit forms shall be kept for at least 2 years.
Record Keeping

• Each department shall maintain the following records:
  ▫ LOTO/ZMS Program;
  ▫ Department specific LOTO/ZMS procedures for equipment;
  ▫ Training records; and
  ▫ Disciplinary actions taken against employees found violating the LOTO/ZMS program.

• Documentation is to be reviewed annually and updated as new equipment or procedures are added.
EH&S Assistance

• Our department will provide assistance with equipment specific procedures, periodic inspections and training.

• Contact Environmental Health and Safety at 780-5406 for departmental consultation.
More Information?

- http://www.safetyworksmaine.com/
Thank You

For questions please contact University Environmental Health and Safety at x5406