Lockout / Tagout Procedures

Purpose

The purpose is to ensure procedures are in place to prevent injuries from the unexpected energization, activation or release of hazardous energy during servicing or maintenance of machinery or equipment. This lockout/tagout program has been developed to establish procedures for de-energizing machines, equipment and processes to ensure work can be safely performed.

Scope

This program applies to all University of Regina Departments, staff, and contractors who perform servicing or maintenance on machines or equipment that may contain hazardous energy that, if released unexpectedly, could cause harm.

This program does not apply to the following:
1) Work on cord and plug connected electrical equipment where the unexpected energization or start-up is controlled by unplugging the equipment and the plug is under the direct control of the employee performing the work.
2) Minor servicing, tool changes or adjustments that do not have potential to cause injury.

Legislation:

Section 139 and 140 of the Occupational Health and Safety Regulations require:

Locking out

(1) Subject to section 140, before a worker undertakes the maintenance, repair, test or adjustment of a machine other than a power tool, an employer or contractor shall ensure that the machine is locked out and remains locked out during that activity if not doing so would put the worker at risk.

(2) Before a worker undertakes the maintenance, repair, test or adjustment of a power tool, an employer or contractor shall ensure that the energy source has been isolated from the power tool, any residual energy in the power tool has been dissipated and the energy source remains isolated during that activity.

(3) An employer or contractor shall:
   (a) provide a written lock-out process to each worker who is required to work on a machine to which subsection (1) applies; and
   (b) where the lockout process uses a lock and key, issue to that worker a lock that is operable only by that worker’s key and a duplicate key.

(4) Where the lockout process does not use a lock and key, an employer or contractor shall designate a person to co-ordinate and control the lockout process.

(5) Where the lockout process uses a lock and key, an employer or contractor shall designate a person to keep the duplicate key mentioned in clause (3)(b) and ensure that:
   (a) the duplicate key is accessible only to the designated person; and
   (b) a log book is kept to record the use of the duplicate key and the reasons for that use.

(6) Where it is not practicable to use a worker’s key to remove a lock, an employer or contractor may permit the person designated pursuant to subsection (5) to remove the lock if the designated person:
   (a) has determined the reason that the worker’s key is not available;
   (b) has determined that it is safe to remove the lock and activate the machine; and
   (c) if a committee or representative is in place, has informed the co-chairpersons or the representative of the proposed use of the duplicate key before it is used.

(7) An employer or contractor shall ensure that a designated person who is permitted to use a duplicate key pursuant to subsection (6):
   (a) records in the log book the use of the duplicate key, the reason for its use and the date of its use; and
   (b) signs the log book each time that the duplicate key is used.
(8) Where a central automated system controls more than one machine, an employer or contractor shall ensure that the machine to be maintained, repaired, tested or adjusted is isolated from the central system before the lock-out procedures required by subsection (3) are implemented.

(9) Before undertaking any maintenance, repairs, tests or adjustments to a machine to which subsection (1) applies, a worker shall lock out the machine following the process mentioned in clause (3)(a).

(10) After a lock-out device has been installed or a lockout process has been initiated, the worker who installed the first lock or initiated the process shall check the machine to ensure that the machine is inoperative.

(11) No person shall deactivate a lockout process that does not use a lock and key except the person designated pursuant to subsection (4).

(12) No person shall remove a lock-out device except the worker who installed the lock-out device or the designated person acting in accordance with subsection (6).

Cleaning, etc., of machine or other equipment in motion

140(1) This section applies where any of the following requires cleaning, lubrication or adjustment while all or any part of a machine or other piece of equipment is in motion or under power:
   (a) the machine or other piece of equipment;
   (b) a part of the machine or of the piece of other equipment; or
   (c) any material on the machine or on the piece of equipment.

(2) In the circumstances mentioned in subsection (1), an employer or contractor shall:
   (a) develop and implement written work practices and procedures that ensure that the cleaning, lubrication or adjustment is carried out in a safe manner;
   (b) ensure that workers who are required to perform the cleaning, lubrication or adjustment are trained in the written work practices and procedures mentioned in clause (a); and
   (c) ensure that a copy of the written work practices and procedures mentioned in clause (a) is readily available for reference by workers.

The OHS regulations defines “Locked Out” at section 2(1)(ll) as:
“(ll) “locked out” means to have isolated the energy source or sources from equipment, to have dissipated any residual energy in a system and to have secured the isolation by a device that is operated by a key or other process.”

Definitions

Affected Employee: An employee who operates or uses a machine or equipment on which servicing or Maintenance is being performed under lockout tagout or who works in an area where such work is being performed.

Authorized Employee: An employee authorized to implement lockout/tagout procedures on machines or equipment to perform maintenance or servicing work. May refer to an employee or contractor.

De-energized:Disconnected from all sources of energy and not containing residual or stored energy.

Electrical Disconnect Switch: A pull-type switch or circuit breaker which physically opens to disconnect the circuit.

Energy Isolating Device: A mechanical device that physically prevents the transmission or release of energy, to or from a machine or equipment. This device usually de-energizes the machine or equipment and allows a padlock to be placed on it. A lockout device is used where a padlock cannot be placed directly on the energy isolating device. Energy isolating devices include: manually operated disconnect switches, circuit breakers; line valve; block. Note: Push buttons, selection switches and other circuit control type devices are not considered energy isolating devices.

Energy Source: Any source of electrical, mechanical, hydraulic, pneumatic, chemical, thermal, gravitational or other energy.
**Hazardous Energy**: Energy sources including electrical, mechanical, hydraulic, pneumatic, chemical, thermal, gravitational or other potential energy that, when released, can cause harm.

**Isolation**: Ensuring all sources of hazardous energy for a piece of equipment or machinery are moved or controlled to prevent it from unexpected activation or energization.

**Locked-out**: Means to have isolated the energy source or sources from equipment, to have dissipated any residual energy in a system and to have secured the isolation by a device that is operated by a key or other process”.

**Lockout Device**: A device that can be placed on an energy isolating device and that allows a positive means, such as a lock, to be placed on it to controlling the energy isolating device.

**Qualified Electrical Worker (QEW)** - Minimum Journeyman Electrician, with suitable experience and knowledge. Can be a Power Linesperson, Professional Engineer, Applied Science Technologist, or Certified Technician for high voltage electrical work tasks.

**Servicing and/or Maintenance**: Activities such as constructing, installing, setting up, adjusting, inspecting, modifying and/or servicing machines. This includes activities such as lubrication, cleaning or unjamming of machines or equipment and making adjustments.

**Supervisor**: A person who has charge over a workplace or authority over a worker. Depending on the particular reporting relationship, a Supervisor includes, but is not limited to any of the following: Manager, Associate Dean, Director, Vice President or President.

**Tags** are the “Do Not Operate” tags or other similar label used to indicate that the device is not to be operated. The use of “Do Not Operate” tags in place of locks is prohibited at the University of Regina.

**Written Lock Out Procedures** are the procedures contained in this procedure and equipment specific procedures prepared by supervisors and others as outlined in the Supervisor Responsibilities. (A safety lockout form template is provided in Appendix 1.)

### Responsibilities

1. **Vice-President and Associate Vice-President** will:
   1.1 ensure that adequate resources are available to implement appropriate measures.
   1.2 require that the procedures is communicated to employees.
   1.3 require compliance with the procedures.

2. **Director or Dean** will:
   2.1 ensure the procedures are communicated.
   2.2 require compliance with the procedures.
   2.3 ensure lockout / tagout devices are supplied to employees at no cost to them.
   2.4 ensure required records are maintained.
   2.5 ensure only trained and competent employees are authorized to perform work requiring a lock out.
   2.6 ensure contractors who perform work requiring a lock out are provided with the University’s written lock out procedures.
   2.7 require contractors to provide in writing assurance that their workers are trained in and will comply with the University’s procedures.
   2.8 maintain a central registry of all lock out procedures written by supervisors and others.

3. **Supervisors and Project Managers** will:
   3.1 attend appropriate training.
   3.2 ensure all employees are trained on the Lockout / Tagout Procedures and associated requirements.
   3.3 ensuring written lockout/tagout procedures are prepared for machines, equipment and processed in their area. A safety lockout procedure form template is provided in Appendix 1.
3.4 ensure only authorized employees perform work requiring a lock out.
3.5 ensure required records are maintained on file.
3.6 require compliance with these procedures.
3.7 ensure contractors performing servicing or maintenance work in their area comply with lockout/tagout procedures.

4. Authorized employees will:
   4.1 attend required training.
   4.2 follow the University’s written lock out procedures.
   4.3 never remove the locks belonging to another employee or contractor.
   4.4 consult immediate supervisors when questions or concerns arise, or when their keys or locks are lost.
   4.5 immediately notify supervisor of violations of these procedures.
   4.6 assist in the development of lockout/tagout procedures for machines, equipment or processed in their area.

5. Contractors and their employees will:
   5.1 contact and sign-in with the appropriate department prior to commencing their work.
   5.2 provide a positive means of attaching a lock and securing a control device in an inoperable position for any equipment provided to the University.
   5.3 comply with these procedures.
   5.4 provide their own locks.

6. Health Safety & Environment will:
   6.1 provide assistance and guidance to departments regarding lockout and tagout procedures.
   6.2 partner with supervisors in coordinating appropriate training for employees.
   6.3 review and update the lockout/tagout program.

Lockout/Tagout Guideline  (Read this prior to step 1)

1) Only authorized employees or contractors are permitted to perform lockout/tagout procedures.
2) Prior to commencing servicing or work, equipment and machinery shall be inspected to verify the equipment or machinery can be effectively isolated.
3) All potential sources of hazardous energy (e.g. mechanical, hydraulic, pneumatic, chemical, thermal, and gravitational or other potential energy, etc…) must be considered when determining lockout/tagout procedures.
4) If an energy isolating device is capable of being locked out, then it must be locked and tagged.
5) If an energy isolating device is not capable of being locked out, then it must be tagged out.
6) Each person performing servicing or work on a machine must apply their own lock. After the lock has been applied, the key must be retained by the person who applied the lock.
7) An absence of voltage test must be performed by a Qualified Electrical Worker(QEW) before working on electrical equipment or conductors.

Step 1 Prepare for Shutdown Procedure

The authorized employee will:

1) complete the safety lockout form provided in Appendix 1.
2) Identify machines, equipment and processes to be isolated.
3) Inform all affected employees when machinery or piece of equipment will be locked out.
4) Identify the types and magnitude of hazardous energy (e.g. mechanical, hydraulic, pneumatic, chemical, thermal, gravitational or other potential energy etc…) to be controlled and understand the hazards of that energy.
5) Identify the methods for controlling the hazardous energy.
6) Identify all isolation points and energy isolation devices to be locked out. Ensure remote computer and/or programmable computer logic controllers are considered.
7) Identify and obtain appropriate personal protective equipment.
8) Identify and obtain locks, tags, lockout devices and other equipment required to perform the work.
Step 2 Equipment Shutdown

1) Notify all affected employees of the lockout.
2) Shutdown the equipment following the normal stop or rundown procedures. (e.g. push ON/OFF or START/STOP buttons or switches).
3) Locate all energy isolation devices required to control the hazardous energy (e.g. gravity, electrical, mechanical, pneumatic, pressure etc…).

*Note: Read before Next Step:* Never open a disconnect switch without first shutting down the equipment as it could result in arcing or an explosion. Use the left hand rule when opening and closing disconnect switches. (Left hand rule: Stay to the right of the disconnect switch, face away and use your left hand to operate the switch. This positioning protects the face and body in the event of arcing or an explosion).

4) Operate the energy isolation devices such that the machine or equipment is isolated from energy sources. This usually involves opening a disconnect switch, circuit breaker or closing valves.

Step 3 Apply Lockout/Tagout Devices

1) Apply LOCKS and TAGS to each energy isolation device to ensure it is held in OFF position.
2) Where a lockout device is required for an energy isolation device, install the lockout device and apply locks and tags to ensure it is held in the “OFF” position.
3) Lockout devices and locks may be omitted, but only if the energy isolating device is not capable of being lock-out.
4) If a tag alone is used, additional safety measures that can provide the same level of safety as a lock must be employed. This might include removing and isolating a circuit element, blocking access to a controlling switch or removing a valve handle to reduce the potential for any inadvertent activation.
5) Write your name, the date and the purpose for the lockout/tagout on the tag.

Step 4 De-energization: Stored Energy Release or Restraint

1) After application of lockout devices, all stored or residual energy must be relieved, disconnected, blocked, bled, restrained or otherwise made safe.

Note: Remember to consider energy stored in capacitors, springs, pressure lines, elevated equipment.

Step 5 Verification

1) Ensure all affected employees are CLEAR of the machine or equipment.
2) Before beginning any work, verify the machine or equipment is isolated and cannot be activated or restarted by one or more of the following actions:
   - Manually TRY operating control buttons or switches to start or operate the machine or equipment. Return controls to their off or neutral position.
   - Using test instruments to test circuits.
   - Visually inspecting the position or movement of parts such as gears, rotating parts, shafts, flywheels to ensure movement has ceased; inspecting gauges or other indicators.

Note: Always Remember - LOCK, TAG, CLEAR, TRY

Step 6 Release from Lockout

1) Ensure all non-essential equipment or parts have been removed from the machine and the machine is operationally intact and safe to be operated.
2) Ensure the machinery, equipment and surrounding area is clear of anyone who could be harmed by the start-up.
3) Ensure each person who applied a lockout device and tag removes these from each energy isolation device.
4) Energize the machine, but do not start it up.
5) Notify all affected employees the machine or equipment is ready to be started.
6) Re-start the machine or equipment.

**Testing on Energized Equipment**

When there is a need to temporarily remove a lockout device to perform testing or troubleshooting on a piece of equipment or machinery, the following procedure is to be used:

1. Clear the machine or equipment of parts, tools that could be affected by energizing the machine or equipment.
2. Clear people from the area.
3. Remove the lock(s) and tag(s) from the affected energy isolation device.
4. Perform the testing.
5. De-energize and re-apply the lockout/tagout devices
6. Verify the machine or equipment has been re-isolated by operating controls etc…
7. Resume work on the machine or equipment.

**Group Lockout**

When maintenance or servicing work is being performed by more than one authorized employee, a Primary Authorized Employee must be assigned responsibility for the controlling all energy isolating devices for the machine, equipment or process. If required for complex situations complete the safety lockout form provided in Appendix 1.

**Step 1** Prior to a Group lockout a start-up meeting with ALL employees will take place. At this time the Primary Authorized Employee (Lead) will be identified and communication plan will be developed.

**Step 2** A designated, authorized employee in the group secures each energy-isolating device with a personal lock.

**Step 3** The same authorized employee places the key that fits each lock in a group lockbox with a multilock hasp or lockbox.

**Step 4** The other authorized employees in the group secure the lockbox — they attach their personal locks to the box — before beginning their service work.

**Step 5** After each employee finishes service work on the equipment, that employee removes his personal lock from the lockbox.

**Step 6** After all the employees have finished their service work and removed their personal locks from the lockbox, the authorized employee who placed the key in the box removes it.

**Step 7** The authorized employee uses the key to remove the lock on each energy-isolating device.

**Step 8** The Primary Authorized Employee (Lead) will hold a final meeting with all authorized employees involved prior to re-energization.

When going off shift and your personal lock is still in place, your relief must put his own personal lock on before you remove yours.

**Training**

Training in lockout procedures shall be provided to all employees who are required to use this or similar procedures. Supervisors / managers will maintain appropriate records of employee training.

Contractors are responsible to train their workers in lockout procedures. Copies of this Procedure will be made available to Contractors for their information and use. Contractors will be advised that they are to follow this procedure when working on University projects.

If any employee requiring knowledge in lockout has demonstrated a lack of understanding of the requirements and/or a failure to follow these requirements, they shall be required to participate in additional training prior to being allowed to engage in any work activity that requires the protection of lockout.
Lockout / Tagout Procedures

Removing another employee’s lock is a serious matter and is prohibited except in the case of an emergency and only when the following procedure has been adhered to:

1. The supervisor shall be informed that a lock needs to be removed and that the person assigned the lock cannot be located.
2. The supervisor will make every effort to contact the lock owner and document these attempts on the attached form.
3. The supervisor shall then contact HSE to request their attendance at the area for the inspection and lock removal. If no person from HSE is available, the Supervisor or the Director, Dean or designate shall be requested to attend.
4. At least one employee representative will be present during the inspection of the area and lock removal.
5. If the person cannot be located and the area in question has been inspected and is clear of any hazards to anyone, the lock may be opened.
6. The supervisor shall be responsible for filling out and distributing the Abandoned Lock Removal Form.
7. A copy of the Abandoned Lock Removal Form and the lock information shall be forwarded to HSE for follow up. Further, copies shall be supplied to the Director or Dean, the University’s Occupational Health Committee and the Local Safety Committee. A copy shall also be submitted to the co-chairs of the contractor’s occupational health committee or the contractor’s Occupational Health and Safety Representative when a contractor’s lock requires emergency removal.
ABANDONED LOCK REMOVAL FORM

It is the responsibility of the authorized employee to remove his/her lock at the end of the workday. If an authorized employee forgets to remove his/her lock before leaving the worksite, the immediate supervisor must:

1. Call the authorized employee to verify the employee has left the worksite and inform him/her that their lock is being removed.
2. Lockout tagout devices may not be removed unless the responsible supervisor is present and authorizes removal. Duplicate keys to locks are kept with the locksmith.
3. The supervisor must make all reasonable attempts to contact the employee and inform him/her that their lock will be removed. If the authorized employee cannot be contacted, and the supervisor has verified that the employee is not at the facility, an inspection of the equipment will be completed and if it is deemed in safe working order the energy to the equipment may be restored. The supervisor must then ensure that the authorized employee is made aware of the removal before he/she resumes work.
4. After completion of the inspection and if the equipment is found to be in safe working order, the equipment may be restored.

Date Removed: ________________________________

Authorized Employee: __________________________________________________________

Department: ____________________________________________________________________

Lock Location: __________________________________________________________________

Authorized Employee Notification Verification:

Notified by Phone: _______ Date: _______________________________ Time: _________

Notified In Person: _______ Date: _______________________________ Time: _________

Signature: ____________________________________________________________

Authorized Employee

Signature: ____________________________________________________________

Immediate Supervisor
## Safety Lockout

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<th>Campus Building</th>
<th>Room Number</th>
<th>Machine/Equipment</th>
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**Completed By:**

**Date:**

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**Always Perform a machine Stop Before Locking Out Disconnects.**

**Before Servicing this machine, notify the affected people.**

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<th>Energy Source</th>
<th>Lockout Location</th>
<th>Steps for locking out and or releasing energies</th>
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