Control of Hazardous Energy (Lockout / Tagout)
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PURPOSE
This program establishes the minimum requirements for safely isolating potentially hazardous energy sources. It shall be followed to ensure that equipment or machines are isolated from all potentially hazardous energy before employees perform service or maintenance activities where there may be an unexpected energization, start-up, or release of stored energy. Types of energy sources include electrical, mechanical, hydraulic, pneumatic, steam, gravitational, water pressure, chemical, spring, gas and any other hazardous energy.

SCOPE
This program applies to all equipment and machinery at the College where potentially hazardous energy exists. All employees and contractors of the College who maintain or service equipment and machinery are subject to the procedures outlined in the policy. Exceptions to the program are:

- **Minor tool changes and adjustments** and other minor servicing activities which take place during normal production operations are not covered by the standard if they are routine, repetitive and integral to the use of the equipment or machine for production, provided that the work is performed using alternative measures which provide effective machine safeguarding protection.

- **Cord and plug connected electrical equipment** when the employee performing the service or maintenance controls energization by unplugging the equipment or machine from the energy source and by the plug being under his/her exclusive control.

- **Hot tap operations** involving transmission and distribution systems from substances such as gas, steam, water or petroleum, when they are performed on pressurized pipelines, provided that the employer demonstrates that: continuity of service is essential, shutdown of the system is impractical, documented procedures are followed, and employees are effectively protected by special equipment.

RESPONSIBILITIES
Environmental, Health and Safety (EHS) Department

- Implementation and overall management of the program.
- Assisting departments with the implementation of machine specific lockout / tagout procedures.
- Offer departments and authorized employees consultation on safe procedures and policy requirements.
- Coordinating lockout / tagout training with authorized, affected and other employees.
- Reviewing and updating the program as needed.
Facilities Department
- Assisting with the implementation of machine specific lockout procedures and periodic inspection process.
- Notifying the Environmental, Health and Safety Department when equipment or machine installations / modifications occur that require machine specific lockout procedures to be developed.
- Ensuring employees and contractors under their supervision comply with the requirements of the program.
- Taking appropriate disciplinary action with employees and/or contractors not complying with the requirements of the program.

Managers / Supervisors
- Contact the Environmental, Health and Safety Department when consultation is needed.
- Notifying the Environmental, Health and Safety Department of equipment or machine installations / modifications.
- Ensuring employees and contractors under their supervision comply with the requirements of the program.
- Taking appropriate disciplinary action with employees and/or contractors not complying with the requirements of the program.

Authorized Employees
- Complying with the requirements of the program.
- Performing lockout / tagout to control hazardous energy while performing service or maintenance work on equipment or machines.
- Completing Authorized Employee Lockout / Tagout Training Program as specified by the College.
- Annually participating in the periodic inspections.
- Complying with the requirements of the program.
- Notifying their supervisor when there are questions regarding isolating energy sources safely, have observed non-compliance activities or when problems are identified with equipment or lockout devices.

Affected / Other Employees
- Completing Affected / Other Lockout / Tagout Training Program as specified by the College.
- Complying with the requirements of the program.

Contractors
- Comply with all aspects of the College's Lockout/Tagout Program. Copies of this program will be provided by the Environmental, Health and Safety Department upon request.
- Ensure that his or her employees are appropriately trained and authorized in lockout tagout.
- Comply with any machine specific lockout procedures that have been developed by the College for each machine or piece of equipment.
NON COMPLIANCE
Failure to comply with this program can lead to disciplinary action up to and including termination.

- Step 1—Documented verbal reprimand
- Step 2—Written reprimand
- Step 3—Short-term suspension; duration 1 day to 2 weeks
- Step 4—Long-term suspension; duration 2 weeks to 30 days
- Step 5—Discharge/Termination

In the event a contracted employee violates the program, the contractor and employee will be notified and/or may be removed from the jobsite. It will be the responsibility of the College employee supervising the Contractor to ensure compliance.

GENERAL REQUIREMENTS
All equipment shall be locked out or tagged out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy isolating device where it is locked or tagged out. Authorized employees of the College will be issued locks and equipment on an individual basis and will be accountable for the equipment and appropriate usage.

Lockout is always the preferred method of isolating equipment or machines from energy sources. However, when equipment is not capable of being locked out, proper tags maybe utilized.

EMPLOYEE CLASSIFICATIONS
Under the College’s Lockout / Tagout Program there are two employee classifications, Authorized and Affected / Other.

- **Authorized Employee** – An employee or contractor authorized to perform lockout / tagout on machines or equipment in order to perform servicing or maintenance on that machine or equipment.

- **Affected / Other Employee** - An employee whose job requires him/her to operate or use a machine on which servicing/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.
MACHINE SPECIFIC LOCKOUT / TAGOUT PROCEDURES:

Machine specific lockout / tagout procedures will be implemented for equipment and machines where energization, start up, or the release of stored energy during servicing or maintenance is possible and could result in injury. The procedures will contain the following information:

- Specific procedural steps for shutting down, isolating, blocking, and securing equipment or machines to control hazardous energy.
- Specific procedural steps for the placement, removal, and transfer of lockout devices or tagout devices, and a description of who has responsibility for them.
- Specific requirements for testing a piece of equipment or machine to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control.

Machine specific lockout procedures will be maintained electronically and can be accessed by authorized employees at the following location:

**F Drive Location of Machine Specific Lockout / Tagout Procedures**

F:\DATA\Environmental Health and Safety\Lockout Tagout\Machine Specific Procedures

WCTC’s General Lockout / Tagout Procedure should be used when performing service or maintenance on piece of equipment or machinery that doesn’t have a machine specific procedure implemented for it. A copy of the General Lockout / Tagout Procedure is located in Appendix B.

Authorized employees shall report machines not having machine specific lockout/tagout procedures to the Environmental, Health and Safety Office at 262-691-5226 or Ext 5226.

Documented procedures are not required for equipment or machines meeting the following criteria:

- There is no potential for stored or residual energy, or for re-accumulation of stored energy after shut down, which could endanger employees.
- There is a single energy source that can be readily identified and isolated and the isolation and locking out of that energy source will completely de-energize and deactivate the machine.
- The equipment or machine is isolated from that energy source and locked out during servicing or maintenance.
- A single lockout device will achieve a locked out condition.
- The lockout device is under the exclusive control of the authorized employee performing the servicing or maintenance.
- The servicing or maintenance doesn’t create hazards for the employee performing the work or for other employees in the area.

However, energy sources of these pieces of equipment or machines are still required to be isolated and locked out prior to any service or maintenance work.

**PERIODIC INSPECTION**
Periodic inspections will be conducted to ensure machine specific energy control procedures continue to be implemented properly, employees are familiar with their responsibilities and that any deviations or procedural inadequacies that are observed are corrected.

The person conducting the inspection should be an authorized employee not involved in the energy control procedure being inspected. Authorized employees who are not able to adequately perform the periodic inspection will be required to successfully complete Authorized Employee Lockout / Tagout Training.

The inspections will be conducted as needed, but at least annually. Results of the inspection will be documented on the Periodic Inspection Form and maintained by the Environmental, Health and Safety Department for a period of 3 years. A copy of the Periodic Inspection Form is located in Appendix C.

**ISOLATING ENERGY SOURCES**

1. Only trained, authorized personnel can perform lockout / tagout.
2. Notify affected employee(s) that servicing or maintenance is required on the machine and it must be shut-down and locked out.
3. The machine must be turned off and the operating controls placed in the off position.
4. Apply lockout devices to all required energy sources (see machine specific procedure).
   a. Each authorized employee shall place his/her own personal lockout or tagout device on each of the energy isolating device(s).
   b. Lockout devices when used must be affixed in a manner that will hold the energy isolating devices in a "safe" or "off" position.
   c. Stored or residual energy must be released or restrained by methods such as grounding, repositioning, blocking or bleeding down. For those situations where the energy source can’t be physically locked out, the tagout procedure should be used.
   d. Where tagout devices are used, it must be affixed in a manner that 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 attachment shall be fastened at the same point at which the lock would have been attached.
   e. If the tag can’t be affixed directly to the energy isolating device, the tag must 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. Verify the piece of machine is de-energized.
   a. Operate controls to make sure it will not operate. Once you have verified the machine will not operate make sure to return the controls to the neutral or “OFF” position.
6. The machine is now locked out and the service or maintenance may be performed.

**RESTORING TO OPERATION**
1. Inspect the work area and the immediate area around the machine to ensure tools and nonessential items have been removed and that the components on the piece of machinery are operationally intact.

2. Notify the “affected” and “other” employees in the area of impending restart and make sure they are safely positioned away from the equipment.

3. Verify the controls are in the neutral or “OFF” position.

4. Remove your lockout devices and energize the machine. The removal of some forms of blocking may require energization of the machine before safe removal of the blocking devices.

5. Notify the affected employees that the service or maintenance is complete and the machine is now ready to operate.

**REMOVAL OF LOCKOUT / TAGOUT DEVICE**

Only the authorized employee who applied the lockout or tagout devices is authorized to remove it from the machine. In the event a lockout or tagout device needs to be removed from a machine, and the authorized employee who applied the device is not present, the following steps shall be followed.

1. Identify and contact the authorized employee who applied the lockout device. This may require the authorized employee be contacted at home.

2. Determine why the lockout is still on the piece of machinery.

3. If you are not able to identify or contact the authorized employee, then contact the Environmental, Health and Safety Office or Supervisor of the authorized employee and it will be their responsibility to determine the status of the job.

Only after the above steps have been taken may the Department Supervisor or Environmental, Health and Safety Office authorize the removal of the lockout or tagout device.

**TESTING OR REPOSITIONING**

In some circumstances, authorized employees need to temporarily restore energy to a machine to test or reposition a machine during service or maintenance. The following steps should be followed by authorized employees for the temporary removal of lockout or tagout devices.

1. The machine must be cleared of tools and materials.

2. Employees must be removed from the machine area.

3. All lockout or tagout devices may then be removed.

4. Authorized employees may then proceed to energize and test or position the machine.

5. Following testing or positioning, all systems must be de-energized and energy control devices reapplied to continue the servicing and/or maintenance.
GROUP LOCKOUT
When service or maintenance work is being performed by a group of authorized employees, the following procedure shall be followed.

1. Notify the affected employee(s) that servicing or maintenance is required on the machine and it must be shut down and locked out.
2. Each authorized employee performing service or maintenance on the machine should isolate and lockout the required energy sources per the machine specific procedure.
3. Once all the required energy sources are locked out, the group of authorized employees should verify that each authorized employee in the group has secured a lockout to the required energy sources.
4. Next the authorized employee in charge will verify the equipment or machine is de-energized per the machine specific procedure.
5. The machine is now locked out, service or maintenance may be performed.

When service or maintenance is complete and the machine is ready to return to normal operating condition, the following procedure shall be followed.

1. Inspect the work area and the immediate area around the machine to ensure tools and nonessential items have been removed and that the components on machine are operationally intact.
2. Notify the “affected” and “other” employees in the area of impending restart and make sure they are safely positioned away from the machine.
3. Verify the controls are in the neutral or “OFF” position.
4. Each authorized employee should remove their lockout device from each of the energy sources. Once all the locks have been removed, the authorized employee in charge should verify that all employees working on the machine have removed their locks and are in a safe position for the start-up of the piece of machinery.
5. Notify the affected employees that service or maintenance is complete and the machine is now ready to be put back into operation.

SHIFT OR PERSONNEL CHANGE
When a locked or tagged out machine is either turned over to another authorized employee or transferred to an authorized employee on a different shift, the steps listed below shall be taken to ensure the continuity of energy control protection.

1. The authorized employee who had been performing service or maintenance on the shift that will be ending will notify the authorized employee of the oncoming shift on the status of the job. This communication should be done at the machine.
2. Next the authorized employee who had been performing the maintenance or service work will remove their locks from the energy sources and the new authorized employee will place their locks on the energy sources required to be locked out.
3. In the event that a maintenance job is not completed by the end of a shift and no authorized employees will be taking over, the lockout device of the last authorized employee performing the work should stay attached to the affected energy sources.
LOCKOUT / TAGOUT EQUIPMENT
For the purpose of achieving energy control, authorized employees will be provided with appropriate lockout / tagout equipment. Equipment shall include, but not be limited to locks, hasps, lockout devices and tags.

Requirements for Lockout/Tagout Devices
- Must be durable, so that they are capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.
- Must be singularly identified.
- Must be the only devices used for controlling energy.
- Must not be used for other purposes.
- Must be standardized within the facility in at least one of the following criteria: color, shape, or size. Additionally, tagout devices must be standardized as to print and format.
- Must be identifiable, in that it indicates the identity of the employee applying the devices.

Hardware requirements for lockout
- Lockout equipment must be substantial enough to prevent removal without the use of excessive force or unusual techniques such as with the use of bolt cutters or other metal cutting tools.

Hardware requirements for tagout
- Must be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.
- Must not deteriorate when used in corrosive environments such as areas where acid and alkali chemicals are handled and stored.
- Must be standardized in print and format.
- Must be substantial to prevent inadvertent or accidental removal.
- Must have an attachment means of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds.
- Must warn against hazardous conditions if the machine or equipment is energized.
- Must include a legend such as: Do Not Start, Do Not Open, Do Not Close, Do Not Energize, or Do Not Operate.
TRAINING
Employees who perform and are exposed to lockout / tagout must be trained so that they understand the purpose and function of the energy control program and acquire the knowledge and skills necessary for the safe application, usage and removal of the energy controls.

Authorized Employee Training
- Definition and purpose of lockout / tagout
- Applicable energy sources and magnitude of energy present at the facility
- Machine specific lockout / tagout procedures and the methods of controlling and isolating the energy
- General Lockout Tagout Procedure
- Procedure for testing or positioning machinery
- Proper use of lockout / tagout equipment
- Tagout system procedure and limitations of the tagout system
- Group lockout / tagout
- Shift / personnel change
- Lock removal procedure
- Periodic inspection requirements

Affected / Other Employee Training
- Purpose and use of lockout / tagout
- Prohibition relating to attempts to restart or reenergize machinery when they're either locked or tagged out
- Identifying tagout tags and tagout procedures to be followed
- Working around equipment or machines that have been locked out

Retraining and Additional Training
Retraining shall be provided for all authorized employees, affected and other employees when:
- There is a change in their job assignments
- A change in machines, equipment or processes that present a new hazard
- When there is a significant change in the program
- Whenever a periodic inspection reveals noncompliance or there is reason to believe that there are inadequacies in the employee’s knowledge or use of the energy control procedures.

PROGRAM EVALUATION
The Environmental Health and Safety Department is responsible for reviewing this program, its effectiveness, and for updating this program as needed, but at least annually. Updates or changes as a result of the evaluation will be documented in the Lockout / Tagout Program Evaluation Log (Appendix D).
APPENDIX A
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 that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment.
Normal production operations - The utilization of a machine or equipment to perform its intended production function.

Servicing or maintenance - Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining 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.
APPENDIX B

General Lockout / Tagout Procedure

WCTC’s General Lockout / Tagout Procedure should be used when performing service or maintenance on piece of equipment or machinery that doesn’t have a machine specific procedure implemented for it.

Authorized employees shall report machines not having machine specific lockout/tagout procedures to the Environmental, Health and Safety Office at 262-691-5226 or Ext 5226.

ISOLATING ENERGY SOURCES
1. Only trained, authorized personnel can perform lockout / tagout.
2. Notify affected employee(s) that servicing or maintenance is required on the machine and it must be shut-down and locked out.
3. The machine must be turned off and the operating controls placed in the off position.
4. Apply lockout devices to all required energy sources (see machine specific procedure).
   a. Each authorized employee shall place his/her own personal lockout or tagout device on each of the energy isolating device(s).
   b. Lockout devices when used must be affixed in a manner that will hold the energy isolating devices in a "safe" or "off" position.
   c. Stored or residual energy must be released or restrained by methods such as grounding, repositioning, blocking or bleeding down.
5. Verify the piece of machine is de-energized.
6. Operate controls to make sure it will not operate. Once you have verified the machine will not operate make sure to return the controls to the neutral or “OFF” position.
7. The machine is now locked out and the service or maintenance may be performed.

RESTORING MACHINES TO OPERATION
1. Inspect the work area and the immediate area around the machine to ensure tools and nonessential items have been removed and that the components on the piece of machinery are operationally intact.
2. Notify the “affected” and “other” employees in the area of impending restart and make sure they are safely positioned away from the equipment
3. Verify the controls are in the neutral or “OFF” position.
4. Remove your lockout devices and energize the machine. The removal of some forms of blocking may require energization of the machine before safe removal of the blocking devices.
5. Notify the affected employees that the service or maintenance is complete and the machine is now ready to operate

Failure to follow WCTC’s Lockout / Tagout Program can lead to disciplinary action up to and including termination.
APPENDIX C
Lockout / Tagout Periodic Inspection

Date of Inspection: ______________________

Authorized Inspector Performing Inspection: ______________________

Machine(s) Inspection Performed On:

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Authorized Employee(s) Observed:

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Observation:

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<td>Does the authorized employee have adequate lockout equipment?</td>
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<td>Does the authorized employee understand their responsibilities under the Lockout / Tagout Program?</td>
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<tr>
<td>Did the authorized employee understand and follow the machine specific lockout / tagout procedure?</td>
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<td>Does the procedure identify each of the machine(s) energy sources and the method used to isolate each of them?</td>
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Deficiencies:

Corrective Actions:

Results:

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<td>Does the authorized employee need to complete refresher training?</td>
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<td>Does the machine specific procedure need to be updated?</td>
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Comments:
Waukesha County Technical College will review and update each section of the Lockout Tagout Program on an as needed basis, but at least annually. The results of the program evaluations will maintained in the table below.

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<tr>
<th>Date</th>
<th>Evaluator</th>
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<tr>
<td>3/27/12</td>
<td>J Scherer</td>
<td>Updated program was implemented and released at WCTC.</td>
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