Hazardous Energy Control (Lockout/Tagout) Program

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James M. Templeman

Safety and Risk Management Office
Office: 733-6213
Cell: 420-8216
# Rose State College
## Hazardous Energy Control Program

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I. Scope

This program specifically outlines the purpose, authorization, rules, and techniques to be utilized by Rose State College employees on a daily basis to guard against the unexpected energizing, start-up, or release of stored energy which could cause injury. It shall be the duty of each employee to become familiar with the contents of this program and ensure compliance with its procedures. Heads of departments shall ensure that employees under their supervision receive training in the contents of this program and ensure records of this training are maintained.

II. Purpose

The purpose of this program is to establish procedures for affixing appropriate lockout or tagout devices to energy-isolating devices, and to otherwise disable machines or equipment to prevent unexpected energization, start-up or release of stored energy in order to prevent injury to employees.

III. Definitions Applicable to this Program

Affected Employee: An employee whose job requires them to operate or use a machine or piece of equipment on which servicing is being performed under lockout or tagout, or whose job requires them to work in an area in which such servicing or maintenance is being performed.

Authorized Employee: A person who locks or implements a tagout system procedure on machines or equipment to perform the servicing or maintenance on that machine or equipment. An authorized employee and an affected employee may be the same person when the affected employee’s duties also include performing maintenance or service on a machine or piece of equipment which must be locked, or a tagout system implemented. Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy.

Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal or other energy.

Lockout: The placement of a lockout device on an energy-isolating device, in accordance with an established procedure, ensuring that the energy-isolating device and the equipment being controlled cannot be operated until the lockout device is removed. Lockout Device: A device that utilizes a positive means, such as a lock, to hold an energy-isolating device in the safe position and prevent the energizing of a machine or piece of equipment.

Lockout Device: A device that utilizes a positive means, such as a lock, to hold an energy-isolating device in the safe position and prevent the energizing of a machine or piece of equipment.
**Normal Production Operations:** The utilization of a machine or piece of equipment to perform its intended production function.

**Primary Authorized Employee:** The authorized employee who has been vested with responsibility for a set number or group of employees performing service or maintenance on machines or equipment subject to lockout or tagout procedures.

**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 start-up of the equipment or release of hazardous energy.

**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.

**IV. Authorization**

A designated Rose State College representative may authorize the use of this program by any and all facilities, departments and individuals associated with the control of hazardous energy on any Rose State College entity.

Heads of departments will implement the program and ensure that the personnel under their supervision are trained in accordance with the procedures established herein. This responsibility may be delegated to another person or persons within the department providing it is done so in writing and the designated person is qualified and competent. This person will authorize employees to implement the locking and tagging system procedure.

An employee who has been authorized by his or her department head or that department head’s designated individual shall lock or implement a tagout system procedure on machines or equipment to perform servicing or maintenance; or on a machine which the unexpected energization or start-up of the machine or equipment, or release of stored energy could cause injury.

**V. Rules**

Each department utilizing the Rose State College program for the control of hazardous energy shall establish and document site-specific procedures for energy isolation. Specialized lockout devices shall be obtained and kept within the department for its use.

If an energy-isolating device is capable of being locked out, the authorized employee shall utilize lockout, unless the department head or their designated representative can demonstrate that utilization of a tagout system will provide full employee protection. When a tagout device is used on an energy-isolating device which is capable of being
If an employee is locked out, the tagout device shall be attached at the same location that the lockout device would have been attached.

Lockout devices used for the implementation of this program shall be accompanied by a standard tag as suggested in Appendix D.

These devices shall be used for no other purpose than lockout, and shall be substantial enough to prevent removal without the use of excessive force or unusual techniques. 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.

The Safety and Risk Management Coordinator or his/her designated representative shall conduct periodic inspection of the energy control procedure at least annually to ensure that the procedure and the requirements of 29CFR1910.147 are being followed.

VI. Training

The heads of departments or their designated representatives are required to provide training to ensure that the purpose and function of the energy control program are understood by employees. Through training, employees will be required to possess the knowledge and skills required for safe application, usage, and removal of energy controls. Training shall include the following:

1. Each authorized employee shall receive training in the 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.

2. Each affected employee shall be instructed in the purpose and use of the energy control procedure.

3. All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or re-energize machines or equipment which are locked-out or tagged-out.

When tagout systems are used, employees shall also be trained in the following limitations of tags:

1. Tags are essentially warning devices affixed to energy-isolating devices, and do not provide the physical restraint on those devices that is provided by lockout.
2. When a tag is attached to an energy-isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored or otherwise defeated.

3. Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.

4. Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.

5. Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program.

6. Tags must be securely attached to energy-isolating devices so that they cannot be inadvertently or accidentally detached during use.

Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or process that presents a new hazard, or when there is a change in energy control procedures. Retraining shall establish employee proficiency and introduce new or revised control methods and procedures as necessary. The heads of departments or their designated representatives shall certify that employee training has been accomplished and is being kept up-to-date. The certification shall contain each employee's name and dates of training.

VII. Techniques

Implementation of the lockout or tagout system shall be performed only by authorized employees. Affected employees shall be notified by heads of departments, or their designated representatives, of the application and removal of lockout or tagout devices. Notification shall be given before the controls are applied, and after they are removed from the machine or equipment.

The established procedure for the application of energy control shall cover the following elements and actions and shall be done in the following sequence:

1. **Preparation for shutdown:** Before an authorized or affected employee turns off a machine or piece of equipment, they shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.
2. **Machine or equipment shutdown**: An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of equipment de-energization.

3. **Machine or equipment isolation**: All energy-isolating devices that are needed to control the energy to the machine or equipment shall be physically located and operated in such a manner as to isolate the machine or equipment from the energy source(s).

4. **Lockout or tagout device application**: Lockout or tagout devices shall be affixed to each energy-isolating device by authorized employees. Lockout devices, where used, shall be affixed in a manner that will hold the energy 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.

   Where tagout devices are used with energy-isolating devices designed with the capability of being locked, the tag shall be fastened at the same point at which the lock would have been attached.

   Where a tag cannot be affixed directly to the energy-isolating device, the tag shall be located as close as safely possible to the device, in a position that will be immediately obvious to anyone attempting to operate the device.

5. **Stored Energy**: Following the application of lockout or tagout devices to energy-isolating devices, all potentially hazardous stored energy shall be rendered safe. If there is a possibility of re-accumulation of stored energy to a hazardous level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.

6. **Verification of Isolation**: 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 has been accomplished.

7. **Release from Lockout or Tagout**: Before lockout or tagout devices are removed and energy is restored to the machine or equipment, procedures shall be followed and actions taken by the authorized employee(s) to ensure the following:

   A. **The Machine or Equipment**: The work area shall be inspected to ensure that nonessential items have been removed and that machine or equipment components are operationally intact.
B. **Employees:** The work area shall be checked to ensure that all employees have been safely positioned or removed. Before lockout or tagout devices are removed and before machines or equipment are energized, affected employees shall be notified.

8. **Lockout or Tagout Device Removal:** Each lockout or tagout device shall be removed from each energy isolating device by the employee who applied the device. 

*Exception:* When the authorized employee who applied the lockout or tagout device (installer) is not available to remove the device, that device may be removed under the directions of the installer’s immediate supervisor. Specific training and procedures for such removal shall be provided by each department involved in lockout or tagout operations. The procedures and training shall be documented. The documentation shall demonstrate that safety equivalent to the original process of having only the installer remove the device is maintained. The specific procedure shall include at least the following elements:

A. Verification by the immediate supervisor that the employee who applied the device is not at the facility,

B. Making all reasonable efforts to contact the authorized employee to inform them that his/her lockout or tagout device has been removed, and

C. Ensuring that the authorized employee has this knowledge before they resume work at the facility.

9. **Testing or Positioning of machines, equipment or components thereof:** In situations where lockout or tagout devices must be temporarily removed from the energy-isolating device and the machine or equipment energized to test or position the equipment or component thereof, the following sequence of actions shall be followed:

A. Clear the machine or equipment of tools and materials.

B. Remove employees from the machine or equipment area.

C. Remove the lockout or tagout devices.

D. Energize and proceed with testing or positioning.

E. De-energize all systems and reapply energy control measures to continue the servicing and/or maintenance.

10. **Outside Personnel (contractors, etc.):** Whenever outside servicing personnel are to be engaged in activities covered by the scope and application of this program, the designated Rose State College representative and the outside employer shall inform each other of their respective lockout or tagout procedures. The designated
Rose State College representative shall ensure that his/her personnel understand and comply with restrictions and prohibitions of the outside employer's energy control procedures. If the outside employer has no documented lockout or tagout procedures, they shall ensure that their personnel understand and comply with the procedures established in this program.

11. **Group Lockout or Tagout**: When servicing and/or maintenance is performed by a crew or department, they shall utilize a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device. This shall be accomplished by:

   A. The application of a multi-lock accepting device by the primary authorized employee to the energy-isolating device.

   B. The primary authorized employee attaching his/her lock to the multi-accepting device.

   C. Each authorized employee shall affix a personal lockout or tagout device to the multi-lock accepting device when they begin work, and shall remove those devices when they stop working on the machine or equipment being serviced or maintained.

   D. The primary authorized employee removing his/her lock and the multi-lock accepting device when all service or maintenance has been completed.

12. **Shift or Personnel Changes**: To insure the orderly transfer of lockout or tagout devices between off-going and on-coming employees and minimize exposure to hazards from unexpected energization, start-up of the machine or equipment, or release of stored energy, these procedures shall be followed:

   A. The on-coming personnel shall notify the off-going personnel that they are ready to begin work on the machine or equipment.

   B. All lockout and/or tagout devices attached to the machine or equipment by the off-going personnel shall be removed and immediately replaced with like devices by the on-coming authorized personnel.

   C. The primary authorized employee shall insure that all pertinent coordination between off-going and on-coming personnel has been completed before the on-coming authorized personnel begin work on the machine or equipment and that all necessary energy has been rendered safe.
Appendix A

# Lockout/Tagout Training Roster

Date of Training: ______________ Location: ______________
Trainer: __________________________ Number of Participants: ______

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<th>Printed Name</th>
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Appendix B

Periodic Lockout/Tagout Inspection

Directions:
- Conduct periodic inspections at least annually
- Use one form for each machine or equipment that has a written Lockout/Tagout Procedure
- The original completed form will be kept on file by the Safety and Risk Management Coordinator

<table>
<thead>
<tr>
<th>Department/Shop:</th>
<th>Unit:</th>
<th>Date:</th>
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<tbody>
<tr>
<td>Machine/Equipment Inspected:</td>
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Employees included in the inspection:

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Review the Lockout/Tagout Procedures and employee responsibilities with the authorized employees and complete the following:

1. Do the employees understand the Lockout/Tagout Procedures and their responsibilities under Rose State College’s Lockout/Tagout Policy?
   (  ) YES (  ) NO If no, indicate corrective action taken:

2. Do the employees follow the Lockout/Tagout Procedures?
   (  ) YES (  ) NO If no, indicate corrective action taken:

3. (  ) YES (  ) NO If no, indicate corrective action taken:

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Appendix C

Lockout of the following equipment with energy-isolating lockout devices is only to be performed by authorized employees. Employees authorized to lockout the following equipment are limited to the HVAC Supervisor, HVAC Assistant Supervisor, trained and documented HVAC personnel and other employees or contractors that have documented training on the Rose State College Lockout/Tagout Program, equipment and procedures and are authorized by the HVAC Supervisor to perform the lockout procedures. If there is any question as to whether or not an employee or contractor is approved to perform such work, please contact the HVAC Supervisor and the Safety and Risk Management Coordinator before lockout begins.

The following pieces of equipment are found on the campus of Rose State College and have energy-isolating lockout devices to ensure employee safety when the equipment is undergoing maintenance or repair.

1. Chiller
   A. Steps to shutting down and securing equipment:
      a. Turn off switch at the control panel
      b. Turn off switch handle at the main voltage panel
      c. Lock handle in off position with lockout device
   
   B. Steps to check and ensure continued safety
      a. Check for voltage at main terminal block with volt meter to verify that isolation and de-energization of the equipment has been accomplished
      b. Affix Lockout/Tagout Warning tag
      c. Turn in Lockout/Tagout documentation to HVAC Supervisor
      d. Turn in Lockout device key to HVAC Supervisor

   C. Steps to ensuring equipment is still locked and safe for repair or maintenance
      a. Check to ensure locking device and lock are still in place
      b. Check for voltage at main terminal block with volt meter to ensure the equipment is still isolated and de-energized

   D. Steps to unlocking equipment, testing for safety and returning to service
      a. Equipment is only to be unlocked and tag removed by the employee that originally placed the lock and tag on the equipment, with only the exceptions listed in Section VII of this policy.
      b. Ensure all repairs have been made and all employees have completed all work on the equipment
      c. Remove all tools and supplies from the work area
      d. Remove all unnecessary employees or others from the area
      e. Remove the lock and lockout device
      f. Re-energize equipment
      g. Check voltage at fuses in main voltage panel and line terminal in control box
      h. Restart equipment and notify HVAC Supervisor that equipment is unlocked and functioning properly
2. Boiler
   A. Steps to shutting down and securing equipment:
      a. Turn off disconnect at the main voltage panel
      b. Lock handle in off position with lockout device
   
   B. Steps to check and ensure continued safety
      a. Check for voltage at control box on boiler with volt meter to verify that isolation and de-energization of the equipment has been accomplished
      b. Affix Lockout/Tagout Warning tag
      c. Turn in Lockout/Tagout documentation to HVAC Supervisor
      d. Turn in Lockout device key to HVAC Supervisor
   
   C. Steps to ensuring equipment is still locked and safe for repair or maintenance
      a. Check to ensure locking device and lock are still in place
      b. Check for voltage at main terminal block with volt meter to ensure the equipment is still isolated and de-energized
   
   D. Steps to unlocking equipment, testing for safety and returning to service
      a. Equipment is only to be unlocked and tag removed by the employee that originally placed the lock and tag on the equipment, with only the exceptions listed in Section VII of this policy.
      b. Ensure all repairs have been made and all employees have completed all work on the equipment
      c. Remove all tools and supplies from the work area
      d. Remove all unnecessary employees or others from the area
      e. Remove the lock and lockout device
      f. Re-energize equipment
      g. Check voltage at fuses in main voltage panel and line terminal in control box
      h. Restart equipment and notify HVAC Supervisor that equipment is unlocked and functioning properly

3. Pump/Chill Water Pump
   A. Steps to shutting down and securing equipment:
      c. Turn off disconnect at the main voltage panel
      d. Lock handle in off position with lockout device
   
   B. Steps to check and ensure continued safety
      a. Check for voltage at the motor starter with volt meter to verify that isolation and de-energization of the equipment has been accomplished
      b. Affix Lockout/Tagout Warning tag
      c. Turn in Lockout/Tagout documentation to HVAC Supervisor
      d. Turn in Lockout device key to HVAC Supervisor
C. Steps to ensuring equipment is still locked and safe for repair or maintenance
   a. Check to ensure locking device and lock are still in place
   b. Check for voltage at main terminal block with volt meter to ensure the equipment is still isolated and de-energized

D. Steps to unlocking equipment, testing for safety and returning to service
   a. Equipment is only to be unlocked and tag removed by the employee that originally placed the lock and tag on the equipment, with only the exceptions listed in Section VII of this policy.
   b. Ensure all repairs have been made and all employees have completed all work on the equipment
   c. Remove all tools and supplies from the work area
   d. Remove all unnecessary employees or others from the area
   e. Remove the lock and lockout device
   f. Re-energize equipment
   g. Check voltage at fuses and at the control box
   h. Restart equipment and notify HVAC Supervisor that equipment is unlocked and functioning properly

4. Sump Pump

   A. Steps to shutting down and securing equipment:
      a. Turn off disconnect
      b. Lock disconnect handle in off position with lockout device

   B. Steps to check and ensure continued safety
      a. Check for voltage at control box on boiler with volt meter to verify that isolation and de-energization of the equipment has been accomplished
      b. Affix Lockout/Tagout Warning tag
      c. Turn in Lockout/Tagout documentation to HVAC Supervisor
      d. Turn in Lockout device key to HVAC Supervisor

   C. Steps to ensuring equipment is still locked and safe for repair or maintenance
      a. Check to ensure locking device and lock are still in place
      b. Check for voltage at main terminal block with volt meter to ensure the equipment is still isolated and de-energized

   D. Steps to unlocking equipment, testing for safety and returning to service
      a. Equipment is only to be unlocked and tag removed by the employee that originally placed the lock and tag on the equipment, with only the exceptions listed in Section VII of this policy.
      b. Ensure all repairs have been made and all employees have completed all work on the equipment
      c. Remove all tools and supplies from the work area
d. Remove all unnecessary employees or others from the area
e. Remove the lock and lockout device
f. Re-energize equipment
g. Check voltage at fuses in main voltage panel and line terminal in control box
h. Restart equipment and notify HVAC Supervisor that equipment is unlocked and functioning properly

5. Pump/Hot Water Pump

A. Steps to shutting down and securing equipment:
   a. Turn off disconnect at the main voltage panel
   b. Lock handle in off position with lockout device

B. Steps to check and ensure continued safety
   a. Check for voltage at control box on boiler with volt meter to verify that isolation and de-energization of the equipment has been accomplished
   b. Affix Lockout/Tagout Warning tag
   c. Turn in Lockout/Tagout documentation to HVAC Supervisor
   d. Turn in Lockout device key to HVAC Supervisor

C. Steps to ensuring equipment is still locked and safe for repair or maintenance
   a. Check to ensure locking device and lock are still in place
   b. Check for voltage at the motor starter with volt meter to ensure the equipment is still isolated and de-energized

D. Steps to unlocking equipment, testing for safety and returning to service
   a. Equipment is only to be unlocked and tag removed by the employee that originally placed the lock and tag on the equipment, with only the exceptions listed in Section VII of this policy.
   b. Ensure all repairs have been made and all employees have completed all work on the equipment
   c. Remove all tools and supplies from the work area
   d. Remove all unnecessary employees or others from the area
   e. Remove the lock and lockout device
   f. Re-energize equipment
g. Check voltage at fuses in main voltage panel and line terminal in control box
h. Restart equipment and notify HVAC Supervisor that equipment is unlocked and functioning properly
6. Exhaust Fans
   A. Steps to shutting down and securing equipment:
      a. Turn off disconnect
      b. Lock handle in off position with lockout device
   
   B. Steps to check and ensure continued safety
      a. Check for voltage at control box on boiler with volt meter to verify
         that isolation and de-energization of the equipment has been
         accomplished
      b. Affix Lockout/Tagout Warning tag
      c. Turn in Lockout/Tagout documentation to HVAC Supervisor
      d. Turn in Lockout device key to HVAC Supervisor
   
   C. Steps to ensuring equipment is still locked and safe for repair or
      maintenance
      a. Check to ensure locking device and lock are still in place
      b. Check for voltage at motor starter with volt meter to ensure the
         equipment is still isolated and de-energized
   
   D. Steps to unlocking equipment, testing for safety and returning to service
      a. Equipment is only to be unlocked and tag removed by the employee
         that originally placed the lock and tag on the equipment, with only the
         exceptions listed in Section VII of this policy.
      b. Ensure all repairs have been made and all employees have completed
         all work on the equipment
      c. Remove all tools and supplies from the work area
      d. Remove all unnecessary employees or others from the area
      e. Remove the lock and lockout device
      f. Re-energize equipment
      g. Check voltage at fuses in main voltage panel and line terminal in
         control box
      h. Restart equipment
      i. Check direction of operation
      j. Notify HVAC Supervisor that equipment is unlocked and functioning
         properly

7. Air Compressor/Control Air Compressor
   A. Steps to shutting down and securing equipment:
      a. Turn off breaker switch
      b. Lock breaker in off position with lockout device
   
   B. Steps to check and ensure continued safety
      a. Check for voltage at control box with volt meter to verify that isolation
         and de-energization of the equipment has been accomplished
      b. Affix Lockout/Tagout Warning tag
      c. Turn in Lockout/Tagout documentation to HVAC Supervisor
      d. Turn in Lockout device key to HVAC Supervisor
C. Steps to ensuring equipment is still locked and safe for repair or maintenance
   a. Check to ensure locking device and lock are still in place
   b. Check for voltage at control box with volt meter to ensure the equipment is still isolated and de-energized

D. Steps to unlocking equipment, testing for safety and returning to service
   a. Equipment is only to be unlocked and tag removed by the employee that originally placed the lock and tag on the equipment, with only the exceptions listed in Section VII of this policy.
   b. Ensure all repairs have been made and all employees have completed all work on the equipment
   c. Remove all tools and supplies from the work area
   d. Remove all unnecessary employees or others from the area
   e. Remove the lock and lockout device
   f. Re-energize equipment
   g. Check voltage at control box with volt meter
   h. Restart equipment and notify HVAC Supervisor that equipment is unlocked and functioning properly

8. Air Handler Unit

A. Steps to shutting down and securing equipment:
   a. Turn off breaker switch
   b. Check visually to see if fan and motor have stopped
   c. Place breaker lockout device
   d. Secure lockout device with lock

B. Steps to check and ensure continued safety
   a. Check for voltage at motor starter with volt meter to verify that isolation and de-energization of the equipment has been accomplished
   b. Affix Lockout/Tagout Warning tag
   c. Turn in Lockout/Tagout documentation to HVAC Supervisor
   d. Turn in Lockout device key to HVAC Supervisor

C. Steps to ensuring equipment is still locked and safe for repair or maintenance
   a. Check to ensure locking device and lock are still in place
   b. Check for voltage at main terminal block with volt meter to ensure the equipment is still isolated and de-energized

D. Steps to unlocking equipment, testing for safety and returning to service
   a. Equipment is only to be unlocked and tag removed by the employee that originally placed the lock and tag on the equipment, with only the exceptions listed in Section VII of this policy.
   b. Ensure all repairs have been made and all employees have completed all work on the equipment
c. Remove all tools and supplies from the work area

d. Remove all unnecessary employees or others from the area

e. Remove the lock and lockout device

f. Re-energize equipment

g. Check voltage at motor starter and fuses with volt meter

h. Restart equipment and notify HVAC Supervisor that equipment is unlocked and functioning properly
Appendix D

Lockout/Tagout Warning Signs

Below are sample pictures of various Lockout/Tagout warning signs and tags. These signs or tags, or some variation meeting the intent, must be used when performing Lockout/Tagout procedures.