

# Lockout/Tagout Program–6600-2.0

## Associated OHS Process: General Industry & Construction Safety

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## Table of Contents

1.	Summary.....	4
1.1	Objective .....	4
1.2	Scope.....	4
1.2.1	Program Exclusions.....	4
2.	Regulations & Other Requirements.....	5
2.1	Occupational Safety & Health Administration (OSHA).....	5
2.2	University of Virginia .....	5
3.	Roles and Responsibilities .....	5
3.1	Facilities Management Occupational Health & Safety (FM-OHS).....	5
3.2	Facilities Management Supervisors .....	5
3.3	Facilities Management Employees .....	6
3.3.1	Affected Employees .....	6
3.3.2	Authorized Employees.....	6
3.4	Project Management.....	6
3.5	Contractors .....	7
4.	Lockout/Tagout Program.....	7
4.1	Training & Authorization.....	7
4.1.1	Affected Employees .....	7
4.1.2	Authorized Employee .....	7
4.1.3	Equipment-Specific Training.....	7
4.1.4	Retraining.....	8
4.2	Lockout/Tagout Equipment .....	8
4.2.1	Locks.....	8
4.2.2	Tags .....	8
4.2.3	Lockout/Tagout Devices .....	9
4.3	General Lockout/Tagout Procedure.....	9
4.4	Equipment-Specific Lockout/Tagout Procedures .....	9
4.4.1	Group Lockout Procedures .....	10
4.4.2	Shift Change Coordination.....	10
4.4.3	Removing Lockout/Tagout Devices.....	11
4.4.4	Absent Authorized Employee .....	11
4.5	Program Inspection .....	11

**Facilities Management**  
Occupational Health and Safety

5.	Program Review and Recordkeeping.....	12
5.1	Program Review.....	12
5.2	LOTO Records .....	12
5.2.1	Records Maintained by Supervisors.....	12
5.2.2	Records Maintained by FM-OHS .....	12
5.3	Program Recordkeeping .....	12
	Appendix A: Definitions.....	13
	Appendix B: Acronyms.....	15
	Appendix C.1: LOTO Equipment-Specific Project Summary Form.....	16
	Appendix C.2: LOTO Contractor Notification Form.....	19
	Appendix C.3: LOTO Inspection Checklist.....	20

## 1. Summary

The Lockout/Tagout (LOTO) procedures described in this document are designed to prevent a hazardous release of energy during all servicing, maintenance, and modification of equipment and fixtures that contain hazardous energy. These procedures must be followed when it is necessary to service any equipment that may release hazardous energy. Hazardous energy includes any of the following; electrical, hydraulic, pneumatic, thermal, chemical, moving parts, and any other form of energy that presents a physical hazard. The control of hazardous energy will be accomplished by locking and tagging out energy isolation devices and otherwise disabling equipment prior to service or repair. All sources of hazardous energy must be identified prior to and controlled during the servicing of equipment.

### 1.1 Objective

This Lockout/Tagout Program provides policies and procedures to ensure the safety of University of Virginia (UVA) Facilities Management (FM) employees. Contractors operating at UVA are also required to understand the contents of the program and to ensure their employees are properly trained in LOTO and have all of the necessary equipment for their LOTO-related operations.

The purpose of this program is to establish procedures for affixing appropriate lockout and tagout devices to energy isolation devices and to otherwise disable machines or equipment to prevent unexpected re-energizing, start up, or energy release to protect employees from injury during the servicing of equipment.

### 1.2 Scope

This program applies to all UVA FM employees. This program describes required training programs, LOTO procedures, and inspection protocols that must be followed when working with energized equipment. Normal operations are not covered under this program unless:

- An employee is required to remove or bypass a guard or other safety device; or
- An employee is required to place any part of his or her body into an area on a machine or piece of equipment where work is actually performed upon the material being processed (point of operation) or where an associated danger zone exists during a machine operation cycle.

#### 1.2.1 Program Exclusions

- a) Normal production operations are not covered by this program if they are routine, repetitive, and integral to the use of the equipment for production purposes provided that the work is performed using alternative measures that provide effective protection. Examples of alternative measures that might offer effective protection would include light curtains, sensing devices, safety interlocks, or the use of extension tools.
- b) Normal production operations are covered by this program if one of the following conditions exists:
  - Work on cord and plug-connected equipment is not covered by this policy if unplugging the equipment controls all energy and the plug remains under the continuous control of the employee performing the service work
  - Hot tap operations involving transmission and distribution systems are not covered by this policy if the supervisor of the work demonstrates that (1) continuity of service is essential, (2) shutdown of the system is impractical, and (3) documented procedures offering effective protection are followed.

## 2. Regulations & Other Requirements

### 2.1 Occupational Safety & Health Administration (OSHA)

This Lockout/Tagout Program complies with OSHA 29 CFR 1910.147, *The Control of Hazardous Energy (Lockout/Tagout)*.

### 2.2 University of Virginia

This Lockout/Tagout Program complies with UVA-FM requirements.

## 3. Roles and Responsibilities

### 3.1 Facilities Management Occupational Health & Safety (FM-OHS)

- a) Develop, administer, and review this Lockout/Tagout Program
- b) Assist supervisors in implementing the provisions of the LOTO Program
- c) Coordinate or provide LOTO training
- d) Periodically audit and update the LOTO Program as needed
- e) Provide LOTO Program documents and updates as necessary to work areas and supervisors who oversee areas, equipment, or employees subject to the LOTO Program
- f) Evaluate lockout devices to make sure they are adequate for the task at hand
- g) Conduct JSA upon request to assist with program compliance
- h) Assist supervisors with periodic assessment of personnel

### 3.2 Facilities Management Supervisors

Supervisors are ultimately responsible for ensuring that this LOTO Program is implemented and followed by the employees under their supervision. Specific responsibilities are to:

- a) Be familiar with the contents of the LOTO Program and how to apply it
- b) Maintain a list of Authorized Employees under their supervision and make the list available to shift supervisors
- c) Maintain records in accordance with the LOTO Program directives
- d) Provide a list of Authorized Employees to FM-OHS and notify of any changes
- e) Coordinate implementation of the LOTO Program within their work area(s) and whenever working collaboratively with a contractor
- f) Ensure contractors do not remove or replace the devices causing disruption to the LOTO program and are in compliance with FM LOTO program, state, and federal regulations and notify the Project Manager if contractors are on site that are not in compliance
- g) Ensure required LOTO training is provided to employees within the work area(s)
- h) Annually evaluate each Authorized Employee and provide FM-OHS a copy of the evaluation
- i) Develop equipment-specific LOTO procedures for equipment with their work area(s) or for equipment serviced by their employees (Section 7.0). One example of software that can be used to facilitate this process is BRADYLINK360, currently utilized by the Chiller Plant Team.
- j) Ensure that the records outlined in Section 8 of this document are maintained for their work area(s) and employees
- k) Ensure employees comply with all provisions of the LOTO Program
- l) Ensure employees are trained on equipment-specific LOTO procedures
- m) Assist in the investigation of injuries and incidents involving LOTO in their work area(s)

**Facilities Management**  
Occupational Health and Safety

- n) Ensure employees are provided with LOTO kits containing adequately stocked locks, tags, lockout devices and LOTO cards
- o) Complete periodic LOTO inspections in accordance with FM's LOTO Program and notify FM-OHS of changes
- p) Take prompt corrective action when unsafe LOTO conditions or practices are observed
- q) Ensure LOTO equipment is collected from employees before exiting employment
- r) Not allow unauthorized employees to operate LOTO devices

**3.3 Facilities Management Employees****3.3.1 Affected Employees**

Affected Employees are those employees who participate in activities that may be restricted, interrupted, or otherwise affected by LOTO procedures and will be trained in the purpose and importance of LOTO. Affected Employees must:

- a) Be familiar with LOTO procedures and equipment and understand their applicability and purpose
- b) Do not remove LOTO devices
- c) Do not attempt to restart, use, or energize equipment that possesses a LOTO device

**3.3.2 Authorized Employees**

Authorized Employees are those employees who are expected to follow FM's LOTO Program and will be trained in the purpose and use of LOTO procedures, the recognition of hazardous energy sources, the types and magnitude of hazardous energy sources expected to be encountered, and the methods that are necessary for proper energy isolation and control. Authorized employees are responsible for the following:

- a) Be familiar with this LOTO Program and comply with all provisions of the program
- b) Completing the LOTO Equipment-specific Project Summary Form and Inspection Checklist for each LOTO project
- c) Attending LOTO training, equipment-specific training, and retraining sessions as necessary.
- d) Participating in periodic inspections
- e) Promptly reporting any concerns related to LOTO to their immediate supervisor or FM OHS
- f) Promptly reporting any missing or damaged LOTO devices to their immediate supervisor or FM-OHS
- g) Recognizing hazardous energy sources
- h) Understanding the various methods and means necessary for energy isolation and control
- i) Understanding the applicability, use, and differences between lockout and tagout devices
- j) Returning LOTO kits to their supervisor upon exiting employment with the University
- k) Ensuring locks are identifiable when applied by using the tags provided

**3.4 Project Management**

UVA Project Managers (PM), Construction Project Coordinators, Construction Superintendents, and Contract Administration Managers (CAM) are responsible for ensuring that contractors comply with LOTO regulations while working on UVA property, if UVA personnel may be affected by the work requiring LOTO. Specific responsibilities are to:

- a) Review FM's LOTO Program with contractors whenever the contractors work will impact UVA personnel.

- b) Document the review of the LOTO Program with contract personnel using the LOTO Contractor Notification Form (Appendix C.2) and maintain this documentation in the project records.

### **3.5 Contractors**

- a) Contractors are responsible for ensuring that their personnel understand and comply with the requirements of OSHA standard 29 CFR 1910.147.
- b) Whenever contract personnel are engaged in activities covered by LOTO regulations, the UVA Project Management and the contract employer shall inform each other of their respective LOTO procedures.
- c) The exchange of LOTO procedures between FM and the contract employer must take place before beginning any service activities subject to LOTO and recorded using the FM LOTO Contractor Notification Form, available in Appendix C.2. A copy of this form must be retained by FM and kept on file for one year for review by FM-OHS.

## **4. Lockout/Tagout Program**

FM-OHS will make available written copies of this LOTO Program to all Authorized Employees, Affected Employees, and their supervisors. The LOTO program includes a written program, training, and recordkeeping procedures. The written program will provide guidance on how to complete the various forms required by this LOTO Program and the procedures that are to be followed when conducting a LOTO project.

### **4.1 Training & Authorization**

The level of LOTO training provided to employees is based on their level of involvement with energized equipment and LOTO procedures.

#### **4.1.1 Affected Employees**

- a) All Affected Employees will receive training in the purpose and use of the energy control procedures and the prohibitions against attempts to restart or reenergize machines or equipment which are locked out or tagged out.

#### **4.1.2 Authorized Employee**

- a) Each Authorized Employee will receive formal training upon initial assignment to a position that requires the use of LOTO procedures. Training must include:
  - Recognition of hazardous energy sources.
  - The type and magnitude of hazardous energy sources within their work area.
  - Care, use, design, and application of lockout devices.
  - Applicability, completion, and limitations of tagout devices
  - Methods, means, and FM's LOTO Program procedures for energy isolation and control.

#### **4.1.3 Equipment-Specific Training**

- a) Supervisors must review equipment-specific LOTO procedures with each employee prior to beginning work on equipment unfamiliar to the employee(s). This may be accomplished by reviewing the LOTO Equipment-specific Project Summary Form on site with the employee(s) immediately prior to beginning a LOTO project.

- b) Supervisors must maintain a list of the Authorized Employees under their supervision and a corresponding list of equipment on which they have been trained.

#### 4.1.4 Retraining

- a) Retraining will be provided for all Authorized and Affected Employees whenever there is a relevant change in job assignment, a change in machines, equipment or process that presents a new hazard, or when there is a change in energy control procedures.
- b) Retraining must establish employee proficiency and introduce new or revised control methods and procedures as necessary.
- c) Additional retraining must be conducted whenever a periodic inspection or work activities reveal deviations or inadequacies in the knowledge or use of energy control procedures.

#### 4.2 Lockout/Tagout Equipment

- a) Tags are required for all LOTO activities.
- b) Where possible, a locking device shall be utilized to control energy sources. In the event all possible locking options have been exhausted, it is acceptable to use a tag only, for example, if there is no physical way to affix a lock.
- c) LOTO devices must be used in accordance with the LOTO procedures specified in this document and recorded on the LOTO Equipment-specific Project Summary Form (Appendix C.1).

##### 4.2.1 Locks

- a) Before servicing equipment, a lock must be affixed to each energy isolation device that is capable of being locked or is equipped with a mechanism that will accept a lock.
- b) Lockout devices must remain in place throughout the service of the equipment and may only be removed when service is completed by the Authorized Employee who affixed the lock.
- c) Supervisors are responsible for ensuring that an adequate supply of lockout and tagout devices is available to Authorized Employees.
- d) All locks for LOTO projects will be provided to the Authorized Employees. No personal locks are to be used for UVA LOTO projects.
- e) All locks shall be standardized, individually numbered, keyed, and must identify the employee to whom it is assigned. If duplicate keys exist for the same lock, an effective system must be established for management of the keys.
- f) Locks and keys are for the exclusive use of the holder and may not be loaned to other employees for any reason.
- g) Locks may not be used for any other purpose than LOTO projects.
- h) Locks may not be removed by any alternative means other than employee or supervisor keys.

##### 4.2.2 Tags

- a) A tag must be used at all energy isolation points to identify the person who placed the tag, his/her contact information, reason for the LOTO and date/time of expected return-to-service.
- b) If an energy isolation device will not accept a lock, a tagout device must be securely affixed to each isolation point of the device.
- c) Tagout devices are to be treated with the same respect as locks. They may never be bypassed and may only be removed by the Authorized Employee who applied them.



- d) It must be documented on the LOTO Equipment-specific Project Summary Form why a lock could not be used and how a tagout device is capable of providing the same level of protection as a lockout device.
- e) Tagout devices must remain in place throughout the service of the equipment and may only be removed when service is completed by the Authorized Employee who affixed the tag.

#### 4.2.3 Lockout/Tagout Devices

LOTO devices include such items as multiple lockout hasps, valve enclosures, circuit-breaker lockouts, chains, plug enclosures, and other devices that enable use of a lock and tag where a lock cannot normally be applied.

- a) Supervisors are responsible for ensuring that an adequate supply of supplemental LOTO equipment appropriate for the tasks encountered is made available to Authorized Employees.
- b) LOTO devices need not be specifically assigned to each Authorized Employee; rather, this equipment may be shared so long as it is maintained and used correctly.
- c) LOTO devices, while in use, must always be secured with a lock and a tag.

#### 4.3 General Lockout/Tagout Procedure

The following general steps will be taken by FM employees when locking and tagging out equipment:

- 1) **Notify Others:** The Authorized Employee completing the servicing must verbally notify all Affected Employees of the impending equipment shutdown.
- 2) **Shutdown Equipment:** If the equipment is running, it must be shutdown using normal shutdown procedures
- 3) **Identify All Energy Sources:** All electrical, hydraulic, pneumatic, and other energy sources feeding the equipment must be identified. Any questionable identification of energy sources should be clarified with the supervisor prior to beginning work.
- 4) **Isolate Equipment from Energy Sources:** Once the equipment has been shut down, all energy isolation devices must be operated so that the equipment is disconnected from its energy sources. (e.g., turn electrical disconnects to “Off” or “Safe” position; open electrical circuit breakers; close hydraulic valves; close pneumatic valves, etc.)
- 5) **Lockout/tagout the Equipment:** Locks, lockout, and/or tagout devices must be affixed to each energy isolation device in order to prevent the transmission of energy. A tag indicating the lock holder and the date of application **MUST** accompany each lock. A tag should also be placed near the equipment’s point of operation if it is located remotely from the energy isolation device(s).
- 6) **Release or Block Stored Energy:** After the equipment has been isolated and locked/tagged out, all stored energy must be safely controlled. The appropriate bleeding or blocking methods must be used to dissipate stored energy sources (such as hydraulic pressure, pneumatic pressure, steam pressure, suspended parts, spring-driven parts, etc.).
- 7) **Verify Isolation of Equipment:** Prior to beginning any service work, the Authorized Employee must attempt to restart the equipment using the normal starting procedure or otherwise ensure the effectiveness of the lockout. Operational controls must be returned to the “off” position after a restart attempt has been completed.
- 8) **Perform Required Servicing:** During the completion of service work, employees must avoid doing anything that could potentially reactivate the equipment.

#### 4.4 Equipment-Specific Lockout/Tagout Procedures

Facilities Management  
Occupational Health and Safety

- a) Supervisors are responsible for completing a LOTO Equipment-Specific Project Summary Form (Appendix C.1) for equipment serviced by their personnel and regulated under LOTO regulations.
- b) Equipment-specific procedures shall identify the unique shut down procedures, energy sources, energy release and blocking precautions, and methods of isolation that an Authorized Employee must know in order to effectively control hazardous energy sources.
- c) If equipment-specific information is the same for various machines or equipment or if another means of logical grouping exists, then a single LOTO Equipment-specific Project Summary Form may be sufficient.
- d) Equipment-specific procedures DO NOT need to be documented for equipment that meets all of the following conditions:
  - 1) The equipment has no potential for stored or residual energy or re-accumulation of stored energy after shut down which could endanger employees
  - 2) The equipment has a single energy source which can be readily identified and isolated
  - 3) The isolation and lockout of the energy source will completely de-energized and deactivate the equipment
  - 4) The equipment is isolated from the energy source and locked out during service or maintenance
  - 5) A single lockout device will achieve a lockout condition
  - 6) The lockout device is under the exclusive control of the employee working on the equipment
  - 7) Service and/or maintenance does not create hazards for other employees
- e) If the employer has any accidents involving the unexpected re-energizing or reactivation of equipment during servicing while using this exception (d), this exemption may no longer be utilized.
- f) The LOTO Equipment-Specific Project Summary Form must be kept on file and available to the appropriate Authorized Employees.

**4.4.1 Group Lockout Procedures**

- a) When more than one Authorized Employee is servicing a single piece of equipment, each employee must have their own LOTO device secured to each energy isolation device. This can be accomplished by utilizing a hasp designed to accept multiple locks.
- b) During group lockouts, one group member shall be assigned responsibility for ensuring that all steps of the general LOTO procedure described above are followed. This person will be the LOTO Project Supervisor. This person shall affix a hasp to each energy isolation device. All Authorized Employees involved in the servicing must then affix their own locks and tags to each hasp.
- c) Employees shall remove their own locks and tags after they have completed their portion of the work. The LOTO authorized task lead shall always remove their locks and tags last. Once this has been done, the LOTO Project Supervisor is then responsible for ensuring the equipment is energized in accordance with proper procedure.

**4.4.2 Shift Change Coordination**

- a) LOTO protection must not be interrupted when servicing lasts longer than one shift. If the equipment is the sole responsibility of Authorized Employees on a single shift, locks and tags shall be left in place until the servicing is complete. If it is necessary for servicing to continue into the next shift, the oncoming employee shall affix their LOTO devices to each energy isolation device prior to the outgoing employee(s) removing their LOTO device(s).
- b) Alternative shift change procedures must be approved by the appropriate supervisor. Such procedures must ensure continuity of LOTO protection for all employees.

#### 4.4.3 Removing Lockout/Tagout Devices

- a) Before lockout or tagout devices are removed and energy is restored to the machine or equipment, an Authorized Employee must observe the following steps:
  - Ensure that all tools, parts, equipment and non-essential work materials are removed.
  - Ensure that the machine components are correctly replaced and intact.
  - Check the work area to ensure that all employees have left the area and are in a safe position.
  - Remove the lock, tag, and any device that has been utilized to facilitate the LOTO. **Only the employee(s) who applied the lockout or tagout device may remove their LOTO device when work is complete.**
  - After LOTO equipment is removed and before equipment is energized, notify all affected employees that the LOTO devices have been removed.
  - Energize equipment and proceed with testing.
- b) The equipment must be de-energized and locked out or tagged out if further service or testing is required.

#### 4.4.4 Absent Authorized Employee

If the employee that placed a LOTO device is not present at the time the LOTO devices are removed prior to re-energizing, only their supervisor may remove the lock so long as the following steps are observed:

- 1) The supervisor must confirm that the employee is not at the facility. If the employee is on-site only they may remove their LOTO device. All work must wait until that employee arrives to remove their LOTO device
- 2) The supervisor must attempt to make contact with the employee before the employee's LOTO device is removed. The attempt at getting employee consent must be documented on the LOTO Equipment-specific Project Summary Form.
- 3) The supervisor must visually inspect the work area to ensure that all employees have vacated the area and are in a safe location.
- 4) In a group LOTO situation, all employees who applied a LOTO device, besides the absent employee, must be present or otherwise accounted for when the absent employee's LOTO device is removed by the supervisor.
- 5) In the event that the employee cannot be reached prior to removing their LOTO device and a reasonable effort has been made the supervisor must ensure that the employee is notified before they resume work at the facility.

#### 4.5 Program Inspection

- a) FM OHS will conduct routine inspections of the LOTO Program. The inspection will include a formal review of LOTO practices, LOTO records, and LOTO equipment. Any deficiencies and/or recommended improvements will be provided in writing to the appropriate supervisor. FM OHS will make modifications to the written LOTO Program when necessary.
- b) Supervisors of Authorized Employees are responsible for completing periodic inspections on at least an annual basis in order to ensure adherence to the LOTO procedures described in this LOTO Program.
  - Periodic inspections must be conducted during an actual LOTO project for all Authorized Employees.

- Inspections will focus on correcting any deviations from FM LOTO procedures and identifying additional training or retraining needs.
- LOTO inspections will be conducted using the LOTO Inspection Checklist found in Appendix C.3. Completed LOTO Inspection Checklists must be kept on file.

## **5. Program Review and Recordkeeping**

### **5.1 Program Review**

This LOTO Program shall be reviewed and updated at least annually and whenever necessary to reflect changes in UVA FM policies or procedures, industry standards, or government regulations.

### **5.2 LOTO Records**

#### **5.2.1 Records Maintained by Supervisors**

Supervisors are responsible for maintaining the following records in order to meet the requirements of the LOTO Program:

- LOTO Employee Training Record
- LOTO Equipment-specific Project Summary Form
- LOTO Contractor Notification Form
- LOTO Inspection Checklist
- LOTO Equipment-specific Procedures developed for their respective area along with annual audits of these procedures

Records maintained by supervisors must be available for review

#### **5.2.2 Records Maintained by FM-OHS**

FM-OHS is responsible for maintaining the following records in order to meet the requirements of this program:

- Records of all LOTO training
- Records of any evaluations and inspections completed to assess the effectiveness of this program

### **5.3 Program Recordkeeping**

Records of this LOTO Program will be considered obsolete when the new version is issued. Obsolete versions will be destroyed after three years.

## Appendix A: Definitions

**Affected Employee** means 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** means an approved person who locks out or tags out machines or equipment in order to perform servicing or maintenance on that machine or equipment. An Affected Employee becomes an Authorized Employee when that employee's duties include performing servicing or maintenance covered under this section.

**Blanking or Blinding** means the absolute closure of a pipe, line, or duct by the fastening of a solid plate (such as a spectacle blind or a skillet blind) that completely covers the bore and that is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate. Thickness and material shall conform to ASME B31.1 See Table.

**Capable of being locked out** means an energy isolating device is capable of being locked out if it has a hasp or other means of affixment 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.

**Employee** means a person who works for the university full-time or part-time and is paid through the university's payroll system or receives compensation in any form from the university.

**Energized** means connected to an energy source or containing residual or stored energy.

**Energy isolating device** means 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. Energy isolating devices also include devices used to affix locks and tags to single- or double-pole circuit-breakers, ball valves, inline switches, electrical plugs and other equipment that is not equipped with the capability of lock/tag affixment. Push buttons, selector switches and other control circuit type devices are not energy isolating devices.

**Energy source** means any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

**Hot tap** means 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.

**Lockout** means 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.

**LOTO Lock** means a mechanism for affixing that utilizes a key, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment.

**LOTO Project Supervisor** means one group member shall be assigned responsibility for ensuring that all steps of the general LOTO procedure described above are followed

**LOTO Tag** means a prominent warning and communication device which can be securely affixed 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 tag is removed. LOTO tags are standardized and provided by the employer. The owner and contact information must be listed on LOTO tags.

**Multiple Lockout Hasps** means devices that enable more than one authorized employee to participate in a LOTO simultaneously.

**Normal production operations** means the utilization of a machine or equipment to perform its intended production function.

**Personal Lock** means locks that belong to an individual. Personal locks shall have a single key that is maintained by the respective individual.

**Servicing and/or maintenance** means 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** re-energizing or startup of the equipment or release of hazardous energy.

**Shop Locks** means locks that are managed by a specific business unit for the purpose of protecting or securing equipment. Keys to these locks are managed by the respective shop supervisor.

**System Locks** means locks used for securing a large/complex system requiring several locks to complete the lockout tagout process. System locks may be keyed alike, but duplicate keys are not permitted. When the system locks are in place, the key must be secured in a suitable lock box by personal and/or shop locks.

**Supervisor** means the individual responsible for managing, directing, and evaluating the work of another.

**Tagout** means 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.

**Appendix B: Acronyms**

CFR: Code of Federal Regulations

EHS: Environmental Health and Safety Office

FM: Facilities Management

LOTO: Lockout/Tagout

OHS: Occupational Health and Safety

OSHA: Occupational Safety & Health Administration

UVA: University of Virginia

VAC: Virginia Administrative Code

VOSH: Virginia Occupational Safety and Health

**Appendix C.1: LOTO Equipment-Specific Project Summary Form**

UVA FACILITIES MANAGEMENT LOTO EQUIPMENT-SPECIFIC PROJECT SUMMARY	
Date:	Time:
Location:	Supervisor:
Equipment:	
Manufacturer:	Model:
Description of Work:	

**Section 1: Authorized Employees**

Authorized Employees must have LOTO training and have equipment-specific training for the equipment involved in this project.

	Last Name	First Name	Appropriate Training
1.			<input type="checkbox"/> Yes <input type="checkbox"/> No
2.			<input type="checkbox"/> Yes <input type="checkbox"/> No
3.			<input type="checkbox"/> Yes <input type="checkbox"/> No
4.			<input type="checkbox"/> Yes <input type="checkbox"/> No

**Section 2: Affected Employees**

The Authorized Employee completing the servicing must verbally notify all Affected Employees of the equipment shutdown.

	Last Name	First Name	Notified
1.			<input type="checkbox"/> Yes <input type="checkbox"/> No
2.			<input type="checkbox"/> Yes <input type="checkbox"/> No
3.			<input type="checkbox"/> Yes <input type="checkbox"/> No
4.			<input type="checkbox"/> Yes <input type="checkbox"/> No

**Section 3: Shutdown Equipment**

Equipment must be shut down using the normal stopping procedures. (Example: depress "stop" button, open toggle switch, etc.)

	Location of Controls	Action	Completed
1.			<input type="checkbox"/> Yes <input type="checkbox"/> No
2.			<input type="checkbox"/> Yes <input type="checkbox"/> No
3.			<input type="checkbox"/> Yes <input type="checkbox"/> No
4.			<input type="checkbox"/> Yes <input type="checkbox"/> No



**Section 4: Identify and Isolate All Energy Sources**

All electrical, hydraulic, pneumatic, and other energy sources feeding the equipment must be identified. Questionable energy sources should be clarified with the supervisor prior to beginning work. Once the equipment has been shut down, all energy isolation devices must be tuned off, closed, or disconnected. (Example: Turn electrical disconnects to “Off” or “Safe” position; open electrical circuit breakers; close hydraulic valves; close pneumatic valves, etc.)

Energy Source				
	Name/Location	Energy Type	Isolated	Method of Isolation
1.			<input type="checkbox"/> Yes <input type="checkbox"/> No	
2.			<input type="checkbox"/> Yes <input type="checkbox"/> No	
3.			<input type="checkbox"/> Yes <input type="checkbox"/> No	
4.			<input type="checkbox"/> Yes <input type="checkbox"/> No	

**Section 5: Unique Hazards**

Identify any hazards that may cause harm but cannot be controlled by lockout/tagout procedures.

	Hazard	Method of Control
1.		
2.		
3.		
4.		

**Section 6: Lockout/Tagout the Equipment**

Locks, lockout, and/or tagout devices must be affixed to each energy isolation device in order to prevent the transmission of energy. A tag indicating the lock holder and the date of application must accompany each lock. A tag should also be placed near the equipment’s point of operation if it is located remotely from the energy isolation device(s).

	Name/Location	Lockout	Tagout	Group Lockout/Tagout
1.		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
2.		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
3.		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No
4.		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	<input type="checkbox"/> Yes <input type="checkbox"/> No

### Section 7: Release of Block Stored Energy

After the equipment has been isolated and locked/tagged out, all stored energy must be safely controlled. The appropriate bleeding or blocking methods must be used to dissipate stored energy sources such as hydraulic pressure, pneumatic pressure, steam pressure, suspended parts, spring-driven parts, etc.

Energy Source			
	Name/Location	Released	Blocked
1.		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
2.		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
3.		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
4.		<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A

### Section 8: Verify Isolation of Equipment

Prior to beginning work, the authorized employee must attempt to restart the equipment using the normal starting procedure or otherwise ensure the effectiveness of the lockout/tagout procedure. Operational controls must be returned to the "Off" position after a restart attempt has been completed.

Equipment		
	Name	Verification
1.		<input type="checkbox"/> Yes <input type="checkbox"/> No
2.		<input type="checkbox"/> Yes <input type="checkbox"/> No
3.		<input type="checkbox"/> Yes <input type="checkbox"/> No
4.		<input type="checkbox"/> Yes <input type="checkbox"/> No

### Section 9: Removing LOTO Devices and Start-Up Procedure

The following steps must be observed prior to reenergizing or starting equipment.

1.	Ensure that all tools, parts, equipment and non-essential work materials are removed	<input type="checkbox"/> Yes <input type="checkbox"/> No
2.	Ensure that the machine components are correctly replaced and intact	<input type="checkbox"/> Yes <input type="checkbox"/> No
3.	Check the work area to ensure that all employees have left the area and are in a safe position	<input type="checkbox"/> Yes <input type="checkbox"/> No
4.	Remove LOTO device(s). Only the employee(s) who applied the LOTO device may remove that device(s).	<input type="checkbox"/> Yes <input type="checkbox"/> No
5.	Notify all Authorized and Affected Employees that LOTO device(s) have been removed	<input type="checkbox"/> Yes <input type="checkbox"/> No
6.	Energize equipment and proceed with testing	<input type="checkbox"/> Yes <input type="checkbox"/> No

**Appendix C.2: LOTO Contractor Notification Form**

UVA FACILITIES MANAGEMENT CONTRACTOR LOTO NOTIFICATION FORM							
Contractor	Contractor Contact Last Name	Contractor Contact First Name	LOTO Project	Contractor Signature	University Representative Signature	Review LOTO Program	Date
						<input type="checkbox"/> Yes <input type="checkbox"/> No	__/__/__
						<input type="checkbox"/> Yes <input type="checkbox"/> No	__/__/__
						<input type="checkbox"/> Yes <input type="checkbox"/> No	__/__/__
						<input type="checkbox"/> Yes <input type="checkbox"/> No	__/__/__
						<input type="checkbox"/> Yes <input type="checkbox"/> No	__/__/__
						<input type="checkbox"/> Yes <input type="checkbox"/> No	__/__/__
						<input type="checkbox"/> Yes <input type="checkbox"/> No	__/__/__
						<input type="checkbox"/> Yes <input type="checkbox"/> No	__/__/__

**Appendix C.3: LOTO Inspection Checklist**

UVA FACILITIES MANAGEMENT LOTO INSPECTION CHECKLIST	
Date:	Time:
Authorized Employee:	Supervisor:
Description of Work:	

**Section 1: Training**

Employee has received annual LOTO training	<input type="checkbox"/> Yes <input type="checkbox"/> No
Employee has received training on equipment-specific LOTO procedures for the equipment for which they are responsible	<input type="checkbox"/> Yes <input type="checkbox"/> No

**Section 2: Procedure**

Employee begins LOTO project using the <i>LOTO Project Summary Form</i>	<input type="checkbox"/> Yes <input type="checkbox"/> No
Employee verbally notifies all affected employees to include contract employees	<input type="checkbox"/> Yes <input type="checkbox"/> No
Employee correctly shuts down equipment	<input type="checkbox"/> Yes <input type="checkbox"/> No
Employee identifies and isolated all energy sources	<input type="checkbox"/> Yes <input type="checkbox"/> No
Employee affixes LOTO devices correctly	<input type="checkbox"/> Yes <input type="checkbox"/> No
When group LOTO procedures are required, the employee correctly uses group LOTO devices such as a hasp capable of accepting multiple lockout devices	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Employee utilizes both lockout and tagout devices when possible	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Employee effectively releases blocked or stored energy	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Employee attempts to restart or operate the equipment prior to beginning work	<input type="checkbox"/> Yes <input type="checkbox"/> No
Employee identifies unique hazards	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
Employee follows the appropriate LOTO device removal and start up procedures	<input type="checkbox"/> Yes <input type="checkbox"/> No

**Section 3: Equipment**

Employee possesses standardized lockout devices that are consistent with all other UVA Facilities lockout devices in shape, color, or size.	<input type="checkbox"/> Yes <input type="checkbox"/> No
Employee possesses the sole key used to operate lockout devices	<input type="checkbox"/> Yes <input type="checkbox"/> No
Employee's lockout device(s) is(are) in good condition and operate correctly	<input type="checkbox"/> Yes <input type="checkbox"/> No
Employee is provided with an adequate amount of lockout and tagout devices	<input type="checkbox"/> Yes <input type="checkbox"/> No

**Section 4: Conclusion**

Employee demonstrates a proficient knowledge of LOTO procedures and policy	<input type="checkbox"/> Yes <input type="checkbox"/> No
Employee requires retraining or additional equipment-specific training	<input type="checkbox"/> Yes <input type="checkbox"/> No
Employee requires new or additional LOTO devices	<input type="checkbox"/> Yes <input type="checkbox"/> No

**Section 5: Comments**

Employee Signature: \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_

Supervisor Signature: \_\_\_\_\_ Date: \_\_\_/\_\_\_/\_\_\_