Central Michigan University
Energy Control Program
(Lockout/Tagout)

2014
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- Pumps
- Heat Exchangers
- Air Handling Units
- Air Compressors – Independent Systems
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- CEF Boiler Units #1, #2, #4, or #5

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Central Michigan University
Energy Control Program – Lockout/Tagout Procedure

Introduction

Scope

The scope of these procedures will describe the basic requirements and procedures that Central Michigan University (CMU) employees will use to meet the requirements of the MIOSHA Standard Part 85. Control of Hazardous Energy Sources and OSHA 1910.147 Control of Hazardous Energy (Lockout/Tagout).

Purpose

This procedure establishes the minimum requirements for the lockout/tagout of energy sources for the protection of employees in, on, or around machines, equipment, or a process during repair, maintenance, and associated activities from injury due to the unexpected/unintended motion, energization, start-up of the machine or equipment, or release of stored energy.

Compliance With This Program

Management:

A. Environmental Health & Safety, in conjunction with selected supervisory personnel, will train all new employees and re-train employees whenever it is deemed necessary on this lockout/tagout procedure or at a minimum annually.

B. Environmental Health & Safety will conduct annual audits of lockout/tagout procedures with all departments and employees who are tasked with lockout/tagout procedures. Documentation of audits will be kept in Smith Hall 103.

C. Each supervisor shall effectively enforce compliance of this lockout/tagout procedure including the use of corrective disciplinary action where necessary (see “Disciplinary Action”).

D. Each supervisor shall assure that the locks and other devices required for compliance with lockout/tagout procedures are provided to their employees.

E. Supervisor(s) will periodically review the plan and procedures with employees to ensure employees are familiar with and understand the material contained herein.
Employee:
A. Employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout/tagout.
B. All employees are required to follow lockout/tagout procedures when performing maintenance or servicing, repair, construction, or any situation where injury may occur if lockout/tagout were not in place.
C. Employees shall consult with their supervisor or other appropriate knowledgeable personnel whenever there are any questions regarding lockout/tagout procedures.
D. All employees, upon observing a machine or piece of equipment which is locked out for servicing or maintenance, shall not attempt to start, energize, or use that machine or equipment.
E. Employees shall remove their lock at the end of their work shift.

General
A. CMU follows the one person, one lock philosophy.
B. Safety locks are for the personal protection of the employees and are only to be used for locking out machinery or equipment.
C. Safety locks, devices, and tags can be obtained from the employee’s supervisor.
D. Keys for every lock issued shall be retained by the employee to whom the lock was issued. Lockout/tagout devices shall only be removed by the employee who applied the device.
E. No employee shall ever use another employee’s lock, nor shall locks be provided to a contractor.
F. In situations where multiple sources of energy need to be de-energized and locked out, a written procedure shall be developed to better assure that all possible energy sources are accounted for. Following completion of the work on the equipment, this written procedure shall be sent to Environmental Health & Safety to be included in the annual review of the plan.
G. Equipment locks per department (separate from safety locks) are permitted for equipment protection.
H. Tags must be used in all situations involving lockout/tagout.
I. In situations where only tagging is possible, an additional safety measure must be provided that achieves an equivalent level of safety to a lockout.

Disciplinary Action

Any employee who fails to follow lockout/tagout procedures is subject to disciplinary action up to and including discharge depending on their specific union contract language.
Procedure

Equipment Shutdown and Isolation

A. Notify the appropriate personnel and affected employees that you are about to start a lockout procedure.
B. Locate all energy sources that energize the piece of equipment to be serviced.
C. If multiple energy sources are involved, a written procedure should be developed to better assure that all possible sources are accounted for. (See Appendix 2)

Always look for hidden energy sources. Some machines have more than one source of power; therefore, you must make sure you know the machine and all the power sources involved.

Applying Lockout and Tagout Devices

**Preparation for shutdown**
Before an authorized employee turns off a machine or equipment, the authorized employee shall have knowledge of the type and magnitude of the energy, hazards to be controlled, and the method or means to control the energy. The authorized employee shall notify all affected employees of the application of lockout/tagout devices.

**Shut down**
Shut down the machine by following the normal method for shutdown.

**Isolation of machine or equipment**
Turn off the energy at the main power source.

**Lockout/Tagout devices**
Lockout/tagout devices shall be affixed to all energy isolating devices involved. Every power source has its own procedure for lockout. This may include, but not be limited to, pulling a plug, opening a disconnect switch, removing a fuse, closing a valve, bleeding the line, or placing a block in the equipment.

**Stored Energy**
Equipment is to be at “zero energy state” before servicing. All potentially hazardous stored or residual energy shall be bled, relieved, disconnected, restrained, and otherwise rendered safe.

**Verification**
With your lock and tag in place, turn the machine switch back on, attempt to restart to confirm that the energy source has been deactivated. If startup does not occur, verification is complete. Return switch to the off position and servicing can begin.

**NOTE:** Tags must accompany all locks. Tags must contain the name and department of the employee locking out the equipment, time and date disconnection took place, and the
estimated duration of lockout. When safety blocks are required, they shall be used in conjunction with lockout steps, not as a substitute. If several people are needed to work on a piece of equipment, each one must apply their own lock. This prevents any accidental start-ups while another employee may still be working on the machinery. In this case, employees will need to use a lockout hasp that accepts multiple locks. The use of a group lockbox is permitted as long as employees follow the one person, one lock philosophy. Central Energy Facility (CEF) places all keys of equipment lockout in a lockbox and employees who enter boilers use his/her keys to lock lockbox. When machinery or equipment requires lockout of more than one source, additional locks are to be obtained from the employee’s supervisor. These locks will have only one key and will be given out at that time, and all will be returned at the end of use. Checkout of these additional lock(s) will be recorded and maintained by the supervisor. These locks will also be used and applied in the same manner.

Removing Lockout and Tagout Devices

A. After servicing is finished, remove all tools and replace all guards.
B. Check for personnel exposure. Ensure that all employees have been safely positioned or removed from the area.
C. Remove your tag and lock, and reconnect all sources of energy.
D. Restart the equipment following the standard operating procedure for that piece of equipment.

When hasps are on any one piece of equipment, all devices must be removed as per procedure prior to returning the equipment to service.

Emergency Safety Lock Removal

In the event that an employee cannot be reached to remove his/her personal lock and it is necessary to unlock the equipment, only authorized individuals can remove the lock. The only employees authorized to use this method of removal are supervisors of the employee or designee and they must perform all of the following actions:

A. Examine the site and work area to be positive the employee is not there.
B. Make all reasonable efforts to contact the employee to inform him/her that the lockout/tagout device needs to be removed.
C. Check the machine or process to be sure it is clear before unlocking.
D. Remove the lock by the use of bolt cutters or other suitable method.
E. Supervisor of the employee or designee is responsible for following all of the requirements for restoring power. (see “Removing Lockout and Tagout Devices”)
F. Ensure that the employee has knowledge that his/her device has been removed before he/she resumes work.
Shift Change

If the piece of equipment is locked out at shift change, the person on the next shift must apply their lock before the employee who is leaving can remove theirs from the locking device.

Outside Contractors: See appendix Z
Training

Environmental Health & Safety (EH&S), in conjunction with selected supervisory personnel, shall provide training to ensure the purpose and function of this lockout/tagout program and procedures are understood by employees and that the knowledge and skills required for the safe application, use, and removal of the energy controls are applied by employees. The training shall include the following:

A. How to recognize energy sources, the type and magnitude of the energy available in the workplace.
B. How to perform an equipment shutdown.
C. How to isolate equipment.
D. How to safely release stored energy to reach a zero energy state.
E. How to apply and remove lockout/tagout devices.
F. The limitations of tags.
Specific Procedures for Individual Equipment

The following information shall not be interpreted to be all-inclusive and limiting. If an employee and/or a supervisor are in doubt or in question on whether a piece of equipment should be locked out, **Lock It Out**. For detailed information on specific types of equipment on campus, see Appendix 5.

**Cord and Plug Equipment**

Machinery/equipment where the only source of energy is from connection to an electrical outlet cord and plug shall be considered to be in compliance with lockout/tagout procedures if the following conditions are met:

- A. The plug is removed from the electrical source.
- B. The person servicing the equipment will be in control of the cord and plug at all times during the servicing (in sight of the work area).
- C. All affected employees shall be notified of the equipment being serviced.

An alternative means of compliance is to place the plug in a plug cap device to which lockout/tagout devices are affixed.

**Steam, Water, and Gas Lines**

For routine servicing and maintenance of steam, water, and gas lines, maintenance supervisors and building administrators shall be notified in advance of the necessary shutdown for large-scale projects affecting a substantial area. Advance notification shall be provided as much as possible during emergency shutdowns.

Lockout of steam, water, and gas lines shall consist of turning off the main valve, chaining it in the off position, and affixing the lockout/ tagout devices to the chain, or a valve lockout device.

Steam, water, and gas lines shall not be reenergized until the work areas have been checked to ensure all employees in the immediate area have been safely positioned or removed from the area. Means of egress shall remain accessible throughout servicing and repair.

**Powered Electrical Equipment (Saws, Lathes, Drills, Presses, Etc.)**

Powered electrical equipment shall be powered off at the equipment control switch and locked and tagged out at the circuit breaker or disconnect. For hard-wired equipment, the equipment shall be locked and tagged out at circuit breakers or disconnects.
Laboratory Equipment (X-ray Machines, Centrifuges, Etc.)

Equipment with plug-in connectors shall adhere to the cord and plug procedures for service. All other equipment shall be powered off at the equipment control switch and locked and tagged out at the circuit breaker or disconnect.

Hydraulic Lifts, Elevators and Weighted Objects

Lockout/tagout shall be followed when servicing all hydraulic lifts. Whenever work requires entry under or on top of the lift, elevator or weighted objects, the lift, elevator and/or weighted objects shall be secured by the blocks, locking pins and/or other suitable securing mechanisms to prevent crushing. The equipment shall be locked and tagged out.

Student Athletic Center Pool-Steps for hydraulic energy shutdown after pool floor is raised and safety blocks are placed. (Picture #1 Appendix 8)

1. Using key from top drawer of desk in room 038, turn switch board in room 022-A to the off position. See picture #2 in Appendix 8.
2. Turn isolation device to off position and affix lock(s) and tag(s). Picture #3.
4. Picture #5 of raised pool floor resting on blocks after bleeding valves.

Student Athletic Center-Lockout steps for Pool Sand Filter

1. In Mechanical Rm 040: Turn isolation device to off position on switch panel and affix lock(s) tag(s). Picture #6 in Appendix 8.
2. In Mechanical Rm 040: Place butterfly valve in closed position and affix lock(s) and tag(s). Picture #7 in Appendix 8.

Electrical Isolation

Live parts to which an employee may be exposed shall be deenergized before the employee works on or near them.

Only qualified employees may work on electric circuits or equipment that has not been deenergized. Qualified employees shall, at a minimum, be trained in, and familiar with, all of the following (MIOSHA Part 40. Electrical Safety-Related Work Practices R 408.14002 (5) (a)(b)(c)):

1. The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment.
2. The skills and techniques necessary to determine the nominal voltage of exposed live parts.
3. Clearance distances specified in R 408.14005 and the corresponding voltages to which the person will be exposed.
Qualified persons whose work on energized equipment involves either direct contact or contact by means of tools or materials shall also have the training that is needed to meet the requirements of MIOSHA Part 40. R 408.14005 (2) as follows:

1. Special precautionary techniques
2. Personal protective equipment
3. Insulating and shielding materials
4. Insulating tools
5. Testing equipment

If work is to be performed within ten (10) feet of overhead power lines, the lines shall be deenergized and grounded or other protective measures shall be provided before work is started. The following procedures shall be utilized:

A. If lines are to be deenergized, arrangements shall be made with the owner or organization that operates or controls the electric circuits to deenergize and ground them.

B. If protective measures are provided, such as guarding, isolation, or insulating, these precautions shall prevent an employee from directly contacting such lines with any part of his/her body and from indirect contact through conductive materials, tools, or equipment. The work practices used by qualified persons who install insulating devices on overhead power transmission or distribution lines are not regulated by these rules.

C. Unqualified persons are prohibited from performing this type of work.

When an employee works in a confined or enclosed space(s), such as a manhole or vault that contains exposed energized parts, the employee shall use protective shields, protective barriers, or insulating materials as necessary to avoid inadvertent contact with these parts. Doors and hinged panels shall be secured to prevent them from swinging into an employee and causing the employee to contact exposed energized parts.

Conductive articles of jewelry and clothing, (watchbands, bracelets, rings, key chains, necklaces, body-rings, metalized aprons), shall not be worn unless rendered non-conductive by covering, wrapping, or other insulating means if they might come in contact with exposed energized parts.

**Switchgear and High Voltage Equipment**

Only qualified personnel shall be allowed to service or maintain Panelboards or Switchboards, Motor Control Centers (MCC’s) Switchgear equipment, or any other electrical equipment.

Verification steps for greater than 600 volt equipment requires test equipment, and proper operation of the test equipment shall be verified immediately before and after the test.
APPENDIX 1

http://www.michigan.gov/lara/0,1607,7-154-11407_15368_23451---,00.html
APPENDIX 2

LOCKOUT - TAGOUT AND SHUTDOWN PROCEDURES CHECKLIST

The following steps must be followed in sequence to properly lockout/tagout and re-establish energy to the _________________________________.

(Equipment)

Name of Employee: _______________________________

APPLICATION OF LOCKOUT/TAGOUT

_____ 1. Understand the hazard. (Check all that apply)

__ ELECTRICAL  LOCATED ________________________________
__ PNEUMATIC  LOCATED ________________________________
__ CHEMICAL  LOCATED ________________________________
__ MECHANICAL  LOCATED ________________________________
__ THERMAL  LOCATED ________________________________
__ UV  LOCATED ________________________________

_____ 2. Shut down the machinery/equipment following normal procedures.

_____ 3. Isolate the source of energy by: (Check all that apply)

__ ELECTRICAL
__ VALVE
__ MECHANICAL STORAGE/POTENTIAL ENERGY

_____ 4. Secure the energy controlling lockout by attaching a personal lock and completed tag to the lockout enabling device. If more than one person will be performing the work, each must apply his/her own lock to a multiple lock device.

_____ 5. Release all stored energy in the_______________________________.

_____ 6. Verify that no potential energy can be released.

RELEASE FROM LOCKOUT/TAGOUT

_____ 7. Inspect the surrounding area. Notify others in the area that the machinery/equipment is about to be made operational and returned to service.

_____ 8. Remove personal lock(s), tag(s), and other lockout enabling device.
## TYPES OF ENERGY TABLE

<table>
<thead>
<tr>
<th>ENERGY TYPE</th>
<th>MECH. HAZARD</th>
<th>PERSONAL HAZARD</th>
<th>MAGNITUDE</th>
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<td>208 VAC/30</td>
<td>Fuse Blocks</td>
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<td>Burn</td>
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<td>Gas Line Valve</td>
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<td>Anti-motion Pin</td>
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## Appendix 4: General Procedure Equipment

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<th>Location</th>
<th>Energy Source (Electric Volts)</th>
<th>Lockout</th>
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<td>Blowers</td>
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<td>Fans</td>
<td>Most Buildings</td>
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<td>Electrical Appliances</td>
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<tr>
<td>MIG Welder</td>
<td>Metal Shop</td>
<td>220</td>
<td>Plug</td>
</tr>
<tr>
<td>Equipment</td>
<td>Location</td>
<td>Energy Source</td>
<td>Lockout</td>
</tr>
<tr>
<td>-------------------------</td>
<td>---------------------</td>
<td>---------------</td>
<td>---------</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Electric Volts)</td>
<td></td>
</tr>
<tr>
<td>Drill Press</td>
<td>CEF</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Pipe Threader</td>
<td>CEF</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Standing Grinder</td>
<td>CEF</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Drill Press</td>
<td>HVAC</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Pipe Threader</td>
<td>HVAC</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Standing Grinder</td>
<td>HVAC</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Electric Workbench</td>
<td>HVAC</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Engraver</td>
<td>Sign Shop</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Router</td>
<td>Sign Shop</td>
<td>220</td>
<td>Plug</td>
</tr>
<tr>
<td>Plotter (vinyl)</td>
<td>Sign Shop</td>
<td>220</td>
<td>Plug</td>
</tr>
<tr>
<td>Tile Saw</td>
<td>Mason Shop</td>
<td>220</td>
<td>Plug</td>
</tr>
<tr>
<td>Masonry Saw</td>
<td>Mason Shop</td>
<td>220</td>
<td>Plug</td>
</tr>
<tr>
<td>Table Saw</td>
<td>BMW Shop</td>
<td>120</td>
<td>Plug</td>
</tr>
<tr>
<td>Drill Press</td>
<td>BMW Shop</td>
<td>120</td>
<td>Plug</td>
</tr>
<tr>
<td>Grinder</td>
<td>BMW Shop</td>
<td>120</td>
<td>Plug</td>
</tr>
<tr>
<td>Vacuum Sweeper</td>
<td>Custodial Areas</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Automatic Floor Scrubber</td>
<td>Rowe Custodial Area</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Electric Buffer</td>
<td>Custodial Areas</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Carpet Extractor</td>
<td>Custodial Areas</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Battery Charger</td>
<td>Custodial Areas</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Electric Blower</td>
<td>Custodial Areas</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Dust Mop Cleaner</td>
<td>Library, &amp;</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Wet Vac/Typhoon</td>
<td>Rose Custodial Area</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Custodial Areas</td>
<td>110</td>
<td>Plug</td>
</tr>
<tr>
<td>Chain Saw</td>
<td>Landscape Operations</td>
<td>Gasoline</td>
<td>Spark Plug</td>
</tr>
<tr>
<td>Weed Whips</td>
<td>Landscape Operations</td>
<td>Gasoline</td>
<td>Spark Plug</td>
</tr>
<tr>
<td>Hedge Trimmer</td>
<td>Landscape Operations</td>
<td>Gasoline</td>
<td>Spark Plug</td>
</tr>
<tr>
<td>Drill</td>
<td>Landscape Operations</td>
<td>Gasoline</td>
<td>Spark Plug</td>
</tr>
<tr>
<td>21” Push Mower</td>
<td>Landscape Operations</td>
<td>Gasoline</td>
<td>Spark Plug</td>
</tr>
<tr>
<td>Power Washer</td>
<td>Landscape Operations</td>
<td>Gasoline</td>
<td>Spark Plug</td>
</tr>
<tr>
<td>Riding Mowers</td>
<td>Landscape Operations</td>
<td>Gas or Diesel</td>
<td>Remove Key</td>
</tr>
<tr>
<td>Street Sweeper</td>
<td>Landscape Operations</td>
<td>Diesel</td>
<td>Remove Key</td>
</tr>
<tr>
<td>Tractors</td>
<td>Landscape Operations</td>
<td>Gas or Diesel</td>
<td>Remove Key</td>
</tr>
<tr>
<td>Drill Press</td>
<td>Landscape Operations</td>
<td>120V</td>
<td>Plug</td>
</tr>
<tr>
<td>Grinder</td>
<td>Landscape Operations</td>
<td>120V</td>
<td>Plug</td>
</tr>
<tr>
<td>Equipment</td>
<td>Location</td>
<td>Energy Source (Electric Volts)</td>
<td>Lockout</td>
</tr>
<tr>
<td>----------------------------</td>
<td>---------------------------</td>
<td>-------------------------------</td>
<td>--------------------------</td>
</tr>
<tr>
<td>Cut-off Saw</td>
<td>Landscape Operations</td>
<td>120V</td>
<td>Plug</td>
</tr>
<tr>
<td>Backhoe</td>
<td>Landscape Operations</td>
<td>Diesel</td>
<td>Remove Key</td>
</tr>
<tr>
<td>Loader</td>
<td>Landscape Operations</td>
<td>Diesel</td>
<td>Remove Key</td>
</tr>
<tr>
<td>Skidsteer</td>
<td>Landscape Operations</td>
<td>Diesel</td>
<td>Remove Key</td>
</tr>
<tr>
<td>AB Dick 350</td>
<td>Printshop (CSB)</td>
<td>110V</td>
<td>Plug</td>
</tr>
<tr>
<td>AB Dick 360</td>
<td>Printshop (CSB)</td>
<td>110V</td>
<td>Plug</td>
</tr>
<tr>
<td>AB Dick 9850</td>
<td>Printshop (CSB)</td>
<td>110V</td>
<td>Plug</td>
</tr>
<tr>
<td>Douthitt Plate Frame</td>
<td>Printshop (CSB)</td>
<td>?</td>
<td>Plug</td>
</tr>
<tr>
<td>Challenge CRC Cutter</td>
<td>Printshop (CSB)</td>
<td>230V</td>
<td>Switch box on rear of machine</td>
</tr>
<tr>
<td>Challenge TCM Cutter</td>
<td>Printshop (CSB)</td>
<td>220V</td>
<td>Switchbox</td>
</tr>
<tr>
<td>Heidelberg Letterpress</td>
<td>Printshop (CSB)</td>
<td>220V</td>
<td>Switchbox</td>
</tr>
<tr>
<td>Heidelberg MOV</td>
<td>Printshop (CSB)</td>
<td>480V</td>
<td>Switchbox labeled BIG HIDI (pp-1 on south wall in bindery CSB 147)</td>
</tr>
<tr>
<td>Heidelberg 102ZP</td>
<td>Printshop (CSB)</td>
<td>480V</td>
<td>Switchbox</td>
</tr>
<tr>
<td>Mueller Bindery</td>
<td>Printshop (CSB)</td>
<td>236V</td>
<td>Switchbox</td>
</tr>
<tr>
<td>Stahl TF66 Folder</td>
<td>Printshop (CSB)</td>
<td>230V</td>
<td>Switchbox</td>
</tr>
<tr>
<td>Dishwasher</td>
<td>Woldt Dining</td>
<td>460V 3 Phase</td>
<td>Shut control panel off Shut off breaker switch in electrical room Shut water valve off (under conveyor) Shut steam valve off (in basement)</td>
</tr>
<tr>
<td>Convection ovens</td>
<td>Dining Services</td>
<td>Electrical</td>
<td>Plug/Gas valve</td>
</tr>
<tr>
<td>Waffle cooker</td>
<td>Dining Services</td>
<td>Electrical</td>
<td>Plug</td>
</tr>
<tr>
<td>Ice cream machine</td>
<td>Dining Services</td>
<td>Electrical</td>
<td>Plug</td>
</tr>
<tr>
<td>Equipment</td>
<td>Location</td>
<td>Energy Source (Electric Volts)</td>
<td>Lockout</td>
</tr>
<tr>
<td>---------------------</td>
<td>--------------</td>
<td>-------------------------------</td>
<td>------------------------------</td>
</tr>
<tr>
<td>Hobart Mixer</td>
<td>Woldt Dining</td>
<td>Hard wired to DP2-181012-lockout at panel</td>
<td></td>
</tr>
<tr>
<td>Fryers</td>
<td>Dining Services</td>
<td>Gas/Electric</td>
<td>Disconnect</td>
</tr>
<tr>
<td>Food Processors</td>
<td>Dining Services</td>
<td>Electric</td>
<td>Plug</td>
</tr>
<tr>
<td>Milk Dispensers</td>
<td>Dining Services</td>
<td>Electric</td>
<td>Plug</td>
</tr>
<tr>
<td>Ice Machine</td>
<td>Woldt Dining</td>
<td>Electric</td>
<td>Disconnect</td>
</tr>
<tr>
<td>Bunn Juicers</td>
<td>Dining Services</td>
<td>Electric</td>
<td>Plug</td>
</tr>
<tr>
<td>Pizza Ovens</td>
<td>Woldt Dining</td>
<td>Electric/Gas</td>
<td>Plug/Gas valve off</td>
</tr>
<tr>
<td>Yogurt Machine</td>
<td>Woldt Dining</td>
<td>Electric</td>
<td>Plug</td>
</tr>
<tr>
<td>Steam Kettle Dishwashers</td>
<td>Woldt Dining</td>
<td>Electric/Gas/H2O</td>
<td>Plug/water valve off Gas valve off</td>
</tr>
</tbody>
</table>
Appendix: 5

Energy Control (Lockout/Tagout) Procedure
The following Energy Control (Lockout/Tagout) Procedure should be used for the equipment listed below:

Boilers – Small Hot Water Units
Description: Small hot water boiler units with natural gas burners are used to heat water, which is then pumped throughout a building or group of buildings to provide domestic hot water or building heat. They are used in buildings which are not on the campus steam system. Units consist of a gas burner, tank and/or water coils, and an electric motor driven pump.

Energy Type
Electric

Controls: Start/stop buttons, toggle switches, circuit breakers, disconnect switches

Magnitude: 240 or 480 volts

Type Lockout: Padlock and tag

Shutdown Procedure: Follow Lockout/Tagout Procedure on pages 5 and 6

Start-up Procedure: Follow Lockout/Tagout Procedure on pages 5 and 6

Authorized Employees:
1. Electricians
2. Maintenance Mechanics
3. HVAC Technician/Refrigeration & Controls

Affected Employees:
1. Building Maintenance Worker
2. Electricians
3. Maintenance Mechanics

Other Employees:
1. Other trades because they have access to all mechanical rooms
<table>
<thead>
<tr>
<th><strong>Energy Type</strong></th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls:</td>
<td>Shutoff valves</td>
</tr>
<tr>
<td>Magnitude:</td>
<td>120 psi or less and up to 180 degrees Fahrenheit temperature</td>
</tr>
<tr>
<td>Type Lockout:</td>
<td>Valve handle cap or chain</td>
</tr>
</tbody>
</table>
| Shutdown Procedure: | 1. Follow Lockout/Tagout Procedure  
2. Close and lockout/tagout supply and return valves  
3. Open and lockout/tagout drain valve so water can drain and cannot accumulate |
| Start-up Procedure: | 1. Follow Lockout/Tagout Procedure  
2. Open supply valve slowly and bleed off air through drain or other valves  
3. Close drain valve |
| Authorized Employees: | 1. Maintenance Mechanics  
2. HVAC Technician/Refrigeration & Controls |
| Affected Employees: | 1. Building Maintenance Worker  
2. Electricians  
3. Maintenance Mechanics |
| Other Employees: | 1. Other trades because they have access to all mechanical rooms |

<table>
<thead>
<tr>
<th><strong>Energy Type</strong></th>
<th>Natural Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls:</td>
<td>Shutoff valves</td>
</tr>
<tr>
<td>Magnitude:</td>
<td>14 psi or less</td>
</tr>
<tr>
<td>Type Lockout:</td>
<td>Valve handle cap or chain</td>
</tr>
</tbody>
</table>
| Shutdown Procedure: | 1. Follow Lockout/Tagout Procedure  
2. Close and lockout/tagout supply valve  
3. Check for leaks throughout |
| Start-up Procedure: | 1. Follow Lockout/Tagout Procedure  
2. Open supply valve slowly and bleed off |
air through burner
3. Check for leaks

Authorized Employees: 1. Maintenance Mechanics
2. HVAC Technician/Refrigeration & Controls

Affected Employees: 1. Building Maintenance Worker
2. Electricians
3. Maintenance Mechanics

Other Employees: 1. Other trades because they have access to all mechanical rooms
## Pumps

<table>
<thead>
<tr>
<th>Description</th>
<th>Units consist of an electric motor and pump which moves hot and cold domestic water, heating water, cooling water, and condensate through piping systems in buildings and across campus.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>Throughout campus</td>
</tr>
<tr>
<td><strong>Energy Type</strong></td>
<td>Electric</td>
</tr>
<tr>
<td>Controls:</td>
<td>Start/stop buttons, toggle switches, circuit breakers, disconnect switches</td>
</tr>
<tr>
<td>Magnitude:</td>
<td>120, 240 or 480 volts</td>
</tr>
<tr>
<td>Type Lockout:</td>
<td>Padlock and tag</td>
</tr>
<tr>
<td>Shutdown Procedure:</td>
<td>Follow Lockout/Tagout Procedure on pages 5 and 6</td>
</tr>
<tr>
<td>Start-up Procedure:</td>
<td>Follow Lockout/Tagout Procedure on pages 5 and 6</td>
</tr>
</tbody>
</table>
| Authorized Employees: | 1. Electricians  
   2. Maintenance Mechanics  
   3. Refrigeration and Controls  
   4. Powerhouse Operators |
| Affected Employees: | 1. Electricians  
   2. Maintenance Mechanics  
   3. Refrigeration and Controls  
   4. Powerhouse Operators |
| Other Employees: | 1. Other trades because they have access to all mechanical rooms                                                                                                                                 |
| **Energy Type** | Water                                                                                                                                                                                                |
| Controls:  | Shutoff valves                                                                                                                                                                                     |
| Magnitude: | 120 psi or less and up to 180 degrees Fahrenheit temperature                                                                                                                                          |
Type Lockout: Valve handle cap or chain

Shutdown Procedure:
1. Follow Lockout/Tagout Procedure
2. Close and lockout/tagout supply and return valves
3. Open and lockout/tagout drain valve so water can drain and cannot reaccumulate

Start-up Procedure:
1. Follow Lockout/Tagout Procedure
2. Open supply valve slowly and bleed off air through drain or other valves
3. Close drain valve

Authorized Employees:
1. Maintenance Mechanics
2. Refrigeration and Controls
3. Powerhouse Operators

Affected Employees:
1. Building Maintenance Worker
2. Electricians
3. Maintenance Mechanics
4. Refrigeration and Controls
5. Powerhouse Operators

Other Employees:
1. Other trades because they have access to all mechanical rooms
Heat Exchangers

Description: Heat exchangers are units which use steam to heat water, which may or may not be stored in a tank. The water is pumped throughout a building to provide domestic hot water or building heat. Units consist of an electric motor, pump, hot water coils and/or steam coils, and/or storage tank.

Location: Throughout campus

**Energy Type** Electric

Controls: Start/stop buttons, toggle switches, circuit breakers, disconnect switches

Magnitude: 120, 240 or 480 volts

Type Lockout: Padlock and tag

Shutdown Procedure: Follow Lockout/Tagout Procedure on pages 5 and 6

Start-up Procedure: Follow Lockout/Tagout Procedure on pages 5 and 6


Other Employees: 1. Other trades because they have access to all mechanical rooms
<table>
<thead>
<tr>
<th><strong>Energy Type</strong></th>
<th>Steam/Condensate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls:</td>
<td>Shutoff valves</td>
</tr>
<tr>
<td>Magnitude:</td>
<td>15 psi or less and up to 250 Fahrenheit</td>
</tr>
<tr>
<td>Temperature:</td>
<td></td>
</tr>
<tr>
<td>Type Lockout:</td>
<td>Valve handle cap or chain</td>
</tr>
</tbody>
</table>
| Shutdown Procedure: | 1. Follow Lockout/Tagout Procedure  
                      2. Close and lockout/tagout steam and condensate valves  
                      3. Open and lockout/tagout drain valves so steam cannot accumulate |
| Start-up Procedure: | 1. Follow Lockout/Tagout Procedure  
                         2. Open supply slowly and bleed off air through drain or other valves  
                         3. Close drain valve |
| Authorized Employees: | 1. Maintenance Mechanics  
                           2. Refrigeration and Controls  
                           3. Powerhouse Operators |
| Affected Employees: | 1. Building Maintenance Worker  
                                2. Electricians  
                                3. Maintenance Mechanics  
                                4. Refrigeration and Controls  
                                5. Powerhouse Operators |
| Other Employees: | 1. Other trades because they have access to all mechanical rooms |

<table>
<thead>
<tr>
<th><strong>Energy Type</strong></th>
<th>Water</th>
</tr>
</thead>
<tbody>
<tr>
<td>Controls:</td>
<td>Shutoff valves</td>
</tr>
<tr>
<td>Magnitude:</td>
<td>100 psi or less and up to 180 degrees Fahrenheit temperature</td>
</tr>
<tr>
<td>Type Lockout:</td>
<td>Valve handle cap or chain</td>
</tr>
</tbody>
</table>
| Shutdown Procedure: | 1. Follow Lockout/Tagout Procedure  
                          2. Close and lockout/tagout supply and return valves  
                          3. Open and lockout/tagout drain valve so water can drain and cannot reaccumulate |
Start-up Procedure:
1. Follow Lockout/Tagout Procedure
2. Open supply valve slowly and bleed off air through drain or other valves
3. Close drain valve

Authorized Employees:
1. Maintenance Mechanics
2. Refrigeration and Controls
3. Powerhouse Operators

Affected Employees:
1. Building Maintenance Worker
2. Electricians
3. Maintenance Mechanics
4. Refrigeration and Controls
5. Powerhouse Operators

Other Employees:
1. Other trades because they have access to all mechanical rooms
Air Handling Units

Description: Air handling units are motor-driven fans which blow air through heating and/or cooling coils and then through ductwork to heat or cool all or part of a building. Units consist of an electric motor, fan, drive belts, hot water coils or steam coils, and/or cooling coils.

Location: Throughout campus

Energy Type

Controls: Start/stop buttons, toggle switches, circuit breakers, disconnect switches

Magnitude: 120, 240 or 480 volts

Type Lockout: Padlock and tag

Shutdown Procedure: Follow Lockout/Tagout Procedure on pages 5 and 6

Start-up Procedure: Follow Lockout/Tagout Procedure on pages 5 and 6

Authorized Employees: 1. Building Maintenance Worker
2. Electricians
3. Maintenance Mechanics
4. Refrigeration and Controls

Affected Employees: 1. Building Maintenance Worker
1. Electricians
2. Maintenance Mechanics
3. Refrigeration and Controls

Other Employees: 1. Other trades because they have access to all mechanical rooms

Energy Type

Controls: Shutoff valves

Magnitude: 120 psi or less
Type Lockout: Valve handle cap or chain

Shutdown Procedure:
1. Follow Lockout/Tagout Procedure
2. Close and lockout/tagout supply and return valves
3. Open and lockout/tagout drain valve so water can drain and cannot reaccumulate

Start-up Procedure:
1. Follow Lockout/Tagout Procedure
2. Open supply valve slowly and bleed off air through drain or other valves
3. Close drain valve

Authorized Employees:
1. Maintenance Mechanics
2. Refrigeration and Controls

Affected Employees:
1. Building Maintenance Worker
2. Electricians
3. Maintenance Mechanics
4. Refrigeration and Controls

Other Employees:
1. Other trades because they have access to all mechanical rooms
# Air Compressor – Independent Systems

**Description:** Units consist of an electric motor, drive belts, air compressor, and storage tank

**Location:** Independent compressed air systems are located in buildings that need compressed air for some purpose other than control air

### Energy Type

**Electric**

**Controls:** Start/stop buttons, toggle switches, circuit breakers, disconnect switches

**Magnitude:** 120, 240 or 480 volts

**Type Lockout:** Padlock and tag

**Shutdown Procedure:** Follow Lockout/Tagout Procedure on pages 5 and 6

**Start-up Procedure:** Follow Lockout/Tagout Procedure on pages 5 and 6

**Authorized Employees:**
1. Building Maintenance Worker
2. Electricians
3. Maintenance Mechanics
4. Refrigeration and Controls

**Affected Employees:**
1. Building Maintenance Worker
2. Electricians
3. Maintenance Mechanics
4. Refrigeration and Controls

**Other Employees:**
1. Other trades because they have access to all mechanical rooms

### Energy Type

**Air**

**Controls:** Shutoff valves

**Magnitude:** 120 psi or less

**Type Lockout:** Valve handle cap or chain
Shutdown Procedure:
1. Follow Lockout/Tagout Procedure
2. Close and lockout/tagout discharge valve
3. Open and lockout/tagout drain valve so water can drain and cannot accumulate in tank

Start-up Procedure:
1. Follow Lockout/Tagout Procedure
2. Close drain valves
3. Open discharge valve

Authorized Employees:
1. Maintenance Mechanics
2. Refrigeration and Controls

Affected Employees:
1. Building Maintenance Worker
2. Electricians
3. Maintenance Mechanics
4. Refrigeration and Controls

Other Employees:
1. Other trades because they have access to all mechanical rooms
Air Compressors – Control Air System

Description: The campus has a compressed air system for providing control air to heating and cooling controls and equipment in most buildings on campus. The system is supplied from compressed air in the Central Energy Facility. As a backup, each building has a small air compressor which runs if the CEF unit fails. The unit consists of an electric motor, drive belts, air compressor, and storage tank.

Location: Almost every building on campus

**Energy Type**

Electric

Controls: Start/stop buttons, toggle switches, circuit breakers, disconnect switches

Magnitude: 120, 240 or 480 volts

Type Lockout: Padlock and tag

Shutdown Procedure: Follow Lockout/Tagout Procedure on pages 5 and 6

Start-up Procedure: Follow Lockout/Tagout Procedure on pages 5 and 6

Authorized Employees:
1. Building Maintenance Worker
2. Electricians
3. Maintenance Mechanics
4. Refrigeration and Controls
5. Powerhouse Operators

Affected Employees:
1. Building Maintenance Worker
2. Electricians
3. Maintenance Mechanics
4. Refrigeration and Controls

Other Employees:
1. Other trades because they have access to all mechanical rooms
**Energy Type**

Air

Controls: Shutoff valves

Magnitude: 120 psi or less

Type Lockout: Valve handle cap or chain

Shutdown Procedure:
1. Follow Lockout/Tagout Procedure
2. Close and lockout/tagout supply valve from campus air system
3. Open and lockout/tagout drain valve so air can drain and not reaccumulate in the tank

Start-up Procedure:
1. Follow Lockout/Tagout Procedure
2. Close drain valves
3. Open supply valve from campus air system or other valves

Authorized Employees:
1. Maintenance Mechanics
2. Refrigeration and Controls
3. Powerhouse Operators

Affected Employees:
1. Building Maintenance Worker
2. Electricians
3. Maintenance Mechanics
4. Refrigeration and Controls

Other Employees:
1. Other trades because they have access to all mechanical rooms
Central Energy Facility (CEF) Boiler Units #1, #2, #4, or #5

Description: Boilers are gas, oil, or wood fired pressure vessels used to generate steam between 60 and 450 psi for delivery to the campus for heating, cooling, or air conditioning.

Location: Central Energy Facility

Energy Type: Natural gas, #2 Fuel oil, and wood on the fireside of the boilers

Controls: Start/stop buttons, toggle switches, circuit breakers, disconnect switches, and valves

Magnitude:
1. Natural gas at 30 psi or less
2. #2 fuel oil at 1,000 pounds per hour at 200 psi
3. Wood chips at 200 ton per day

Type Lockout: Padlock and tag

Shutdown Procedure:
1. CEF Operations will be responsible for shutting down above boilers according to normal shutdown procedures
2. Following boiler lockout sheet for fireside entry, Operators will lockout multiple locations and individuals will lockout on the group lockout box

Start-up Procedure:
1. Follow Lockout/Tagout Procedure
2. Area and equipment must be checked for safety, then all individual locks must be removed from group lockout box prior to start-up.

Authorized Employees: 1. Powerhouse Operators
2. Powerhouse Supervisor/Director

Affected Employees: 1. Powerhouse Operators
2. Powerhouse Supervisor
3. CMU Trades and/or contractors

Other Employees: 1. Central Energy Facility visitors
**Energy Type**  
Water/steam side of boiler

**Controls:**  
Shutoff valves

**Magnitude:**  
450 psi or less

**Type Lockout:**  
Valve handle cap or chain

**Shutdown Procedure:**
1. CEF Operations will be responsible for shutting down above boilers according to normal shutdown procedures.
2. Following boiler lockout sheet for waterside entry, Operations will lockout multiple locations and individuals will lockout on the group lockout box.

**Start-up Procedure:**
1. Follow Lockout/Tagout Procedure
2. Open supply valve slowly and bleed off air though drain or other valve
3. Close drain valve

**Authorized Employees:**
1. Powerhouse Operators
2. Powerhouse Supervisor/Director

**Affected Employees:**
1. Powerhouse Operators
2. Powerhouse Supervisor/Director
3. CMU Trades and/or contractors

**Other Employees:**
1. Central Energy Facility visitors
Appendix: 6

Lockout/Tagout Checklist for
Boilers #1 or #2

Date of Outage___________ Boiler #_________ Isolated by_______________________

Water Side
_____ 1. Close, lock, and tag non-return valve.
_____ 2. Close, lock, and tag header shutoff valve (basement).
_____ 3. Close, lock, and tag valve on drain line between non-return and header shutoff.
_____ 4. Close, lock, and tag 2 vertical and 2 horizontal water inlet valves.
_____ 5. Close, lock, and tag east valve to soot-blowing system.
_____ 6. Close, lock, and tag west valve to soot-blowing system.
_____ 7. Tag four hand blowdown valves closed. Lock one valve of each pair.

Fireside
_____ 1. Turn off and tag main power switch on control panel in control room.
_____ 2. Press and tag emergency stop button on panel by boiler.
_____ 3. Shut off, lock, and tag F. D. fan breaker on operating floor.
_____ 4. Soot-blower, complete items #5 and #6 from above.
_____ 5. Gas:
______ a. Shut, lock, and tag gas valve before regulator on operating floor.
______ b. Shut, lock, and tag main gas valve on front of boiler.
BOILER #4 ISOLATION LOCKOUT PROCEDURE (This boiler is not in operation as of August 2013)

THE PHILOSOPHY BEHIND THIS ISOLATION CHECK SHEET IS TO PROVIDE ISOLATION BETWEEN ALL LIVE SOURCES OF ENERGY AND AREA WORKING IN.

Date of Outage _____ Boiler #4  Isolated by: ____________________________

WATER SIDE
___  1. Close lock and tag non return valve.
___  2. Close lock and tag header shut off valve.
___  3. Open lock and tag bleeder valve between non-return valve and header shut off valve.
___  5. Close lock and tag economizer inlet valve on platform.
___  6. Lock and tag four hand blowdown valves closed.

FIRESIDE:
___  1. Shut off lock and tag F.D. fan breaker operating floor.
___  2. Lock and tag north and south drum steam valves to sootblowers.
___  3. Shut off lock and tag breaker to grate drive.
___  4. Shut off lock and tag both rotary feeder front of boiler on platform.
___  5. Shut off lock and tag hopper leveling auger operating floor.

NOTE: ID FAN IS LEFT OPERABLE FOR DRAFT CONTROL AND VENTILATION.
Lockout/Tagout Checklist for
Boilers #5

Date of Outage___________ Boiler #_________ Isolated by__________________________

Water Side

_____ 1. Close, lock, and tag non-return valve.
_____ 2. Close, lock, and tag header shutoff valve.
_____ 3. Close, lock, and tag valve after trap on trap line between non-return and header shutoff.
_____ 4. Uncap and open drain valves to bleed off between header and non-return valves (tag bleed valve).
_____ 5. Lock and tag normally closed trap valve northwest corner of boiler.
_____ 6. Close, lock, and tag inlet valve before economizer.
_____ 7. Lockout and tag chemical feed pumps.
_____ 8. Close, lock, and tag discharge valves on boiler feed pumps.
_____ 9. Close, lock & tag continuous blowdown at boiler.

Fireside

_____ 1. Tag diverter valve diverted to stack.
_____ 2. Shut, lock, and tag guillotine isolation damper slide plate.
_____ 3. Change “blank” to “open” then run “seal air blower for diverter valve,” tag blower on.
_____ 4. Lock and tag breaker to F. D. fan.
_____ 5. Shut off, lock, tag, and bleed air supply to F. D. isolation damper.
_____ 6. Gas
______ a. Shut, lock, and tag gas valve after regulator outside.
______ b. Shut, lock, and tag two valves on boiler room floor.
Appendix 8: SAC Pool lockout procedure pictures

#1  Pool floor in raised position

#2  Switchboard: Room 022-A

#3  Isolation Device: Mechanical Rm. 020
#4 Release stored energy: bleed valves
Mechanical Rm. 020

#5 Pool floor on blocks after release of stored energy

#6 Switch Panel for sand filter in Mechanical Rm 040
#7 Butterfly Valve for water fill tank in closed position
APPENDIX 9: CENTRAL ENERGY FACILITY
CONTROL & EQUIPMENT LOCKS

The Central Energy Facility will utilize control locks and equipment locks to provide operational flexibility with the shift schedule while maintaining full personal safety benefits.

GROUP LOCKBOX:

The CEF typically uses a group lockbox to facilitate a proper lockout where greater than two (2) or more personal locks would be required. Group lockbox locks are considered safety locks. “RED” locks are used and are individually keyed and numbered. Presently there are 80 group lockbox locks. These lockbox locks are placed on individual equipment where an individual personal lock would normally be placed to perform a lockout. The keys for the locks used are then placed inside a group lockbox. Each individual can then place their personal lock on the group lockbox assigned to that specific lockout, preventing access to the lockbox keys, which affords the one person one lock requirement.

Lockout tags must be placed with all safety locks.

CONTROL LOCKS:

A control lock will be used for all group lockbox situations and keys will be limited to Supervision. Control locks are considered safety locks. The control lock will be “RED” and are individually keyed and numbered. The control locks will be a physically different size than personal or group lockbox locks.

The control lock will be in place for the complete duration of a lockout. This does not relieve an individual of placing their personal lock on the group lockbox but does allow each individual to remove their personal lock at the end of each shift or at the time of completion of their work that requires the lockout.

EQUIPMENT LOCKS:

Equipment locks are operational locks used to prevent operation of equipment during seasonal times of shutoff. Equipment locks are not considered safety locks. Equipment locks are “Blue” and are all keyed alike. All CEF operators, helpers, HVAC/R, electricians, maintenance mechanics, and supervisors will have access to the keys and locks.

Informational tags will need to be used in conjunction with equipment locks.

Typical situations where equipment locks will be used include:
1. Equipment out of service awaiting repair by other than CEF personnel
2. Parallel pump operation, balance annual operating hours

Note: Prior to removing an equipment lock, the individual removing the lock is responsible to confirm that the equipment is capable of operation.
Central Michigan University  
Energy Control Program – Lockout/Tagout Procedures  
Appendix Z  

Contractors

In accordance with MIOSHA Standard Part 85, Control of Hazardous Energy Sources, dated May 25, 1993, Central Michigan University has a written Energy Control (Lockout/Tagout) Program. The following part of the program pertains to contractors working at CMU facilities.

1. CMU’s Lockout /Tagout Procedure requires the lockout/tagout of machines, equipment, etc. whenever maintenance or servicing of any kind is performed. Lockout includes, among other steps, the installation of a padlock that is stamped “Safety Lock” along with the employees name or the name of the shop. A tag, without a padlock, will only be used where a padlock cannot be installed. The tag will indicate that the equipment has been locked out. At no time is any person to attempt to operate a piece of equipment that has a lockout/tagout device on it. At no time is a person to remove another person’s, shop’s or contractor’s lockout/tagout device. If a lockout/tagout device must be removed, only the person who installed the device is to remove it. If that person is not available, then that person’s supervisor, or designee, may remove it only after following the written procedure under “Emergency Safety Lock Removal” in the CMU Program. It is recommended that contractors review CMU’s Energy Control (Lockout/Tagout) Program.

2. At no time will CMU furnish lockout/tagout devices to contractors.

3. Contractors who work at CMU facilities will comply with OSHA/MIOSHA Lockout/Tagout requirements.

4. As required by OSHA/MIOSHA, contractors who will be doing work that requires the lockout/tagout of equipment will have their own written Lockout/Tagout Program.

5. Contractors will be responsible for instructing their employees in their procedures and appropriate CMU procedures, particularly those as stated in this section.

6. Contractor will inform the CMU contact person of the contractor’s lockout/tagout program & procedures. The CMU contact person will be responsible for informing the appropriate CMU areas/employees so they recognize the contractor’s locks/tags when working in the area.

7. Procedures involving more than one person: If more than one individual is required to lockout or tagout equipment, each shall use his/her own assigned lockout/tagout device on the energy source. When the energy source cannot accept multiple locks or tags, a multiple lockout/tagout device (hasp) should be used. When a single key is used to lockout the equipment/system, the key must be placed in a lockout box or cabinet. This cabinet or lockout box must allow multiple locks to secure it. Each employee will then
use his/her own lock to secure the box or cabinet. After each person no longer needs to maintain the lockout protection, that person will remove his/her lock from the cabinet. Proper removal procedures should be followed.

8. Contractor will coordinate with the CMU contact person at least 24 hours in advance of any lockout/tagout or de-energizing of equipment or utilities. CMU contact person will be responsible for coordinating and notifying the appropriate CMU areas/employees.

9. The Facilities Management Service Center, phone 774-6547, is to be notified when a significant area or system is to be de-energized and when it is re-energized. They will assist in the notification in Item 7, if requested.