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Lockout Procedure	

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1. PURPOSE



- 1.1. To inform employees and students of the requirements, expectations, and proper procedure(s) for locking out equipment.

2. SCOPE

- 2.1. This procedure applies to all employees and students of Thompson Rivers University (TRU) and any contractors working on TRU equipment or machinery.

3. PRECAUTIONS

POTENTIAL HEALTH & SAFETY HAZARDS

HAZARD		TO PROTECT YOURSELF
PINCH POINTS There are gears and exposed moving parts on this machine.		Use LOCKOUT procedures when performing maintenance or conducting any work within 12” of an exposed pinch point. NEVER put your hands or feet near an exposed pinch point or gears!
ELECTRICAL HAZARD		Do not attempt to service electrical wires. Consult the Maintenance Department.

4. ASSOCIATED DOCUMENTATION

<u>Doc. Number</u>	<u>Doc. Title</u>
	Lockout Checklists
OH&S 18.19.1	Lock Removal Form

5. PROCEDURES AND RESPONSIBILITIES

- 5.1. It is the responsibility of all persons engaged in maintenance activities to know and comply with lockout procedures. Failure to follow these lockout procedures is cause for disciplinary action.
- 5.2. Supervisors are assigned the responsibility to ensure that all persons are adequately instructed in lockout procedures and that all energy sources for equipment and machinery are deactivated and secured in the “off” position through the use of

appropriate locks.

- 5.3. In the event of a worker violating a lockout procedure, the supervisor shall also be held accountable for the workers failure to comply.
- 5.4. Contractors or service technicians not in the direct employ of TRU shall be responsible for providing their own locks. Under no circumstances will TRU provide locks to non-employees

TRAINING

- 5.5. Training in lockout procedures will be provided to all persons who are required to use this or similar procedures by their immediate supervisor or other trained person.
- 5.6. Where in the opinion of the Assistant Director, Human Resources, any employee requiring a 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 take additional training prior to being allowed to engage in any work activity which requires the protection of lockout.

AUTHORIZATION

- 5.7. Maintenance of TRU equipment or machinery will only be conducted by persons authorized to perform such work.
- 5.8. Contractors or outside services personnel will sign-in with the appropriate department (facilities) prior to commencing their work.

LOCKS AND KEYS

- 5.9. Each authorized person will be issued with their own personal locks (a minimum of 3), which must be clearly marked, labeled or stamped with that person's name in order to identify the owner of the locks.
- 5.10. Locks shall be "keyed alike" for each individual. No two people shall have matching locks. A sufficient number of keys will be issued to each person for their own locks.
- 5.11. No "extra duplicate" keys will be retained by the supervisor or any person other than the worker to whom the locks were assigned. No keys for lockout locks shall be retained in the Facilities Service Department key cabinet.
- 5.12. In the event that a person's keys are lost, the locks will be removed in accordance with section 12.5 of this procedure.
- 5.13. Any person losing their keys and/or locks must report that loss to their supervisor immediately. Where keys are lost, if the individual does not have replacement keys, new locks will be issued or the existing locks re-keyed if possible.

- 5.14. People are forbidden to remove locks belonging to another employee or student is prohibited. Doing so will result in disciplinary action.
- 5.15. Under no circumstances are an individual's personal locks to be loaned or borrowed.
- 5.16. 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.
- 5.17. Locks can only be removed by the person who installed them. In the case of an emergency, see Section 12.5 of this procedure.
- 5.18. The use of "Do Not Start" or "Lockout" tags in place of locks is prohibited within all TRU campuses.

MULTIPLE LOCK ATTACHMENTS (SCISSOR CLIPS)

- 5.19. Each authorized TRU person shall be issued with a minimum of three (3) multiple lock attachments.
- 5.20. A sufficient number of multiple lock attachments shall be readily available in each MCC or other location where they might be required.
- 5.21. When using these devices, never apply a lock to the last available opening. Always apply another multiple lock attachment.

MAINTENANCE DEPARTMENT LOCKS

- 5.22. "Maintenance Department Locks" or "Facilities Service Locks" are used to secure equipment in an inoperable condition for a long period of time.
- 5.23. These locks are clearly different in size, shape and colour from the type of locks used by individuals.
- 5.24. They are numbered consecutively and the number recorded.
- 5.25. Control of these locks and their keys is the responsibility of the Manager, Mechanical and Electrical Services.
- 5.26. A register/log is maintained to account for the whereabouts of these locks. A record is kept of who signed the lock out and where the lock it to be used. Upon return, each lock is logged back in.
- 5.27. These locks are not under any circumstances to be used in place of personal locks.

MISCELLANEOUS

- 5.28. Some means of attaching a lock and securing the control device in an inoperable position will be provided for all types of control devices encountered within TRU.

- 5.29. When the control device is a circuit breaker, special lockout devices will be attached before the use of multiple lock attachments and locks.
- 5.30. On circuit breaker panels, the use of the built-in lock on the panel cover door **will not be used for lockout**.
- 5.31. If equipment is fitted with interlocks, the interlocks will be disabled and locked out.
- 5.32. Lockout is not required when one person is working on equipment that is connected to a wall or floor mounted socket or receptacle by removable plug. Before doing any maintenance work on such equipment the plug must be removed from the outlet.
- 5.33. Removal of the correct plug must be checked before work commences to ensure that the machine has been disconnected.
- 5.34. The person performing maintenance work must keep control over the plug at all times. Additionally, to ensure that the plug cannot be plugged into an outlet accidentally, the worker can apply a smaller personal lock through the holes in the prongs of the plug if available.
- 5.35. When more than one person works on a piece of plug in equipment, a specialized plug lock box shall be attached to the free end of the cord and normal lockout procedures shall be followed using multiple lock attachments.
- 5.36. An electrical disconnect must not be disengaged (pulled) while it is under load. Such action can cause arcing or an explosion and result in injury or property damage.
- 5.37. The removal of fuses for the sole purpose of disconnecting power is prohibited.
- 5.38. In High Voltage installations (voltage over 750 volts) only a qualified electrician should operate the main disconnect.

LOCKING OUT

- 5.39. First Person Locking out:
 - 5.39.1. Inform employees who will be affected by the shutdown.
 - 5.39.2. Use the start/stop switch to turn the machine off and ensure that the machine is no longer running.
 - 5.39.3. Disconnect from power supply - Face AWAY from the breaker switch and put it in the OFF position using a positive action.
 - 5.39.4. Apply a scissor-clip to the switch and your lock on to the scissor-clip.
 - 5.39.5. Test the effectiveness of the lockout by carefully trying to start the machine.
 - 5.39.6. See if your scissor clip and lock actually prevent somebody else from turning

the power back on.

5.39.7. Other people working on same machine: If you are going to work on a machine that is already locked out, apply a lock to the lockout scissor clip.

Every employee working on a locked out machine must have his or her own lock applied to lockout all power sources.

5.39.8. Proceed with the necessary maintenance work.

5.39.9. If it is necessary to test run the machine, follow section 11.3 (if applicable) and safe start-up procedures that apply to that machine.

5.39.10. If in doubt about the lockout procedure, ask your supervisor or Occupational Health and Safety Department staff.

LOCKOUT FOR MACHINES USING HYDRAULICS AND/OR AIR

5.40. Employee Locking out:

5.40.1. In addition to the regular lockout procedures, airlines running to machinery that may put an employee in any danger, must be locked out by using a lock and scissor clip. Ensure that the airline remains open by either locking open or having an open line so that the system cannot be re-pressured. After locking out the airline, the Operator must then BLEED the line(s) in the machine, ensuring that no air pressure remains.

5.40.2. Any hydraulic parts that may be dangerous must be put in the “DOWN” or “RELAXED” position before the machine is locked out. As above for airlines remaining open.

WHERE POWER IS NECESSARY FOR SET-UP / MAINTENANCE

5.41. Employee Locking out:

5.41.1. Workers engaged in work on live equipment will be fully authorized and trained.

5.41.2. A separate written safe work procedure will be developed and posted adjacent to the equipment where live work is needed.

5.41.3. The person must ensure that they will NOT be exposed to any potential hazard as illustrated in Section 3.

5.41.4. There must be at least one other person in the area who knows how to turn off or disengage the machine in an emergency situation.

- 5.41.5. The person must secure the area to ensure that all people in the area know that the machine is being worked on.
- 5.41.6. The Employee must walk around the machine to ensure that all other persons are clear and that it is safe to energize the machine, i.e. belts have been replaced and tools removed.
- 5.41.7. The Employee may then energize only the part of the machine necessary to do the required work.
- 5.41.8. Once the work that required the machine to be energized is complete, regular lockout or Operation procedures then apply.

REMOVING LOCKS

5.42. Employee(s) Locking Out:

5.42.1. When all work is complete and before you remove your lock - ENSURE THAT:

- a) Any defective guards and safety devices are repaired or replaced.
- b) All components are properly installed including guards and safety devices.
- c) The equipment or process is free of incomplete work, obstructions and other unnecessary items.
- d) You know the sequence for lock removal and start-up.
- e) Everyone is clear and remains clear of danger during start-up.

5.42.2. On completion of the work, remove your lock (and clip if you are the last lock remaining)

5.42.3. Restore power by operating the breaker switch in a positive manner.

REMOVING A LOCK BELONGING TO ANOTHER EMPLOYEE

Removing another employee's lock is a serious matter and is prohibited except in the case of an emergency. The need to remove another employee's lock must be referred to the Supervisor or Manager in charge.

5.43. If it is not known why a machine is locked out and the person who installed the lockout is not available, the **Supervisor** or **Manager** will be notified.

5.44. Supervisor / Manager in charge will:

5.44.1. Make every reasonable effort to contact the lock owner and document the attempts on the Lock Removal Form.

5.44.2. Contact the chairperson (for instructional staff), or the appropriate Manager (for non-instructional staff) to request their attendance to the area for inspection and lock removal.

- 5.44.3. Contact a member of the Occupational Health and Safety Department, if on site, and ask them to be involved in the site inspection to ensure safety and the removal of the lock(s).
 - 5.44.4. Check with Maintenance Personnel to ensure that the machine or equipment can be operated safely before removing the lock.
 - 5.44.5. Have at least one worker representative present during the inspection and lock removal.
 - 5.44.6. Get the lock(s) cut off if the lock owner cannot be located, the area has been inspected and verified to be clear of hazards.
 - 5.44.7. Fill out and distribute the lock removal form.
 - 5.44.8. Forward the severed lock and form to the Occupational Health and Safety Department for follow-up if no OHS Department member was on site at the time.
 - 5.44.9. Notify the worker at the start of their next shift that their lock has been removed.
- 5.45. Action taken as a result of the lock removal will be documented.

**Violation of lockout procedures and/or rules will not be tolerated.
Disciplinary action will result.**

6. DEFINITIONS

- 6.1. **Authorized person** - a person who has been authorized by a TRU supervisor to perform the maintenance work conducted. May refer to an employee, student or contractor.
- 6.2. **Control system isolating device** - a device that physically prevents activation of a system used for controlling the operation of machinery or equipment.
- 6.3. **Disconnect** - a mechanism which disconnects the machinery or equipment from the power source.
- 6.4. **Energy isolating device** - a device that physically prevents the transmission or release of an energy source to machinery or equipment.
- 6.5. **Energy source** - any electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other source of energy of potential harm to workers.
- 6.6. **Key securing system** - a system which physically prevents access to keys when locks or positive sealing devices are applied in a group lockout procedure.

- 6.7. Lockout** - the use of a lock or locks to render machinery or equipment inoperable or to isolate an energy source in accordance with a written procedure.
- 6.8. Lockout loop** - the loop provided on the handles of electrical disconnects, or in specialized lockout devices for the purpose of attaching locks or multiple lock attachments.
- 6.9. Maintenance** - work performed to keep machinery or equipment in a safe operating condition, including installing, repairing, cleaning, lubricating and the clearing of obstructions to the normal flow of material.
- 6.10. Motor Control Centre (MCC)** - a centralized location of the main control devices which service machines or equipment of a given area. MCCs may be located some distance from the machinery they serve.
- 6.11. Multiple Lock Attachment** - a device designed to be used to secure a control device in the “off” position and has provisions to accommodate several locks. Includes device commonly called “scissors clips”. May also include the use of cable lock systems, and chains.
- 6.12. Normal production** - work that is routine, repetitive, and integral to the normal use of machinery or equipment for production.
- 6.13. Personal lock** - a lock provided by the employer for use by a worker to ensure personal lockout protection such that each lock when applied is operable only by a key in the worker's possession, and by a key under the control of the supervisor or manager in charge.
- 6.14. Tag** – a “Do Not Operate” tag or similar label used to indicate that the device is not to be operated.
The use of “Do Not Operate” tags at TRU is prohibited.
- 7. RECORDS/VERIFICATION OF UNDERSTANDING**
- 7.1. Records:**
- 7.1.1.** Lockout Checklists
- 7.1.2.** Lock Removal Forms
- 7.2. Verification of Understanding:**
- 7.2.1.** A training master log will be maintained by

8. SUMMARY OF CHANGES

Revision #	Date	Change (include section #)	Issued By
1	2010.07.14	NEW	OHS Manager
2	2014.01.23	Review	OH&S Officer