



Lockout Tagout Program

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INTRODUCTION

Forward

In 1970, the United States Congress established the right of workers to "safe and healthful working conditions" through the Occupational Safety and Health Act. This act created the Occupational Safety and Health Administration (OSHA). House Bill 308 incorporates by reference all federal OSHA standards found in the Code of Federal Regulations (CFR), Title 29 Parts 1910, 1926 and 1928 as Ohio Public Employment Risk Reduction Program (PERRP) standards. All Ohio PERRP standards are found in Chapter 4167 of the Ohio Revised Code and the Ohio Administrative Code.

This program has been established by Bowling Green State University to comply with OSHA's Control of Hazardous Energy standard, 29 CFR 1910.147 Subpart J.

Objective

The objective of the University's LOTO Program is to establish requirements for the lockout and tagout of energy isolating devices and for the dissipation of stored energy prior to performing maintenance work to prevent intentional or accidental energizing, start up or release of stored energy. This program shall be used in conjunction with other BGSU policies and procedures involving the protection of workers in the work place.

Applicability

This program applies to all University employees servicing and/or working on or near equipment or machines where there is a potential for injury from the:

- Unexpected start up of equipment or machines;
- Unexpected energizing of equipment; or
- Release of stored energy

The term, unexpected, also covers situations in which servicing and/or maintenance is performed during on-going normal production if:

- An employee is required to remove or bypass machine guards or other safety devices; and/or
- An employee is required to place any part of his or her body into a point of operation, an area on a machine or piece of equipment where work is performed, or the danger zone associated with machine operation.

Responsibilities

Sr. Industrial Hygienist is responsible for:

- Coordinating the LOTO Program;
- Administering training;
- Maintaining copies of equipment specific LOTO procedures, annual program audits, and list of authorized employees;
- Updating and evaluating BGSU's LOTO Program on an annual basis.

Office of Design and Construction is responsible for:

- Ensuring contractors coordinate with BGSU personnel when both parties will be performing LOTO procedures together and that contractors furnish information on their LOTO Program at any time when requested by BGSU personnel.

Outside Contractors are responsible for:

- Furnishing LOTO Program information to BGSU personnel upon request; and
- Working with BGSU personnel to ensure both parties understand each other's programs and are in complete agreement on the protection of both parties and the procedures to be used during projects involving LOTO, especially if completed jointly.
- Complying with all facets of OSHA's Control of Hazardous Energy standard.

Supervisors are responsible for:

- Attending training on the subject through Environmental Health and Safety (EHS), which is required initially and then recommended every three years thereafter as a refresher;
- Completing and/or assisting EHS with the development of equipment specific lockout tagout procedures and the annual audit of their effectiveness in controlling all energy sources;
- Providing information or documentation to the EHS department on any departmental policies or procedures created that could affect BGSU's LOTO Program as well as any new equipment purchases/installations;
- Issuing LOTO devices to employees;
- Ensuring all employees are trained on the LOTO Program and it's requirements;
- Enforcing BGSU's LOTO Program by ensuring all employees under their direction comply will all facets of the LOTO Program;
- Providing a copy of BGSU's LOTO Program to employees upon their request;
- Maintaining any records of authorized employees, equipment specific LOTO procedures, abandoned lock removal forms, and training as applicable; and
- Performing periodic inspections to ensure authorized employees maintain an on-going understanding of the program and proper LOTO procedures.

Authorized Employees are responsible for:

- Attending required training sessions offered by the EHS department;
- Following the LOTO Program requirements;
- Assisting supervisors and/or the EHS department in developing equipment specific LOTO procedures and the annual program audits;
- Consulting immediate supervisors when questions or concerns that arise; and
- Notifying affected employees of one's LOTO activities.

Affected/Other Employees are responsible for:

- Recognizing LOTO devices and not disturbing them or the equipment that is being worked on; and
- Removing themselves from harm's way when an authorized person informs them of a pending shut down or re-energization of a piece of equipment in their area.

Program Enforcement

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

Recordkeeping

The EHS department will make available upon request copies of this program, corresponding regulatory standard, and any other applicable supporting material. This applies to employees, former employees, representatives designated by the individual employee, and PERRP.

LOCKOUT TAGOUT EQUIPMENT

Lockout Devices

Lockout will be accomplished using a lock and key and a multiple lock hasp and/or other approved lockout devices. Chains or other hardware may also be used in conjunction with locks and lockout devices to isolate energy sources. Only two individuals will have a key to each lock; the authorized employee applying the lock and the Physical Security (Lock) shop within the department of Campus Operations for the Bowling Green campus and with the authorized employee's supervisor at the Firelands campus. Additional keys will only be used to remove locks in the event the abandoned lock procedure must be implemented.

All lockout devices must be:

- Singularly identified, must be the only devices used for controlling energy and must not be used for other purposes;
- Durable and capable of withstanding the environment they are to be used in;
- Standardized by color, shape, or size; and
- Substantial enough to prevent removal without the use of excessive force or unusual technique.

Lockout device used at the Bowling Green and Levis Commons campuses (size/shape does not matter; distinguished by red bumper):



Lockout device at the Firelands campus (size/shape does not matter; distinguished by red outer casing):



Tagout Devices

An approved warning tag will accompany all lockouts. The warning tag will be attached directly to the lockout device or by a nylon tie.

All tagout devices must:

Revised: May 2018

- Include a legend such as Do Not Start, Do Not Open, Do Not Close, Do Not Energize, etc.;
- Be durable and made of all-weather construction;
- Have print and format standardized by color, shape, or size; and
- Be substantial enough to prevent inadvertent or accidental removal.

Information placed on the tag must include:

- The name of the authorized employee who locked out the equipment;
- The authorized employee's radio or phone number;
- The date and time of the lockout; and
- A brief description of the work being done.

Seasonal Locks

In the event that equipment must be locked out for an extended period of time, seasonal locks shall be used. The seasonal locks will be of different in color, shape or size and will be distinguished as seasonal locks with a separate tag.

GENERAL LOCKOUT TAGOUT PROCEDURES

Steps

1. Survey and identify energy sources and their associated hazards, obtain LOTO equipment, and review any equipment specific LOTO procedures. Any questions should be directed to the immediate supervisor.
2. Notify all affected employees that a LOTO system is going to be utilized and the reason why the equipment is being locked out.
3. If the equipment is in the “on” or “powered” position, shut it down by the normal stopping procedure.
4. Isolate the equipment from its energy source.
5. Lockout and tagout the energy isolating sources with assigned locks and tags. This usually requires locking out the electrical disconnect. Use valve covers, plug locks, etc. on equipment that cannot be directly locked out. **A tagout system alone is not acceptable at any time unless the equipment is not capable of being locked out. The tag must be placed at the same location that the lockout device would have been attached, and additional measures must be taken to ensure the level of safety is equivalent to that obtained by using a lock. This includes blocking of a controlling switch, removal of an isolating circuit element, opening of an extra disconnect device, or removal of a valve handle ONLY.**

NOTE: Currently, BGSU is unaware of there being any equipment on any of their campuses where the energy isolating devices cannot be locked out. In the event a piece of equipment is found that cannot be locked out and is required to be, report it to BGSU’s EHS department immediately for review to determine appropriate safety measures.

6. Dissipate stored energy (springs, hydraulic systems, air, gas, water pressure or steam).
7. After ensuring that no other personnel are exposed, attempt to turn on the equipment using the push button, toggle switch, etc. to ensure that the lockout was effective. After ensuring that lockout was effective, return the equipment to the “off” position.
8. Equipment is now locked out and ready to be serviced.

Restoring Equipment to Use

1. After servicing and/or maintenance is complete, check the area around the equipment to ensure that no one is exposed.
2. Verify that all tools have been removed from the equipment and all guards have been reinstalled.
3. Notify affected employees of the impending re-energization of the equipment.
4. Remove the LOTO devices. Removal of these devices is limited to the authorized employee who applied the devices. See “Abandoned Lock Procedure” if the lockout and tagout devices were inadvertently left on the equipment.
5. Energize the equipment.

Troubleshooting Procedure

If the equipment needs re-energized for testing, repositioning, or troubleshooting, LOTO devices may be removed temporarily in order to perform these tasks, but the authorized employee must:

1. Ensure that all personnel and tools have been removed from the equipment or area.
2. Notify affected employees of the impending re-energization of the equipment.
3. The lockout device must then be removed by the authorized employee. However, the tag must remain on the equipment at the point of isolation.
4. Energize equipment ensuring no part of one’s body is in harm’s way during startup or while observing operation of the equipment.
5. When the task is complete, de-energize the equipment using normal stopping procedures, and either restore equipment to use or reapply the lockout devices following the procedures above.

Procedure Involving More Than One Person

If more than one individual is involved in a LOTO procedure, each employee working on the piece of equipment must place his or her own lock onto the system. A multiple lock hasp shall be used to accommodate multiple locks and tags. Each authorized employee must always remove their own lock and tag (unless an Abandoned Lock Procedure must be implemented).

Procedure Involving More Than One Shift

When the original authorized employee working on the piece of equipment is replaced by another authorized employee, the original employee will remove his/her lock and the incoming employee will insert his/her lock onto the energy-isolating device. If the first employee leaves the area before the incoming employee arrives, an authorized supervisor can place his/her lock on the system to ensure the system remains safe until the second employee arrives. The incoming employee must then place his/her lock on the energy-isolating device before the supervisor can remove their lock and tag. **IMPORTANT**: Before the incoming employee can engage in any work, he must VERIFY by taking the following steps:

1. Make sure all equipment, tools, and personnel are removed from the equipment/area.
2. Notify affected employees of the pending attempt to re-energize the piece of equipment.
3. Attempt to re-start the machine. If it does not restart, proceed to the next step. If something does start up, refer to the equipment specific lockout tagout procedure or general lockout tagout procedures if one is not available.
4. Ensure that all energy sources are properly locked and tagged out.
5. Ensure all potential stored energy has been released.
6. Begin work.

Abandoned Lock Procedure

It is the responsibility of the authorized employee to remove his/her lock at the end of the workday. If an authorized employee forgets to remove his/her lock before leaving the worksite, the immediate Supervisor or Manager/Director must:

1. Call the authorized employee to verify the employee has left the worksite and inform him/her that their lock is being removed (if they are unable to return to the worksite to remove it on their own).
2. Be present and authorize removal of the lock.
3. Inspect equipment to ensure it is safe to restore energy (removal of tools, equipment, personnel from hazard areas).
4. Inform affected personnel of the pending re-energization of the equipment.
5. Restore energy to the equipment.
6. Fill out the abandoned lock form found in Appendix B and submit a copy to kept on file in the Campus Operations Physical Security shop.

7. Ensure that the authorized employee is made aware of the lock removal before he/she reports back to work.

Exemptions

LOTO procedures must be performed prior to the maintainancing or servicing of all machinery and equipment where the unexpected energization, start-up or release of energy could cause injury. Typical exemptions include the following:

- LOTO procedures do not need to be implemented if an electrical plug powers a piece of equipment and the plug is removed from the outlet as long as the person performing the work has complete view and control of the plug.
- LOTO procedures are not intended to apply as long as guards are not removed or bypassed and are effective in preventing worker exposure to hazards created by the unexpected energization or start up of machines or equipment, or the release of energy.

EQUIPMENT SPECIFIC LOCKOUT TAGOUT PROCEDURES

The purpose of Equipment Specific LOTO Procedures are to determine what equipment can pose a hazard if an unexpected release of energy occurs, the type and magnitude of the energy source, the location of the energy isolating devices, the means by which to isolate the energy, etc. The supervisor of an authorized employee and/or the authorized employee must complete the Equipment Specific Lockout Tagout Forms found in Appendix C or assist in the development of these procedures. All equipment specific LOTO forms must be located in an easily accessible area at all times or be posted directly on the equipment to be serviced.

For each piece or type of equipment, the LOTO procedure will identify and document the following:

- Type and magnitude of each energy source;
- Step-by-step instructions on how to lockout the piece of equipment and restore the energy.

The Equipment Specific LOTO Procedures must be updated when

- New equipment is installed;
- New energy sources have been added to a facility or to individual pieces of equipment;
- The magnitude of an energy source changed; or
- The designated isolation points changed.

Equipment Specific LO/TO Procedures are not required when **ALL** of the following elements exist:

- The machine or equipment has no potential for stored or residual energy, or for reaccumulation of stored energy after shut down, which could endanger employees.
- The machine or equipment has a single energy source that can be readily identified and isolated and the isolation and locking out of that energy source will completely deenergize and deactivate the machine or equipment.
- The machine or equipment is isolated from its energy source and locked/tagged out during servicing or maintenance.
- A single lockout device will achieve a locked-out condition.
- The lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance.
- The servicing or maintenance does not create hazards for other employees.
- The employer has had no accidents involving the unexpected activation or reenergization of machines or equipment during servicing or maintenance.

TRAINING

Authorized Employees

Initial

This training is provided by the EHS department and is intended for authorized employees and their Supervisors/Managers/Directors. The following information is covered:

- The importance of LOTO;
- A discussion of the type of hazardous energy sources that can be present;
- A review of important definitions;
- A summary of OSHA's Control of Hazardous Energy standard (29 CFR 1910.147 Subpart J);
- An overview of BGSU's written LOTO Program and where it is located;
- An explanation of how Environmental Health and Safety assists departments; and
- When retraining will occur.

Job Specific

Supervisors share a role in training employees who are authorized to perform LOTO procedures. These employees must not only go through initial training led by the EHS department but also job specific training led by their supervisor that shall cover the following:

- The recognition of applicable hazardous energy sources;
The type and magnitude of energy in the work place;
- The methods and means necessary for energy isolation and control; and
- Any equipment specific LOTO procedures in the workplace that the employee should be aware of.

Affected/Other Employees

All other Campus Operations employees are considered affected employees and all other BGSU employees are considered "Other" employees. Both parties will be given awareness training initially upon employment and will consist of the following:

- Why LOTO systems are used;
- How to recognize LOTO devices;
- The importance of not disturbing LOTO devices; and
- Who to call for information on LOTO.

Retraining

Retraining will occur when ever there is a:

- Change in an authorized employee's job assignments or job area that contains sources of hazardous energy;
- Change in machines, equipment or processes that present a new hazard;
- Change in energy control procedures;
- Need for refresher training found during periodic inspections; and/or
- The employer believes that there are deviations from, or inadequacies in, the employees knowledge or use of the energy control procedures.

NOTE: Refresher training is recommended every three years.

PERIODIC INSPECTIONS

The Sr. Industrial Hygienist will conduct an annual evaluation of the LOTO Program and update it as needed. This evaluation will be used as a tool to identify and correct any inadequacies or deviations from the program. Deficiencies found during the evaluation will be discussed with affected management to determine an appropriate corrective response.

Supervisors of authorized employees are responsible for performing more frequent evaluations of the LOTO Program to ensure that the procedures are being followed and are effective. These reviews shall be documented on the annual inspection form found in Appendix D and a copy submitted to Environmental Health and Safety. An evaluation between the supervisor and each authorized employee shall include:

- A review of machine specific LOTO procedures;
- Identification of any deficiencies in employee knowledge or deviations from the program including corrective actions taken; and
- Review of responsibilities under the program (group meetings are acceptable).

NOTE: Environmental Health and Safety will keep all evaluations on file for three years.

APPENDIX A - 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, or whose job requires them to work in an area in which such servicing or maintenance is being performed.

Authorized Employee

An employee who locks or tags out machines or equipment in order to perform servicing or maintenance. An employee must complete the required training before he/she is designated as an authorized employee.

Capable of Being Locked Out

An energy-isolating device is considered capable of being locked out if it:

- Is designed with a hasp or other means of attachment to which a lock can be affixed.
- Has a locking mechanism built into it.
- Can be locked without dismantling, rebuilding, or replacing the energy-isolating device or permanently altering its energy control capability.

Designated Isolation Point

Where the machine or equipment will be locked and tagged out.

Energized

Machines or 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

- a manually operated circuit breaker;
- a disconnect switch;
- a manually operated switch by which the conductors or a circuit can be disconnected from all underground supply conductors and no pole can act independently;
- a line valve, block or any similar device used to block or isolate energy;

Push buttons, selector switches and other circuit type control 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

A device that utilizes a lock and key, to hold an energy-isolating device in a safe position and prevent the energizing of a machine or equipment. These locks are designated lockout tagout locks.

Normal production operations

The 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.

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, 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

A prominent warning device which can be securely fastened to 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.

Stored Energy

Kinetic energy that remains even after the power source to the equipment has been turned off. Examples of stored energy include hydraulic, pneumatic, steam, gas, and spring tension.

APPENDIX B - ABANDONED LOCK REMOVAL FORM

It is the responsibility of the authorized employee to remove his/her lock at the end of the workday. If an authorized employee forgets to remove his/her lock before leaving the worksite, the immediate supervisor must:

1. Call the authorized employee to verify the employee has left the worksite and inform him/her that their lock is being removed (if they are unable to return to the worksite to remove it on their own).
2. Be present and authorize removal of the lock.
3. Inspect equipment to ensure it is safe to restore energy.
4. Restore energy to the equipment.
5. Fill out this form and keep it on file in the Campus Operations Physical Security (Lock) shop.
6. Ensure that the authorized employee is made aware of the lock removal before he/she resumes work.

DATE REMOVED: _____

DEPARTMENT: _____

LOCK LOCATION: _____

AUTHORIZED EMPLOYEE NOTIFICATION VERIFICATION:

NOTIFIED BY PHONE: _____ **DATE:** _____ **TIME:** _____

NOTIFIED IN PERSON: _____ **DATE:** _____ **TIME:** _____

NAME (PRINT): _____
AUTHORIZED EMPLOYEE

SIGNATURE: _____
AUTHORIZED EMPLOYEE

NAME (PRINT): _____
IMMEDIATE SUPERVISOR

SIGNATURE: _____
IMMEDIATE SUPERVISOR

APPENDIX C - EQUIPMENT SPECIFIC LOCKOUT TAGOUT PROCEDURE FORM

Equipment Location: _____

Equipment Description: _____

The Control of Hazardous Energy (lockout/tagout) OSHA 29 CFR 1910.147(C)(4)(ii) states that: “The procedures shall clearly and specifically outline the scope, purpose, authorization, rules and techniques to be utilized for the control of hazardous energy, and the means to enforce compliance, including, but not limited to the following:

- a) A specific statement of the intended use of the procedure.
- b) Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy.
- c) Specific procedural steps for the placement, removal and transfer of lockout devices and the responsibility for them; and
- d) Specific requirements for testing a machine or equipment to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures.

SOURCES OF ENERGY FOR THIS EQUIPMENT (check those that apply)

- | | | |
|--|---|---|
| <input type="checkbox"/> Electrical _____V | <input type="checkbox"/> Pneumatic | <input type="checkbox"/> Capacitors |
| <input type="checkbox"/> Electrical _____V | <input type="checkbox"/> Thermal | <input type="checkbox"/> Battery |
| <input type="checkbox"/> Electrical _____V | <input type="checkbox"/> Hydraulic | <input type="checkbox"/> Air Tank |
| <input type="checkbox"/> Compressed Air | <input type="checkbox"/> Chemical | <input type="checkbox"/> Gravity (part falling) |
| <input type="checkbox"/> Gas | <input type="checkbox"/> Raise Load | <input type="checkbox"/> Other _____ |
| <input type="checkbox"/> Steam | <input type="checkbox"/> Coiled Springs | <input type="checkbox"/> Other _____ |

SPECIFIC INSTRUCTION FOR LOCKOUT

HOW TO VERIFY LOCKOUT BEFORE PERFORMING MAINTENANCE

INSTRUCTIONS FOR RETURNING MACHINE TO SERVICE (RESTORING ENERGY)

Revised: May 2018

APPENDIX D – ANNUAL/PERIODIC LOCKOUT TAGOUT INSPECTION FORM

DATE: _____

BUILDING: _____

ROOM LOCATION OF MACHINE/EQUIPMENT: _____

TYPE/NAME OF MACHINE/EQUIPMENT: _____

EVALUATORS SIGNATURE/S (WHERE APPLICABLE DEPENDING ON TYPE OF INSPECTION):

SR. INDUSTRIAL HYGIENIST

AUTHORIZED EMPLOYEE'S IMMEDIATE SUPERVISOR

EMPLOYEES PERFORMING THE LOCKOUT TAGOUT PROCEDURES:

EMPLOYEE NAME	EMPLOYEE SIGNATURE

Were lockout tagout procedures being performed correctly? YES ___ NO ___

Comments: _____

