WEST VIRGINIA UNIVERSITY

The Control of Hazardous Energy (Lockout/Tagout) Program

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1. Purpose

This document establishes the requirements, process, and administrative responsibilities for West Virginia University's Control of Hazardous Energy (Lockout/Tagout) Program. The program adheres to applicable federal regulation is the Occupational Safety and Health Administration (OSHA) Control of Hazardous Energy (Lockout/Tagout) 29 CFR 1910.147 for the servicing and maintenance of WVU processes, equipment and related operations. The program is to provide safety requirements and prevent worker injury, by isolating the machine or equipment from the energy source and rendering inoperative during servicing or maintenance where the unexpected energizing, startup or release of stored energy could occur and cause injury.

2. Scope

The Control of Hazardous Energy (Lockout/Tagout) Program applies to personnel (inclusive of WVU employees, students, contractors, other) who are exposed to, work with, or supervise operations involving work with hazardous energies at the West Virginia University main campus, Regional campuses, and related WVU facilities and operations.

3. Definitions

The following terms used in this Control of Hazardous Energy (Lockout/Tagout) Program are defined as follows:

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 or tagout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

Authorized employee - A person designated by the dean, director, or manager of the department who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. Students that may lockout equipment must follow all requirements of the authorized employee and be under continuous supervision by a dean, director, or supervisor for this process.

Capable of being locked out - An energy isolating device is capable of being locked out if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it. Other energy isolating devices are capable of being locked out, if lockout can

be achieved without the need to dismantle, rebuild, or replace the energy isolating device or permanently alter its energy control capability.

Employees- Persons that work as an employee and receive regular and planned compensation from WVU for tasks performed.

Energized - Connected to an energy source or containing 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.

Hot tap - A procedure used in the repair, maintenance and services activities which involves welding on a piece of equipment (pipelines, vessels or tanks) under pressure, in order to install connections or appurtenances. It is commonly used to replace or add sections of pipeline without the interruption of service for air, gas, water, steam, and petrochemical distribution systems.

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 positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment. Included are blank flanges and bolted slip blinds.

Magnitude – The total amount of energy present.

Normal production operations - The utilization of a machine or equipment to perform its intended production function.

Other Employees-Persons whose work activities are or may be in an area where energy control procedures may be utilized. Other employees must be instructed about the procedure and about the

prohibition relating to attempts to restart or reenergize machines or equipment that are locked or tagged out.

Servicing and/or maintenance - Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment. These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the *unexpected* energizing 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 conjunction with a lockout device where capable of being locked out, and 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, such as a tag and a means of attachment, 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.

4. Roles/Responsibilities

4.1 The West Virginia University Administration

Is responsible for assuring the University is in compliance with applicable Federal and State Occupational Safety and Health regulations regarding the Control of Hazardous Energy 49 CFR 1910.147. Provide needed resources to assure the programs implementation and continuance.

4.2 WVU Department Directors/Deans/Managers/Supervisor (Inclusive of supervisory staff and academia who oversees students)

- Supervisors and Leads of authorized employees must also have the responsibilities of authorized employees.
- Communicate to individual departmental employees they must meet the requirements of WVU's Control of Hazardous Energy (Lockout/Tagout) Program for their work areas, equipment, and processes. This applies to departments where employees may use or be impacted by lockout tagout operations.
- Attend scheduled LOTO Training.

- Ensure departmental employees receive the required and applicable training before allowing employees to conduct hazardous energy control/LOTO procedures.
- Assure Equipment Specific Procedure determinations are conducted and complete procedures for required equipment and processes. (Section 6)
- Conduct and or ensure Periodic Inspections of LOTO procedures to assure compliance of lockout tagout activities. This may be completed during LOTO operations. (Appendix C)
- Provide on the job training (OJT) to departmental authorized employees using the Employee On-The-Job-Training Checklist and Specific Energy Control Lockout/Tagout Procedures. Upon completion provide copies of employee training records to EHS within 24 hrs. (Appendix E)
- Designate employees and/or students as authorized employees and ensure that authorized individuals are provided effective information, resources and training on hazardous energies and methods for safe lockout/tagout control in their work area at the time of initial assignment, upon addition or changes of new machine(s), equipment(s, processes, departmental procedures or this program.
- Provide standardized energy isolating equipment, standardized locks, tags, and resources to control lockout tag out hazards.
- Provide authorization for emergency/abandoned lock removal. (section 6.2 and Appendix D)
- Assure development of procedures utilizing Appendix B-1 Lockout Tagout Procedure form
- Maintain these procedures within you designated department.
- Ensure employee access to the most recent version of the Lockout procedure developed.
- Make lockout tagout procedures available for periodic inspections, safety and health audits or regulating agency inspections.

4.3 Project Managers/WVU personnel hiring External vendors/contractors

- The WVU person(s) responsible for or contracting external vendor/contractor that will be conducting LOTO procedures while on WVU property are to comply with the following:
- Communicate to the contractor/vendor WVU LOTO program requirements.
- Communicate WVU energy hazards that may not be evident to the Contractor/vendor.
- Where contractors LOTO work may or actually expose WVU employees, assure:
    - WVU Affected employees are clearly notified of hazards and operations of the contractor/vendor LOTO operations and methods to minimize exposures and equipment or processes that will be impacted during the LOTO operations.
    - Conduct and or participate in a preplanning meeting prior to the LOTO work with WVU managing and Authorized Employee and WVU employees that may conduct LOTO procedures with or alongside of contractor/vendor work.
    - WVU Departmental Authorized employees working with or alongside of contractors are to follow the requirements of this program.

- Must coordinate LOTO activities on a continual basis (before, during, and post) of Lockout Tagout processes to occur with the WVU Project Manager and affected employees.

4.4 Environmental Health and Safety (EHS)

- Develop and provide overall administrative support for the Control of Hazardous Energy (Lockout/Tagout) Program, including interpretation of the regulation.
- Review the Control of Hazardous Energy (Lockout/Tagout) Program on an annual basis or as needed based on regulatory and WVU internal needs.
- Provide guidance for equipment-specific lockout/tagout (LOTO) procedures.
- Assist WVU department personnel in selecting appropriate equipment for LOTO as requested.
- Manage and schedule WVU Control of Hazardous Energy Control (Lockout/tagout) safety training.
- Conduct Periodic audits of lockout tagout program and compliance to the program.
- Maintain a master file of documentation and records associated with the Control of Hazardous Energy (Lockout/Tagout) Program, including but not limited to:
    1) Training records;
    2) Periodic Inspection Forms audits.

- **4.5 Safety and Health Extension (SHE)**
  - Provide needed and scheduled lockout tagout training for WVU employees
  - Assist in Control of Hazardous Energy Control Program development and review.
  - Assist departments in evaluating and determining lockout/ tagout procedures in coordination with Environmental Health and Safety.

4.6 Authorized Employees

- Attend training and follow the requirements of the Control of Hazardous Energy (Lockout/Tagout) Regulations, WVU lockout/tagout Program and departmental training and procedures on energy hazards and methods for control. (section 5)
- Know and understand the associated energy, related hazards, and methods to control the equipment that will be serviced and/or maintenance.
- Inform affected employees and other employees who work in the area where hazardous energy and control procedures are to be utilized and to not attempt to restart or reenergize the affected equipment/machines
- Complete lockout/tagout on equipment , using required LOTO equipment to control hazards energy source, resources and equipment , and follow specific LOTO departmental procedures . (section 6)
- Use appropriate Personnel Protective Equipment for specific procedures where hazards may be present during lockout/tagout and servicing of equipment.

- Report and incidents or near misses to direct supervision and WVU EHS (Appendix F- EHS Submittal link)

4.7 Affected employees will:

- Attend training on the purpose and use of hazardous energy control/LOTO procedures.
- Do not attempt to restart or reenergize machinery when informed and labeled by an authorized employee that equipment/machines have been de-energized and for LOTO purposes.
- Inform their supervisor of accidents, conditions, or work practices relating to Lockout/ Tagout as they believe to be a hazard to their health or to the health of other individuals.

4.8 Contractors/Vendors

- Must have a LOTO program or written document (s) that comply with the requirements of OSHA CFR 1910.147 standard.
- Shall Inform WVU project manager or WVU person contracting/having project over site of the contractor/vendors, of the respective lockout procedures/program available and to complete LOTO work. Also provide expected dates/times for LOTO operations.
- Must have employees trained to meet the requirements of OSHA CFR 1910. 147 and understand the hazards of equipment to be serviced/maintenance on WVU properties.
- Ensure proper signage is posted to notify affected and other employees.
- Review with the WVU project manager or WVU contracting person the actual and potential energy hazards of the work to be completed.
- Conduct and or participate in a preplanning meeting prior to LOTO work and with the managing and Authorized Employee of both WVU employees and contractor /vendor(s) when:
    - When WVU employees are or may conduct LOTO operations with an outside entity, there must be:
    - A lead personnel from each entity is to coordinate and communicate the LOTO procedures for the operation.
    - Documentation of this preplanning meeting is required to assure clarity and provide guidance to all impacted personnel.
    - Documentation will be maintained and provided by the WVU Project Manager or designee.

5. Training

- Control of Hazardous Energy Training is a two-step process for Authorized Employees, a one step process for affected and other personnel. WVU affected employees exposed or potentially exposed are to receive classroom or information training. Authorized Employees conducting lockout tagout operations are to receive both initial classroom training and the departmental On-The-Job Training.
- Documentation of training is required (section 7)

5.1 Classroom Training-Initial and Periodic

Classroom training and resource information provides the regulatory requirements and the WVU Control of hazardous Energy (LOTO) program elements and requirements:

- All employees impacted by this program must be trained on the location and availability of the West Virginia University Control of Hazardous Energy (Lockout/Tagout) Program.
- WVU Employees are required to be trained initially and retraining shall occur at intervals as stated in section 5.3.

Authorized employee training contents:

- Requirements of the Control of WVU Hazardous Energy Program and the Code of Federal Regulations OSHA 1910.147
- Recognition of applicable hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control for maintenance and service.
- Types of Energy Isolating devices, locks, tags and other applicable equipment of LOTO operations.
  Purpose and use of the energy control procedure and related steps of the process.
- Tagout Systems (section 6.6)

Authorized employee training contents: Departmental selected equipment/process specialist training on how to develop and complete:

- Appendix A- Lockout Tagout Determination and Directions
- Appendix B-1-Lockout Tagout Procedure Form
- Appendix C- Periodic Inspection Form

Affected and Other Employees

- Requirements of the Control of WVU Hazardous Energy Program and the Code of Federal Regulations OSHA 1910.147 as it relates to Affected and Other employees.
- Prohibition requirements relating to attempts to restart or reenergize machines or equipment which are locked out or tagged out.

5.2 On the Job Training- Specific Lockout /Tagout Energy Control Operations Training

WVU Management Director/Deans/Managers/Supervisors

Management and/or supervising departments shall provide training to employees working with or near energy sources, equipment and processes requiring lockout/tagout to ensure that the purpose and function of the Control of Hazardous Energy (Lockout/Tagout) Program are understood and used by authorized employees and that the working knowledge and skills are acquired for the safe identification, application, adherence to this program for conducting lockout/tagout on WVU equipment and processes.

Content of On the Job Training for Departmental Authorized employees shall include the following:

- Authorized employees using this program shall be instructed in the purpose and use of the Control of Hazardous Energy (Lockout/Tagout) Program.
- Authorized employees shall receive training in the recognition of departmental hazardous energy sources, the type and magnitude of the energy, equipment designated for energy isolation, control, and verification of lockout/tagout procedure.
- Authorized employees are to be provided with lockout/tagout departmental procedures. (Appendix B-1)

5.3 Employee Retraining

The retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures as related to one or more of the items below;

- Whenever a periodic inspection or work practices reveals there are deviations from, or inadequacies in the employee's knowledge, use of the energy control procedures, or regulatory requirements of the Control of Hazardous Energy program requirements.
- Change in job assignment, change in machines, equipment or processes that present a new hazard, or when there is a change in the energy control procedure. (Appendix E)
- Authorized employees must be retrained if there are changes to OSHA regulation 29 CFR 1910.147 or the WVU Control of Hazardous Energy program.
- Authorized Employee training recommended within every 3 years.

WVU personnel (including students) are only permitted to work on de-energized equipment following the WVU Control of Hazardous Energy (Lockout/Tagout) Program. Documented Lockout Tagout Procedures are to be developed (as stated below) initially by an authorized employee/equipment specialist, and approved by the departmental supervision prior to service and or maintenance on equipment or processes. A new documented procedure must be updated and approved by the department when there are process changes that impact the current LOTO procedure.

- **These procedures must be maintained, made available, and accessible for the authorized employees and auditors of this program.**
- **Appendix B-1—Specific Energy Control Lockout Tagout Procedure Form template must be used.**

(Exemption: Circumstances requiring service or maintenance during trouble shooting and or energized operations require a written standard operating procedure and approval by the department Dean, Director, Manager, and Supervisor of that department)

Documented Energy Control Procedures are required for equipment or processes if one or more of the following are identified:

1. The equipment or process has a potential for stored, residual, or re-accumulation of energy.
2. The equipment or process has more than one energy source.
3. If the equipment or process has one energy source, the isolation and locking out of that energy source will NOT completely de-energize and deactivate the unit.
4. The equipment or process is NOT isolated from its energy source and locked out during servicing or maintenance.
   (Tagout Operations require documented procedures as they are not locked)
5. A single lockout device will NOT achieve a locked out condition.
6. The lockout device is NOT under the exclusive control of an Authorized Employee.
7. The service or maintenance creates hazards for other personnel.
8. There have been accidents involving the unexpected activation or re-energization of the unit.

Documented Energy Control Procedures must include and are not limited to: (Appendix B-1)

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

5. Additional elements as listed on the WVU Specific Energy Control Lockout Tagout Procedure Form. (Appendix B-1)

6.1 Energy Sources and Equipment

Examples of energy sources that are to be locked out and tagged out include but not limited to:

- Electrical
- Gravity
- Hydraulic
- Mechanical
- Pressurized systems
- Pneumatic
- Steam
- Chemical
- Thermal
- Water
- Other

Examples of equipment, machines or systems which must be locked and tagged, but not limited to:

- Automated Machinery
- Burner Motors
- Compressor Motors
- Dishwashers
- Electrical equipment/circuits
- systems
- Elevators
- Heating, ventilation and air conditioning equipment
- Hydraulic systems
- Pneumatic Lines
- Pumps
- Steam Valves/Lines
- Vehicles
- Water Lines / Piping

6.2 Lockout/Tagout Required Process

Whenever it is necessary for WVU personnel to be involved in the maintenance or servicing of equipment or machines with a potential exposure to hazardous energy, the following steps of these procedures must be followed, and the locations and access of the LOTO procedures must be communicated within the department conducting the procedures:

1. Notifications
2. Preparing for shutdown
3. Performing shutdown
4. Isolating equipment
5. Discharge of residual energy
6. Locking/tagging devices
7. Energy verification

Maintenance/Servicing

8. Restoring power

1. **Notifications:** Authorized employee communicates to affected and other employees of the equipment to be maintenance or serviced and made aware of the energy source (s) being locked out or controlled and the anticipated duration of the shutdown. Authorized employees will advise on direct and support equipment that will/may be impacted, additional safety precautions to be taken, and the type of control device(s) being used.

   Preparations: for the shutdown shall begin after all notifications have been made. Authorized Employee must be fully aware of the type and magnitude of the energy involved, associated hazards of the energy involved, and control methods of the energy involved. Authorized Employee shall refer to documented procedures where required and owner/service manuals and other related equipment or process information or personnel as needed to ensure they are fully aware of any and all potential hazards associated with the equipment on which they are working.

   Shutdown: locate the known energy source (s) and potential hidden energy sources. Equipment and processes may have more than one power source. Follow the documented equipment/process LOTO procedures.

   Isolating : turn off all energy at the main power source/location or as near to as feasible to the main source and apply isolating device(s) to the equipment or energy supplying equipment or process: All energy isolating devices that are needed to control the energy to the equipment or process shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).

Discharging : Discharge residual energy prior to applying any controlling devices. The purpose is to release any residual hazardous energy (real or potential) before work commences that may pose a threat to authorized or affected employees.

Locking/Tagging: Each authorized employee involved in the lockout shall apply their personal Lockout and tagout device to every energy source identified by the documented LOTO procedure. Lockout devices, where used, shall be affixed in a manner to that will hold the energy isolating devices in a "safe" or "off" position. Tagout devices, where used, shall be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited. NOTE: Where a locking device cannot be applied due to equipment design; an equal and feasible means to safely protect authorized, affected and other employees from equipment and process energy startup must be applied. If a group lockout is necessary see section 6.5.

Energy Verification: Prior to starting work on machines or equipment that have been locked out or tagged out, the authorized employee shall verify that isolation and de-energization of the machine or equipment have been accomplished. Equipment is to be placed back in the "OFF" or "Neutral" position after verifying.

Maintenance and Service: Completed after all above steps have been completed.

Restoring Power: Before lockout or tagout devices are removed and energy is restored to the machine, equipment or process, per the documented LOTO procedures for re-energization by the authorized employee(s), ensure the following:

- The work area shall be inspected to ensure that nonessential items have been removed and to ensure that machine or equipment components are operationally intact.
- The work area shall be checked to ensure that all employees have been safely positioned or removed.
- After lockout and/or tagout devices have been removed and before a machine or equipment is started, affected employees shall be notified that the lockout or tagout device(s) have been removed.
- Each lockout and/ or tagout device shall be removed from each energy isolating device by the employee who applied the device.
- If the authorized employee is not available or the lock has become abandoned,
    - Complete the Abandoned Lock Removal Form prior to removing the lock/tag. (Appendix D).

Temporary removal of Lockout /Tagout devices:

In situations in which lockout or tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine, equipment or component thereof, the following sequence of actions shall be followed:

- Clear the machine or equipment of tools and materials
- Remove employees from the machine or equipment area.
- Remove the lockout or tagout devices.
- Energize and proceed with testing or positioning
- De-energize all systems and reapply energy control measures per the documented LOTO procedure to continue the servicing and/or maintenance.

Removal of Lock and or Tag by Other WVU Supervisory Personnel:

- If a lock is abandoned or an emergency situation arises, the supervisor of the authorized employee having a lock on equipment must make every attempt to contact the Authorized employee and follow the steps on the Abandoned Lock removal Form (appendix D)

6.3 Energy Control Procedures

- **Reference Appendix B-1 -Specific Energy Control Lockout Tagout Procedure Form**

6.4 Lockout

6.4.1 Locking Device requirements:

- Durable: Lockout devices shall be capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.
- Standardized: Lockout devices shall be standardized within the department in at least one of the following criteria: color; shape; or size.
- Substantial: 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.
- Identifiable: Lockout devices shall indicate the identity of the employee applying the device(s).

6.4.2 Use of Locks

- Departmental Management and Authorized Employee shall maintain a supply of lockout devices specific for their trade and area of expertise.
- Locks that are used for lockout operations and specifically identified for lockout are to be kept at the department designated area(s) and used only for lockout operations.
- Locks shall remain on equipment during the duration of the service and maintenance operations with the exception of shift changes and troubleshooting.
- Locks are required to be applied and removed by the authorized employee who applied the lock.

6.5 Group Lockout/Tagout:

When servicing and/or maintenance is performed by a crew, craft, department or other group, they shall utilize a procedure which affords the authorized employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. Group lockout or tagout devices shall be used in accordance with the procedures required including, but not limited to, the following:

- An authorized employee must take primary responsibility for the employees working under the protection of a group lockout or tagout device (such as an operations lock in conjunction with a lockout box or equivalent means);
- The primary authorized employee is to ascertain through communications and procedures the exposure status of individual group members with regard to the lockout and/or tagout of the machine or equipment.
- When more than one crew, craft, department, etc. (i.e. WVU internal, contractor external personnel) is involved, assignment of overall job-associated lockout and/or tagout control responsibility to an authorized employee for the WVU personnel (crew/group) designated to coordinate affected work forces and ensure continuity of protection; (i.e. contractors and WVU personnel working together on a project, each have individually assigned primary authorized employee for the project and this person provides communication and guidance for specific procedures and methods for LOTO protection.)
- Each authorized employee shall affix a personal lockout or tagout device to the group lockout device, group lockbox, or comparable mechanism when he or she begins work, and shall remove those devices when he or she stops working on the machine or equipment being serviced or maintained.
- WVU employee and Contractors are to have and use individual LOTO boxes for their respective designated authorized employees.

Shift or Personnel Changes:

The Department Dean Director or Manager is to assure specific procedures are utilized during shift or personnel changes to ensure the continuity of lockout or tagout protection, including provision for the orderly transfer of lockout or tagout device protection between off-going and oncoming employees, to minimize exposure to hazards from the unexpected energizing or start-up of the machine or equipment, or the release of stored energy.

6.6 Tagout

6.6.1 Tag Equipment requirements

- Tagout devices print and format shall be standardized for each department.
- Tags are to have the authorized employee's contact information identified on the tag.
- 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 to become illegible.
- Tags shall not deteriorate when used in corrosive environments such as areas where acid and alkali chemicals are handled and stored.
- Tagout devices shall warn against hazardous conditions if the machine or equipment is energized and shall include a legend such as the following: Do Not Start. Do Not Open. Do Not Close. Do Not Energize. Do Not Operate.
- 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, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds and having the general design and basic characteristics of being at least equivalent to a one-piece, all environment-tolerant nylon cable tie.

6.6.2 Tag Out Operations Requirements

An approved tag will be placed on the hasp of the each padlock used for the lockout.

Tags are placed or applied by the authorized employee conducting the LOTO operation to notify affected and other personnel of the inherent danger and including but not limited to the following information:

- Authorized employee name
- Date and Time of Lockout Operations
- Phone Number to Reach Employee in case of emergency

Tagout Operation (Used in Lieu of a Lockout/Tagout Operation)

NOTE: Where the equipment is capable of accepting a lock, a lock and tag must be utilized.

A tagout alone must be approved by the dean, director, or their designee of the department and the following requirements are to be met:

1. Procedure(s) are written, available, communicated, and used that provide equal protection as a lockout operation against potential start- up of energy and for the authorized employee(s) conducting the LOTO operations.
2. The tagout device is attached at the same location that the lockout device would have been attached, and the authorized employee and supervisor demonstrate that the tagout procedure will provide a level of safety, equivalent to that obtained by using a lockout.
3. The authorized employee and supervisor must demonstrate full compliance with all tagout-related provisions of the control of hazardous energy standard, AND provide one of the following or equivalent safety measures: removal of an isolating circuit element, blocking of a controlling switch, opening of an extra disconnecting device, or the removal of a valve handle to reduce the likelihood of inadvertent energization.

6.7 Periodic Inspections

The departmental administration is to designate authorized employees to annually review LOTO procedures and assure periodic inspections have been performed. The inspection shall identify the equipment or process on which the energy control procedure was being utilized, the date of the inspection, the employees included in the inspection, and the designated authorized employee performing the inspection. (Appendix c)

The designated departmental authorized personnel are to comply with and complete the following:

- The procedure review is to be conducted by a departmental authorized equipment/process specialist (designated authorized employees) other than the one(s) utilizing the energy control procedure being inspected.
- Complete review on an Annual basis to assure the requirements of the procedure are being followed.
- Like equipment with similar energy sources can be grouped and counted as one inspection.
- Document corrections or deviations identified during the inspection on the procedure inspection form.
- Provide documented corrections or deviations to departmental administration for review, approval, and notification to authorized employee.

- Communicate to dean, director, manager the needed revision and need for On-the-Job Training to retrain authorized and affected employees.
- Lockout Procedures inspection include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected.
- Tagout Only procedures must include an inspection, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected, and the requirements for Tagout use as stated in this document are followed.
- Annual procedure inspections are to be filed in the individual department and a copy of the annual inspection are to be sent to Environmental Health and Safety. (Appendix C)

7.0 Recordkeeping

- Records and recordkeeping shall be performed by individual departments that conduct or have responsible for oversight of LOTO.
- Records are to be kept in a location that is secure and accessible to persons overseeing the records for the department.
- Records are to be made available to internal auditors and external agencies
- The following records are to be kept:

Records to be filed	Retention	Department
Departmental Authorized Employee list: Training includes: Classroom and On-The-Job Training	Current Active Authorized Employees	Individual Dept. And EHS
Departmental Completed Determination of Procedures for Equipment for Lockout Tagout Appendix A (Most Current Procedure)	Length of Equipment operation	Individual Dept. responsible for equipment
Departmental Completed Energy Control Procedures for Equipment to be locked and tagged -Appendix B-1	Length of Equipment operation	Individual Dept. responsible for equipment
Departmental Completed Abandoned Lock Removal Authorization Form Appendix D	1 year	Individual Dept. responsible for equipment
Departmental Completed Annual Inspection form for Control of Hazardous Energies Form-Appendix C	3 years	Individual Dept. responsible for equipment
Formal classroom training for Authorized, Affected and Other employees	Length of employees employment plus 3 years	EHS Dept. / Individual department
On the Job Training for authorized employees-Appendix E	Length of employees employment plus 3 years	Individual Dept. and EHS

8. Program Enforcement

Failure to follow the West Virginia University Lockout/Tagout program may result in life threatening or serious injury situations. Failure to lockout or tagout or otherwise not follow the Lockout/Tagout procedures will result in disciplinary action up to and including termination.

9. References

29 CFR OSHA 1910.147 Control of Hazardous Energy

1910.333 Electrical Safe Work Practices

OSHA Directive CPL 02-00-147 2/11/08

10. Program Review

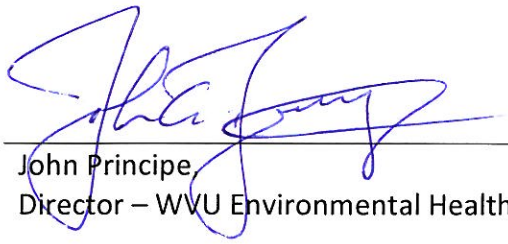
The Control of Hazardous Energy (Lockout/Tagout) Program will be periodically reviewed and updated by the WVU Environmental Safety and Health department and upon WVU process and procedure and external regulatory changes that impact its content. Changes will be indicated upon program revisions made. Changes will be communicated to affected WVU departments.

11. Program Revisions

NA

APPROVAL SIGNATURES

In accordance with 29 CFR 1910.147, the Control of Hazardous Energy (Lockout/Tagout) Program at West Virginia University has been assigned to the Department of Environmental Health and Safety. By signature below, the Control of Hazardous Energy (Lockout/Tagout) Program has been reviewed and approved.



04/24/2015

John Principe, Date
Director – WVU Environmental Health and Safety

APPENDIX A: Lockout Tagout Procedure Determination

WVU need not document the required LOTO procedure for a particular piece of equipment or process, when all of the following elements exist:

(✓) All boxes must be checked in order to utilize the exception!

	1. The equipment or process has no potential for stored or residual energy or re-accumulation of stored energy after shut down which could endanger employees;
	2. The equipment or process has a single energy source which can be readily identified and isolated;
	3. the isolation and locking out of that energy source will completely de-energize and deactivate the equipment or process;
	4. the equipment or process is isolated from that energy source and locked out during servicing and maintenance;
	5. A single lockout device will achieve a locked-out condition;
	6. The lockout device is under the exclusive control of the authorized employee performing servicing or maintenance;
	7. The servicing or maintenance does not create hazards for other employees;
	8. WVU, in utilizing this exception, has had no accidents involving the unexpected activation or re-energization of equipment or process during servicing or maintenance.

APPENDIX B-1

West Virginia University.

Lock-Out Tag-Out Procedure

	# Lockout Points	

Equipment Name: Date:

Process Name: Revision# :

Department: Procedure Approved By:

Location

Purpose: This procedure establishes minimum requirements for the lockout / tagout of the specific equipment/process named above whenever maintenance or service work is performed. The procedure is used to ensure that the equipment or process is at a zero energy state, isolated from all potential hazardous energy sources, and locked out before employees perform any service and maintenance.

Lockout Application Process

1. Notify affected personnel by one of the methods listed below
2. Properly shut down machine.
3. Isolate all energy sources.
4. Apply lockout devices, locks, & tags.
5. Verify total de-energization of all energy sources.

Lock/Tagout Procedure

SHUT DOWN SEQUENCE #	ENERGY SOURCE and MAGNITUDE (Applicable to this machine or equipment)	LOCATION (of Energy Source)	LOCKOUT / TAGOUT PROCEDURE STEPS	VERIFYING STEPS

Additional Notes:

Lockout / Tagout Removal Process

1. Ensure all tools and items have been removed.
2. Confirm that all employees are safely positioned or removed from the area.
3. Verify that equipment controls are in the "Neutral" or "Off" position.
4. Remove Lockout/tagout device--**Only Authorized employee who applied lock/tag may remove it from energy isolation device**.
5. Reenergize the machine or equipment.
6. Notify affected employees that servicing is completed and machine or equipment is ready for use.

APPENDIX B-2: LOCKOUT TAGOUT PROCEDURE ASSISTANCE FORM

Individually Identify each Energy Source

Complete the matrices below for <u>each</u> and energy source. Check <u>all</u> descriptors that apply; complete all blanks with requested information.

1. Energy Source	Magnitude (provide value if possible)	Hazards of Energies Involved	3. Method of Shutdown	Location of Shutdown Mechanism	4. Method to Isolate Energy	Method to Release Residual	5. Method to Lockout	6. Method to Verify
___ Electrical ___Pneumatic ___Chemical ___Mechanical ___UV ___Electromagnetic ___Thermal ___Pressure ___Vacuum ___Radiation Other:_____	___ Volts ___Amps ___Joules ___ lb Force ___ft-lb ___horsepower ___psi ___°F ___°C ___Slight Hazard ___Moderate Hazard ___High Hazard Other:_____	___Shock ___Burn ___Fire ___Crushing ___Laceration ___Flying Debris ___Corrosive ___Toxic ___Reactive ___Impalement ___Strong Field Other:_____	___Stop Button ___Operation Switch ___Close Valve ___Circuit Breaker ___Plug Control Other:_____ _____	___On Top ___On Bottom ___Front ___Behind ___Left (when facing front) ___Right (when facing front) Describe: ____ _____ _____ _____ _____	___Switches ___Breakers ___Single Valve ___Double Valve ___Fuse Blocks ___Shielding ___Flange Plate ___Anti-motion Pin ___Blocking Other:_____	___Disconnect ___Bleed off ___Restrain Other:_____ _____	___Number of Locks ___Number of Tags Other:_____ _____	___Start Button ___Operation Switch ___Open Valve Other:_____ _____
Notes:								

APPENDIX C: Annual Procedure Inspection Form

Facility:	Equipment ID:
Building:	Designated Authorized Employee (Inspector) :
Campus Location:	Date:
Authorized Employees Signature (s):	Affected Employees Signature (s):
1	1
2	2
3	3
4	4
5	5

1. Were all affected employees notified of work to be performed? (Specify method of communication by individuals or leaders for group lockout.)
2. Have affected employee responsibilities been reviewed with them?
3. Does a written procedure exist for the task? a. If yes, was it followed? b. If not, does it need one? c. If not, how did you decide on what to isolate?
4. Did each authorized employee know which energy source(s) need to be isolated?
5. Did employees test the energy isolating device (i.e. disconnect) to be sure it cannot be moved to the "ON" position?
6. Prior to starting work on the machine or equipment that was locked out, did the authorized employee verify by testing that the machine or equipment was de-energized? What method was used to verify?
7. Was the energy isolating device returned to the "OFF" or “Neutral” position following the verification?
8. Did each authorized employee on the job have his or her personal lock and tag attached to the equipment or device? If not, Why?
9. Does everyone involved in the lockout have possession of their own key?
10. Inspector's overall assessment: Did authorized employee understand their responsibilities under the energy control procedures being conducted?

Action Items:	Other Observations

APPENDIX D: Authorized Abandoned Lock Removal Form

Completed forms must be filed in the departmental records for a minimum of 1 Year.

Note: Only Supervisors of the authorized employee may remove abandoned locks.

Lock Owner Name:		Date:
Machine Name & ID #:		Location:
Attempts to contact employee by:	Email ☐ Phone ☐ Other ☐	
Dates/Times:		a.m./ p.m.
Communication with (name):	Time:	a.m./ p.m.
Dean/Director Notified?	Yes ☐ No ☐	Initials:
Repair Completed?	Yes ☐ No ☐	Initials:
Equipment clear to be restarted?	Yes ☐ No ☐	Initials:
Guards replace and functioning?	Yes ☐ No ☐	Initials:
Affected employees notified that equipment ready for restart?	Yes ☐ No ☐	Initials:
Supervisor / Lead must make contact with authorized employee and brief him/her on the status of the service or maintenance project upon the employee's return to work.		Initials:

Verification of employee notification of lock removal

Supervisor's / Lead's Name that completed this form

Name (printed) _____ Signature_____ Date_____

Dean, Director, Departmental Supervisor Authorizing Lock Removal

Name (printed) _____ Signature_____ Date_____

APPENDIX E: Employee On-The-Job Training Checklist

All employees are to be trained on-the-job on the specific knowledge and steps required to safely and effectively follow the lockout procedure for equipment they will be working on. Complete the checklist below during this on-the-job training. Marking an item as complete certifies that the employee can explain the step in its entirety and perform it independently.

Employee:	**Date:**
Equipment Name:	**Equipment Location:**
Building and Campus Location:	**Supervisor:**

Step 1: Notification

Task	Complete (✓)
Employee can identify Affected or Other employees that must be notified when piece of equipment is being serviced.	
Employee can describe the method used to inform these individuals.	

Step 2-6: Individually Identify Each Energy Source, and Applicable Shutdown, Isolation, Residual Energy Release, Lockout, and Verification Procedures

Task	Complete (✓)
Step 2. Employee can identify all energy sources associated with equipment, the magnitude of each energy source, and explain the hazards associated with each source.	
Step 3. Employee can explain and perform the method to shut down each energy source, including the location of shutdown mechanisms.	
Step 4. Employee can explain and perform the method to isolate energy sources, including the equipment used and how to release residual energy(ies).	
Step 5. Employee can explain and perform the method to lockout energy sources.	
Step 6. Employee can explain and perform the method to verify the lockout of each energy source.	

Step 7: Neutralize

Task	Complete (✓)
Employee can explain and perform the method of returning all controls to neutral following the verification of all energy sources.	

Step 5: Complete Servicing and/or Maintenance

Step 9: Release From Lockout/Tagout

Task	Complete (✓)
Employee can explain and perform the method to release equipment from lockout/tagout.	

Employee's Signature
I certify that I am able to describe and perform all of the tasks listed above in their entirety.

_____ Date: _____

Supervisor's Signature
I certify that the employee listed above is able to describe and perform all tasks listed above in their entirety._____ Date: _____

Submit a copy of this completed form to WVU Environmental Health and Safety within 24 Hours to:
ATTN: Roger Wright, PO Box 6551, Rawley Lane – Morgantown WV 26506-6551 or Roger.Wright@mail.wvu.edu

APPENDIX F

EHS Submittal link-For EHS contact, reporting and assistance

http://ehs.wvu.edu/