1.0 PURPOSE:

This policy is designed to protect faculty, staff, students, visitors and contractors from injury by unexpected energizing, startup or release of hazardous energy when equipment, machines or processes are maintained or serviced.

2.0 SCOPE:

This document and its appendices apply to all LSUHSC employees and contractors who maintain, repair, clean, service, or adjust energized machines and/or equipment.

The guidance in this policy applies to lockout only. In rare instances where lockout is not possible and tagout must be used, the supervisor must gain approval from the EHS Executive Director and Facility Services Director, who will review and approve specific tagout procedures before work commences.

3.0 RESPONSIBILITIES:

3.1 Environmental Health and Safety (EHS) Department shall:
- Annually evaluate the energy control program, to include procedures, practices and program documentation.
- Perform random field audits of LOTO operations throughout the year.
- Assist Facility Services department supervisors with the development and review of new LOTO procedures.
- Provide training as required by this policy.
- Assist Facility Services and Construction Coordinators with review of contractor LOTO programs and operations.

3.2 Facility Services Department (FS) Supervisors shall:
- Maintain a list of equipment, machinery, and operations that require the use of LOTO procedures. The file will include the location, description, power source, and primary hazards of equipment/machinery, a list of the primary operators/maintenance personnel, and a list of LOTO equipment that is used and maintained on site. A current copy of the list shall be provided to EHS.
• Develop and distribute equipment/machine specific written LOTO procedures for all hazardous energy sources, as outlined in this procedure, to include equipment which have been modified and requires revised procedures. Notify EHS of procedures developed for new or previously unidentified equipment.

• Ensure that affected and authorized employees are trained in accordance with the requirements of this procedure. Ensure that all applicable new employees receive training prior to being assigned duties as an authorized or affected employee.

• Issue authorized employees all locks, tags (“DANGER: Do Not Operate LOCKOUT/TAGOUT”) and other necessary equipment.

• Periodically inspect lock-out/tag-out (LOTO) operations of authorized employees to ensure compliance with this policy and that work does not pose a hazard to LSUHSC personnel, students and visitors or operations.

• Notify EHS prior to all LOTO operations in order to allow for potential audit of operations.

• Maintain all records required as part of this policy current and available for review.

• Review contractor’s LOTO program and plans with the assistance of EHS.

• Adhere to pre-purchase/use requirements as outlined in this policy.

3.3 Employees shall:

• Comply with the policies and requirements directed by this document.

• Not attempt to start, energize, or otherwise use machines or equipment which is observed to have LOTO devices attached to the machines or equipment or their control devices.

3.4 Associate Director of Engineering and Construction shall:

• Adhere to pre-purchase/use requirements as outlined in this policy.

• Review contractor’s LOTO program and plans with the assistance of EHS.

• Maintain all records required as part of this policy current and available for review.

4.0 IMPLEMENTATION:

This LOTO Policy applies to routine and emergency operations, including:

- Maintenance and servicing of equipment, machines and processes. Activities that include adjusting, constructing, inspecting, installing, maintaining, modifying, servicing or setting up equipment, machines or processes must incorporate the use of LOTO.

- Activities which involve cleaning and lubricating of or removing jams from equipment, machines or processes, or those modifications that require adjustments or tool changes where there is a potential risk to the
employee of accidental or unexpected startup or energization of equipment necessitate the use of LOTO.

- Computer controlled apparatus that might initiate startup or energization of equipment, machinery or processes must also be controlled by LOTO if maintenance or service of that particular equipment, machine or process is required.

This policy does not apply when:

- Minor tool changes, adjustments and servicing activities that are considered part of the normal production operations, provided the work method used incorporates measures that will provide effective means of personal protection.
- Disconnection of cord from a power supply, provided that the cord / plug connection can be seen by the repair or service person during work activities. If the repair or service person must leave the work area while the equipment, machine or process is not operating according to manufacturer's specifications, then the equipment, machine or process must be locked or tagged out to prevent accidental injury or fatality to a potential user.
- The use of a stop button or switch which will not allow accidental activation when performing minor tool changes or adjustments of small, portable equipment.
- Hot tap operations involving the transmission and distribution of materials and substances such as air, electricity, gas, steam or water, if performed on pressurized pipes, as long as it can be demonstrated that:
  - continuity of the energy service is essential
  - shut down of the system is impractical
  - procedures are to be followed that will adequately protect the health and safety of the personnel performing the work
  - out-of-service or discontinuance of service notifications

4.1 General Requirements:

- Systems containing hazardous energy sources shall be de-energized by LOTO prior to any work being performed on electrical conductors, pressurized systems, or any moving equipment such as pumps, motor generator sets, engines, compressors, cranes, and elevators. An exception to this requirement are systems energized for testing or troubleshooting, or for energized electrical work specifically approved by the EHS Executive Director and FS Director.
- Systems containing hazardous energy sources shall be de-energized by LOTO prior to the removal or disabling of guards or interlocks and performance of maintenance, repair or any other activity potentially putting personnel at risk.
- Affected employees shall be notified prior to commencement of LOTO operations and remain clear of LOTO equipment, machinery and processes at...
all times; not attempt to operate equipment, machinery and processes under 
LOTO; and shall never tamper with the applied LOTO devices.

- All documentation associated with the performance of LOTO operations shall 
be maintained and available for review by EHS in order to facilitate program 
review requirements.
- LOTO operations shall be completed in accordance with the General LOTO 
procedure (Appendix A).
- Equipment/machine specific written LOTO procedures shall be developed to 
augment the general procedure elements and clearly and specifically outline 
the scope and methods for completing LOTO operations for each individual 
equipment/machine.
  - The equipment/machine specific LOTO procedures shall be documented 
on a Lockout Tagout Procedure Card (Appendix B).
  - Procedure cards shall be attached directly to the associated 
equipment/machine. Copies of the procedure cards will be maintained by 
FS and accessible for duplication, as necessary.
  - When a LOTO equipment specific procedure is not available, one shall be 
completed by FS supervision, and reviewed by EHS.
- No employee shall perform LOTO without the use of the Lockout Tagout 
Procedure Card.

**Note: Exception:** A procedure card is not required, when all of the following 
elements exist: (1) The machine or equipment has no potential for stored or 
residual energy or re-accumulation of stored energy after shut down which 
could endanger employees; (2) the machine or equipment 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 machine or equipment; (4) the machine or equipment is isolated from that 
energy source and locked out during servicing or 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 the 
servicing or maintenance; (7) the servicing or maintenance does not create 
hazards for other employees; and (8) in utilizing this exception, there has been 
no accidents involving the unexpected activation or re-energization of the 
machine or equipment during servicing or maintenance.

- In rare situations, an authorized employee may find an energy device that is 
incapable of being locked out. The authorized employee, in coordination with 
the assistance of supervision, shall make every effort to add the necessary 
apparatus to lock the energy device. Tagout alone shall not be permitted if the 
system has the capability of being locked out. The use of tagout alone shall 
only be permitted upon the development of work/site specific tagout 
procedures for which the supervisor has gained approval from the EHS 
Executive Director and FS Director. Tagout procedures shall be written to 
incorporate all tagout provisions identified with the 29 CFR 1910.147.
• If tagout alone is used for control, the procedure shall be demonstrated to be at least as protective as the use of lockout measures.
• “DANGER: Do Not Operate LOCKOUT/TAGOUT” tags shall clearly advise personnel that operation, movement or energizing equipment/machinery systems is prohibited. Tags shall be attached with a self locking tie wrap device, with a minimum breaking strength of 50 pounds. When tags are used alone, they shall be clearly visible on the component controlling the energy source and located in the same position as a lock would be located.
• Lock out is not required if all sources of energy can be removed by unplugging a single power source and the plug is under the exclusive and constant control of the authorized person.

4.2 Equipment
• All locks, tags and other necessary equipment, e.g., test equipment (meter, test lamp, pressure gauge), wall switch lockout devices, valve covers, plug locks, chain lengths, appropriate signs, etc., for performing LOTO will be supplied by LSUHSC. Each shop within FS shall have a unique color coded lock. The locks will be assigned by color and shop.
• All authorized employees shall have two locks and tags assigned to them. The authorized employees shall have self sticking labels attached to their locks. These labels shall contain the authorized employee’s name for identification purposes.
• Tags shall be attached to the lock and the authorized employee shall identify himself and what device is being locked out.
• FS supervisors shall maintain hasps for use in group LOTO operations.
• Sharing of assigned locks and tags is strictly forbidden.
• Locks and tags cannot be used for purposes other than LOTO and must be standardized in color, shape or size. Only one key per lock is allowed, except that a spare key will be allowed for device removal and shall be kept in a secured location and under the control a FS supervisor designated by the FS Director.

4.3 Pre-purchase/use Analysis
• New equipment/systems shall be evaluated prior to purchase to ensure that a lock device can be applied. No equipment/systems shall be procured unless capable of being locked out.
• New equipment/systems shall be evaluated to ensure that machine specific written LOTO procedures are developed and documented prior to activation.
• Prior to the replacement, major repair, renovation, or modification of equipment or machinery, energy isolation devices shall be designed to accept Lockout Devices.
4.4 Contractors
Contractors must comply with OSHA 1910.147, The Control of Hazardous Energy (LOTO), procedures. LOTO is also referenced in the LSUHSC Contractor Safety Guidebook. Prior to any maintenance, repair, cleaning, servicing, or adjusting of any energized machines and/or equipment on LSUHSC property, the contractor shall:
- Present a LOTO program to the LSUHSC Contract Manager for review with the assistance of EHS.
- Prior to commencement of work, the contractor shall make appropriate notification to the affected LSUHSC employees via the Contract Manager.
- Notify the Contract Manager upon completion of the LOTO operation.
- The Contract Manager shall notify all affected employees that the LOTO operation is complete.

5.0 TRAINING AND EDUCATION:

5.1 Initial Training
- All authorized and affected employees shall receive initial training.
- Affected employees will not be allowed to perform maintenance, services or other operations that require LOTO until they have been trained to an authorized employee level.
- All new authorized and affected employees shall be trained prior to being assigned duties as an authorized or affected employee.

5.2 Refresher Training
Refresher training will be provided to all affected and authorized employees annually. Retraining of employee(s) will also occur when:
- There is a change with an affected or authorized job assignment.
- There is a change in machine, equipment or process that presents a new hazard.
- There is a change in the LOTO procedure.
- There is reason to believe that there are deviations from or inadequacies in the employee’s knowledge of the procedures.

5.3 Training Elements
Training will consist of:
- Knowledge to recognize hazardous energy sources, the type and magnitude of energy sources at LSUHSC.
- Methods and means for energy isolation control.
- The contents and requirements of the general and representative equipment specific procedures to include when and how to use the procedures.
- Prohibitions identified by the written program and procedures.
6.0 INSPECTIONS AND PROGRAM REVIEW:

FS supervisors shall conduct a periodic inspection of energy control operations to ensure that the requirements and procedures of this policy are being followed and correct any deviations or inadequacies identified. The inspection shall include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected. The inspection shall be performed at least four times annually per shop (e.g., Electrical, Plumbing, Maintenance Repairers, HVAC) and include a review of all authorized employees within the shop. The inspections shall be documented using the LOTO Inspection Form (Appendix C) and ensure the following:

- LOTO Policy and Procedures are being maintained and updated
- LOTO equipment is available for use and in good working condition
- LOTO equipment installed on de-energized equipment is being properly used and maintained
- All affected and authorized personnel have been trained and demonstrate adequate understanding and competency regarding LOTO policy and procedures.

Authorized employee understanding of the LOTO procedures will also be evaluated by EHS during annual refresher training (measured through a written test) and throughout the year as part of random field audits. If at any time there is reason to believe that an employee’s knowledge is inadequate, designation as an authorized employee will be removed and refresher training required. FS shall provide timely notifications of LOTO operations to EHS to allow for performance of field audits.

EHS will perform an annual program review to ensure that the required inspection elements have been completed and necessary program improvements have been implemented.

7.0 RECORDKEEPING:

FS shall maintain copies of inspections, documented on the LOTO Inspection Form (Appendix C), for the current fiscal year and three previous fiscal years and ensure that copies of inspections are provided to EHS at the end of each fiscal year.

An attendance roster (Appendix D) will be used to document LOTO training and annual refresher training. An inventory of all trained personnel and, as applicable for authorized employees, a record of the assigned LOTO equipment shall be maintained by the FS department.
Appendix B will be used to develop LOTO procedures for new or modified machines or equipment and posted on all machines or equipment that requires LOTO. These cards will be re-inspected at least annually.

EHS shall be provided and maintain a copy of all records for a minimum of the current year plus previous three fiscal years.

8.0 REFERENCES:

OSHA 29 CFR 1910.147, Control of Hazardous Energy
OSHA 29 CFR 1926.417, Locking and Tagging of Circuits

9.0 DEFINITIONS:

Affected employee - an employee whose job requires him/her to operate or use a machine or equipment on which servicing or maintenance is being performed under lockout 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 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.

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.

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 utilizing 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.

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

**Servicing and/or maintenance** - workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, 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 energization or startup of the equipment or release of hazardous energy.

**Setting up** - any work performed to prepare a machine or equipment to perform its normal production operation.

**Tagout** - the placement of a tagout device on an energy isolating device, in accordance with an established procedure, to indicate that the energy isolating device and the equipment being controlled may not be operated until the tagout device is removed.

**Tagout device** - a prominent warning device, 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.
10.0 APPENDICES:

Appendix A, LOTO Procedures
  - Enclosure 1 – LOTO Flow Chart
  - Enclosure 2 – Method of Isolating or Blocking Energy
  - Enclosure 3 – LOTO Restoring Machine or Equipment to Service

Appendix B, LOTO Procedure Card Form
Appendix C, LOTO Inspection Form
Appendix D, Hazardous Energy Control Training Roster
LSUHSC Lockout Tagout Procedures

The guidance in this procedure applies to lockout only. In rare instances where lockout is not possible and tagout must be used, the supervisor must gain approval from the EHS Executive Director and Facility Services Director, who will review and approve specific tagout procedures before work commences.

Enclosure 1, LOTO Flow Chart, is a guide that describes the steps to take to LOTO machines or equipment.

Enclosure 2, Method of Isolating or Blocking Energy, describes the different types of energy sources and the devices needed to properly LOTO the machine or equipment.

Enclosure 3, Restoring Machine or Equipment to Service, describes the steps that must be taken to verify LOTO completion, LOTO removal, and restarting the machine or equipment to normal operation.

Isolating Energy Sources: Shutdown (see Enclosures 1 and 2)

Authorized employees assigned a task that requires LOTO during routine or emergency operations must follow this procedure:

1. The employee applying the LOTO must have received training as an authorized employee and follow the machine specific procedure(s).
2. The supervisor must notify the authorized and affected employees that LOTO operations will be commencing on the machine or equipment. Ensure all personnel are familiar with the work site. Conduct a dry run walk through, as necessary.
3. Notification can be verbal, by use of sign, barricade, etc.
4. Shut down the machine or equipment using normal stopping procedure (e.g., activate the stop button). Note that shutting a machine off will not automatically de-energize the entire machine; additional actions are required to block or drain energy sources.
5. Isolate all energy sources by closing, blanking and blinding, or otherwise turning switches/disconnects to the “OFF” or “CLOSED” position. Refer to the equipment specific procedure attached to each machine and piece of equipment to identify and locate all energy sources and their associated disconnects.
If a machine or equipment specific procedure does not exist, notify FS Supervision and EHS that a machine or equipment specific procedure is unavailable.

6. Apply appropriate (color coded) locks and tags to the energy disconnects for each energy source present.

7. Block or dissipate all stored energy in rams, flywheels, springs, pneumatics or hydraulic systems, etc. Note that switch(es), valve(s), or other energy isolating device(s) must be closed so that all energy source(s) (electrical, mechanical, hydraulic, etc.) are disconnected or isolated from the equipment. Stored energy, such as that in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems (e.g., air, gas, steam or water pressure, etc.), must also be dissipated or restrained by methods such as grounding, re-positioning, locking, blocking, draining or other methods that will effectively secure the release of the energy.

8. The presence of a LOTO device/tag on a system or component does not in itself guarantee that the equipment is de-energized, but indicates only that the LOTO tagged disconnect is not to be operated or reconnected to the energy source. Before performing any work, on systems or equipment, employees shall use an appropriate test instrument/procedure to ensure it is de-energized. After assuring no personnel are exposed, attempt activation of all normal operating controls (e.g., push control buttons) to make certain the locked out machine or equipment does not operate. Return all controls to the “NEUTRAL” or “OFF” position after testing.

   Note: Where electrical equipment/circuits have to be exposed to test for energization, Personnel shall ensure the appropriate Arc Flash PPE is worn before testing is attempted.

9. The machine or equipment is now locked out.

Restoring Energy Sources: Start Up (see Enclosure 3)

1. When the assigned repair or servicing task is completed and the machine(s) or equipment is ready for testing or return to service, inspect the equipment/machine to ensure that nonessential items have been removed, e.g., tools, maintenance items, etc.

2. Notify all affected employees to assure that no one will be exposed to danger when the machine or equipment is started up.

3. Replace all guards and reactivate all interlocks to ensure that the locked/tagged machinery components and equipment are operationally intact.

4. Verify that the controls on the machinery or equipment are neutral. If testing the machinery or equipment, as possible, leave the locks and tags in place until testing is completed.
5. Verify that the controls on the machinery or equipment are neutral. If testing the machinery or equipment, as possible, leave the locks and tags in place until testing is completed.
6. When the area is clear and/or testing is complete, remove your locks/tags and de-open all the energy isolating devices to restore energy to the machinery or equipment. Only the person who installed the energy isolating device, lock and tag, is permitted to de-activate and remove them (see “Absent Employee Lock Removal” and “Group Lockout Tagout” deviations to this requirement).
7. Perform any necessary testing of the restored machinery or equipment to ensure it is in operable condition.
8. Notify the management that work is completed and the area has been returned to operational condition.

Absent Employee Device Removal
No employee shall affix or remove the LOTO device of another employee. On rare occasion, when the lock and tag must be removed and the employee who installed the lock and tag is not on campus, every effort must be made to contact that employee. If no contact can be made, then the lock and tag can only be removed by the Supervisor with approval from the Facility Services Director. The employee must be informed upon return to work that their lock and tag was removed.

Shift or Personnel Changes of Lockouts
Some repair and servicing tasks require more than a single shift to complete. To ensure continuity of LOTO protection between off-going and oncoming authorized employees, the following must occur:
• The relieving oncoming authorized worker must install his/her lock to the lockout device before the original lock is removed.
• The designated supervisor must ensure that the transfer task is complete prior to the off-going employee leaving LSUHSC and before the oncoming employee begins work.
• After verification is completed by the designated supervisor, the task may be transferred to the new worker.
• Every time a LOTO site is left unattended, with a planned return during the same shift, the returning crew shall inspect the equipment being serviced to ensure it is still de-energized prior to performing any work on the equipment.

Appendix A
Group Lockout/Tagout

When servicing and/or maintenance are performed by a group of LSUHSC authorized employees, they shall utilize group LOTO, and the following steps shall occur:

- Follow the LOTO general and equipment specific procedures.
- Delegate a supervisor to coordinate a group LOTO. The delegated supervisor’s LOTO device will be the first and last LOTO device removed from the group device.
- Each authorized employee shall affix their personnel LOTO device to the group device when he/she begins work, and shall remove the device when his/her job is finalized.
- If the equipment/system is not physically capable of accepting multiple locks, a single lock may be used, with the key secured in a lockout box or cabinet where the locks of multiple authorized employees affix their own locks and tags. In this case, LOTO Tags for each crew shall be affixed to the equipment/system being locked out, as well as to the box or cabinet securing the LOTO key for the main LOTO lock.
- When all work is complete and the last lock/tag is remaining, the delegated supervisor may remove his lock/tag and follow the LOTO procedures for Restoring Energy Sources Start-up.

Lockout Removal for Testing, Adjustment, or Alignment

- When a Lockout device must be removed to re-energize an equipment/system for testing, alignment, adjustment, etc., the authorized employee removing the LOTO Device shall remain at the location of the lockout for the entire time the lockout is interrupted. Integrity of the LOTO system shall be maintained. If the Lockout is not in the immediate location of the equipment/system being serviced, communication shall be maintained between the technicians and the authorized employee at the LOTO device location.
- Equipment, tools, and personnel shall be cleared from the immediate vicinity of the equipment/system to be energized.
- An authorized employee shall remove the LOTO and remain at the LOTO location while equipment/system is temporarily energized.
- The authorized employee shall notify the affected personnel of the intent to re-energize the system, and then shall re-energize the equipment/system.
- Upon completion of tasks to the energized equipment/system, the authorized employee shall de-energize the equipment/system and reapply full LOTO control measures to enable the continued service to the equipment/system.
Appendix A – Enclosure 1
Lockout/Tagout Flowchart

Equipment or process needs maintenance or service where a lockout is required

Notify all affected employees

Identify the type(s) and magnitude of energy

Follow normal cycle stop or shut down process

Is there a potential for stored or residual energy?

Is system or equipment in operation?

Turn off all operating controls

Isolate energy

Lockout and Tagout the energy isolation point with assigned locks and tags

Dissipate or restrain stored or residual energy

Verify zero energy state by attempting to start-up the operation:
- **Note**: Make sure that no personnel are exposed to process
- **Watch** for movement
- **Check** for lights on control panel that may indicate equipment is still active
- **Listen** for sounds that may indicate the presence of energy
- **Return** operating controls to “OFF” or “NEUTRAL” position

Is there a potential for stored or residual energy?

Is system or equipment in operation?

Is system properly locked out?

The equipment or process is now locked out
# Method of Isolating or Blocking Energy

<table>
<thead>
<tr>
<th>Type of Energy: Mechanical – Rotational/Linear</th>
<th>Type of Energy: Electrical</th>
<th>Type of Energy: Potential (Pressure)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Remove segments of operating mechanical linkages such as dismantling push rods and removing belts or flywheels.</td>
<td>1) Place Main electrical disconnect switch in OFF position.</td>
<td>Close valves and maintain open vent to relieve pressure.</td>
</tr>
<tr>
<td>a) Secure with padlock or a universal valve lockout and padlock. Place linkages in a locked cabinet away from the machine.</td>
<td>a) Secure with padlock or a bar and padlock.</td>
<td>a) Secure with universal valve lock and padlock.</td>
</tr>
<tr>
<td>b) Attach warning tags where the linkages were removed and restrict access to trained personnel.</td>
<td>b) Attach a warning tag and restrict access into the area to trained personnel.</td>
<td>b) Attach warning tags and restrict access to trained personnel.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Types of Energy: Potential (Gravity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2) Use blocking devices such as wood or metal blocks.</td>
</tr>
<tr>
<td>a) Chain and secure by padlock lock at the point of control.</td>
</tr>
<tr>
<td>b) Attach warning tags on the blocking devices and restrict access into the area to trained personnel.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Types of Energy: Potential (Springs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3) Remove power or energy from the driving mechanism such as main disconnect electrical source.</td>
</tr>
<tr>
<td>a) (1) Padlock in the OFF position. (2) Disconnect pneumatic and hydraulic lines and tagout.</td>
</tr>
<tr>
<td>b) Attach warning tags at control points; restrict to trained personnel.</td>
</tr>
<tr>
<td>b) Attach warning tags to the valves and restrict access to area to trained personnel.</td>
</tr>
</tbody>
</table>

Appendix A – Enclosure 2
LOTO Restoring Machine or Equipment to Service

1. Check the machine or equipment and the immediate area to ensure that nonessential items have been removed.
2. Notify all affected employees to assure that no one will be exposed to danger when the machine or equipment is started up.
3. Ensure that the machine or equipment components are operationally intact. Replace all guards and reactivate all interlocks.
4. Verify that the controls are neutral.
5. If testing of equipment is required, leave the locks in place.
6. Remove the LOTO device(s).
7. Turn the equipment back on and check for proper operation.
8. Notify all affected employees that the service or maintenance is complete.
# Lockout Tagout Procedure Card

**Description:**

<table>
<thead>
<tr>
<th>ID</th>
<th>Source</th>
<th>Device</th>
<th>Location</th>
<th>Method</th>
<th>Check</th>
</tr>
</thead>
<tbody>
<tr>
<td>E-1</td>
<td>Electrical</td>
<td>Padlock</td>
<td>Isolation point on South side of .</td>
<td>Move E-1 disconnect to off. Lock out.</td>
<td>Attempt restart at CP-1.</td>
</tr>
<tr>
<td>W-1</td>
<td>Hot Water</td>
<td>Universal Valve Lockout</td>
<td>Isolation point on South side of .</td>
<td>Turn W-1 valve to closed position. Lock out.</td>
<td>Verify pressure has bled off.</td>
</tr>
<tr>
<td>P-1</td>
<td>Pneumatic 120 PSI</td>
<td>Universal Valve Lockout</td>
<td>Isolation point on South side of .</td>
<td>Turn P-1 valve to closed position. Lock out.</td>
<td>Verify pressure has bled off.</td>
</tr>
<tr>
<td>V-1</td>
<td>Valve Inlet</td>
<td>Universal Valve Lockout</td>
<td>Isolation point on South side of .</td>
<td>Turn V-1 valve to closed position. Lock out.</td>
<td>Verify pressure has bled off.</td>
</tr>
<tr>
<td>G-1</td>
<td>Gas Natural Gas</td>
<td>Universal Valve Lockout</td>
<td>Isolation point on South side of .</td>
<td>Turn G-1 valve to closed position. Lock out.</td>
<td>Verify pressure has bled off.</td>
</tr>
<tr>
<td>S-1</td>
<td>Steam Inlet</td>
<td>Universal Valve Lockout</td>
<td>Isolation point on South side of .</td>
<td>Turn S-1 valve to closed position. Lock out.</td>
<td>Verify pressure has bled off.</td>
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**Kinetic Energy**

Be sure to wait until all moving parts have come to a complete stop before attempting to service machine.

**Potential Energy-Gravity**

Be sure to lower all parts to lowest position or install blocks before attempting to service machine.

**Thermal Energy**

Be sure to wait until heat has dissipated from machine before servicing. Wear proper PPE before beginning work.

**Hydraulic Energy**

Hydraulic equipment can store energy. Ensure all pressures have bled off before proceeding.

**Opening a Guard Does Not Constitue a Lockout**

Any machine modifications must be shown in procedure. Contact safety dept. to update procedure.

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**Safety Is Your Responsibility!**

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Appendix B
# LOTO Inspection Form

To be filled out by a Facility Services Authorized Employee.

| Type of machine or equipment being reviewed: |  |
| Location of machine or equipment: |  |
| Type of power source: |  |
| Primary hazard of the machine or equipment: |  |
| Who are the primary operator/maintenance personnel? |  |

**Authorized Employee(s)**

**Affected Employee(s)**

## Inspection of LOTO Equipment (Circle yes or no)

| Is the LOTO device(s) in good condition? | YES / NO |
| Is the machine or equipment being serviced in good condition? | YES / NO |
| Is the machine or equipment properly de-energized? | YES / NO |
| Is the LOTO device(s) being used? | YES / NO |
| Is the LOTO device(s) properly installed? | YES / NO |
| Is the LOTO device(s) properly maintained? | YES / NO |
| Is there a LOTO procedure attached to the machine or equipment? If no, a procedure card must be created by using Appendix E. | YES / NO |

## Training

| Has the affected employees been notified of the LOTO? | YES / NO |
| Have the employees performing the LOTO been trained? | YES / NO |
| Do any employees involved in the LOTO require re-training? Who? | YES / NO |

**Name of person performing review:**

**Date of review:**

This review shall be performed by a supervisor or authorized person other than those utilizing the energy control.  

a. Review shall target and identify any deviations or problems.

b. The inspector shall ensure that there is documentation available to indicate that the authorized employee has received training on the recognition of applicable specific training for the type and magnitude of the energy available, methods and means necessary for energy isolation, controls, procedures and responsibilities.
LSUHSC Hazardous Energy Control Training

Date ________________

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<tr>
<th>Print Name</th>
<th>Signature</th>
<th>Employee Number</th>
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