

ENVIRONMENT, HEALTH AND SAFETY PROCEDURE 2.4.2

LOCK-OUT, TAGGING AND TEST PROCEDURE

1 SCOPE

The lock-out, tagging and test procedure shall be part of the Peel District School Board (PDSB) Building and Maintenance Operating Procedures and shall be followed by all employees and contractors. The scope of this procedure is to interpret the Occupational Health and Safety Act (OHSA) as it applies to the tagging and locking-out of control switches or other control mechanism, and to provide details of a procedure by which consistent protection can be provided. Please note, working on live equipment is prohibited by PDSB.

In addition to Maintenance personnel, this procedure shall apply to academic staff who must perform lockout on machines used in food services, transportation, communication, construction and manufacturing technology classrooms and shops.

2 LEGISLATION

The applicable legislation is found in Section 42 of Regulation 851 for Industrial Establishments:

- 1) *The power supply to electrical installations, equipment or conductors shall be disconnected, locked out of service and tagged before any work is done, and while it is being done, on or near live exposed parts of the installations, equipment or conductors.*
- 2) *Before beginning the work, each worker shall determine if the requirements of subsection (1) have been complied with.*
- 3) *Not applicable*
- 4) *Not applicable*
- 5) *If more than one worker is involved in the work referred to in subsection (1), the worker who disconnected and locked out the power supply shall communicate the purpose and status of the disconnecting and locking out.*
- 6) *If a tag is used as a means of communication, the tag,*
 - a) *shall be made of non-conducting material;*
 - b) *shall be secured to prevent its inadvertent removal;*
 - c) *shall be placed in a conspicuous location;*
 - d) *shall state the reason the switch is disconnected and locked out;*
 - e) *shall show the name of the worker who disconnected and locked out the switch; and*
 - f) *shall show the date on which the switch was disconnected and locked out.*
- 7) *The employer shall establish and implement written procedures for compliance with this section.*

3 BACKGROUND

The regulation refers generally to the hazards associated with the accidental starting of a machine. This includes the possibility of injury from working near inter-connecting machines or equipment (in which case they too shall be shut down and locked out); electrical shocks and burns; injuries associated with the accidental starting of steam, hydraulic, pneumatic, chemical processing or other systems.

Since a high percentage of machines and equipment use electricity as the source of power and as the control for other sources of power, this procedure will deal primarily with the locking-out of electrical switches. This does not preclude the requirements for the lock-out of all sources of power, including but not limited to, electrical, mechanical, compressed air, hydraulic, steam, gravitational, radiation and gas.

No employee shall rely on someone else for lock-out protection. Each employee performing work that requires locking-out shall apply his/her own safety lock to each source of power. If more than one employee is working on the equipment, each employee shall apply his/her own lock, e.g. one employee - one lock; three employees - three locks etc. **ON EACH POWER SOURCE.**

Machines taken out of service shall remain locked out during the entire period that they are out of service.

4 DEFINITIONS

The reference to "control switches" in the Regulation, as it applies to electrical controls, shall be understood to mean the main power source or disconnect switch.

Electrical "disconnect switch" means a pull-type switch or circuit breaker which physically opens to disconnect the electrical circuit.

"Start" or "stop" switch means a toggle or push button switch usually mounted near the machine.

The word "machine" shall be understood to include "transmission machinery, device or thing". This includes boilers, vessels, chests, steam or air driven machinery, pipelines, etc. which must be isolated to safely carry out the work.

"Work" shall mean other than the normal operation of the machine, e.g. the inspection, repair, adjustment, cleaning, maintenance, etc. for which the machine must be stopped.

"Qualified person" means a person designated by his/her employer as qualified because of knowledge, training and experience to safely perform an assigned task.

"Worker" is the staff or contract person performing the work on a machine.

In actual application, "the qualified person", or "the worker" may be the same individual.

"BSL" refers to a Board Safety Lock, usually blue in colour and is used by PDSB Maintenance staff.

"PSL" refers to a Personal Safety Lock, usually red in colour and is used by PDSB Maintenance staff. The Best Double Lockout Safety Padlock, Cat. No. 1B732ZZ with a 3" shackle is recommended.

5 PROCEDURES

The following procedures detail the basic requirements necessary for the protection of workers performing work on machines. Please note, each worker must be qualified (i.e.: trained) to safely perform the tasks they undertake.

- 1) The worker shall review the drawings of the system to determine all the switches, power sources, controls, interlocks and all other devices necessary to isolate the system. Where necessary, confirm this with all relevant departmental supervisors and the building supervisor, building lead hand or head custodian.

- 2) De-Energization
 - a) The qualified person shall ensure that the machine is safely de-energized. This may involve:
 - Locking off air, gas, steam or other valves at the source of power, and opening others to bleed off residual pressure.
 - Draining or bleeding off hydraulic lines.
 - Blocking or otherwise immobilizing gravity devices such as rams or flywheels.
 - Neutralizing or otherwise blocking spring loaded equipment to prevent movement.
 - b) The main disconnect switch shall be opened (turned off). The disconnect box shall be opened to make sure all devices or connectors are disengaged.

- 3) Application of Locks and Tags
 - a) The qualified person shall apply their locks and tags to the equipment:
 - The disconnect switch shall be locked in the open (off) position with a personal safety lock (PSL).
 - All other energy sources shall be locked out with a PSL.
 - At each location where a lock is applied, a tag shall accompany the lock. The tag will include a warning such as "DANGER – Equipment Locked Out" as well as the name of the qualified person applying the tag, the date and the reason for the lock out.
 - The principal of "first on" and "last off" applies to the qualified person's padlocks when there are additional workers involved in the task.

4) Confirmation of Zero Energy State

- a) Before working on a machine that has been locked out, the qualified person shall test to ensure that all energy sources are properly shut off and locked out. Interlocking or dependent systems, which could electrically or mechanically feed into the system being isolated, shall also be tested.
- b) After the machine has been shut down, locked out and tagged off, additional workers working in or on the machine shall be protected by personally placing their own PSL on the disconnect switch. The key for their lock shall be retained on their person while the lock is in place.
- c) Where several workers or trades are working on a machine, provision for additional locks can be achieved through the use of the PSL, which features a hole to which another lock can be fastened. Alternately, a hasp with multiple holes to accommodate padlocks can be used to accommodate as many locks as required.

5) Proceed With Work

6) Direct Transfer of Equipment that is Locked Out

- a) If work is not completed at the end of the day or shift, each worker shall report the status of the work to the qualified person of the incoming shift before removing his PSL and tag. The incoming shift shall place their PSL and tag in place before commencing work on the machine. The qualified person shall not remove his lock until the qualified person of the incoming shift has placed his lock on the machine.
- b) Prior to commencing any work on the second shift, the equipment shall be tested to ensure power has been effectively shut off.

7) Delayed Transfer of Equipment that is Locked out

- a) If work is not completed at the end of the day or shift, or the worker must leave the workplace for material, to arrange repair of equipment etc. the worker must place a Board Safety Lock (BSL) and tag on the disconnect switch. The tag must indicate the name of the person, the date, the reason for lockout and the status of the equipment.
- b) Prior to commencing any work on the equipment, the worker shall test the equipment to ensure power has remained effectively shut off.

8) Re-Energizing

- a) When work has been completed, each worker shall report this fact to the qualified person. Workers shall then remove their personal lock and tag prior to leaving.
- b) Once all work is completed, the same set of procedures - only this time in reverse - shall be followed to energize and activate the system.

The following check list shall be used as a guideline:

- Are guards in place?
- Have braces, pins, chains, blocks been removed?
- Are all tools used accounted for?
- Are all valves closed?
- Have tags and locks been removed by authorized persons?
- Are all persons accounted for?
- Have department(s) been notified?

9) Record Keeping

Records of lockout events must be kept on file for at least one year. It is customary to attach the tag to the work order when the job is complete. The completed tag serves as the record.

6 USE AND CONTROL OF PADLOCKS – MAINTENANCE STAFF

- Each PDSB-issued safety lock and key assigned to an employee are to be stamped with the lock number. A log shall be kept by the locksmith supervisor recording the issuing of padlocks and the use of emergency keys. Combination locks or locks with a master key are not to be used. One (1) duplicate key shall be kept by the locksmith supervisor. They shall be under his direct control and used only by him in an emergency.
- Locks shall not be loaned or transferred between workers. Unauthorized removal of another person's safety padlock shall result in disciplinary action.
- Contractors who must perform lockout as part of their tasks are required to supply their own locks and tags.
- The trade supervisor or designate is responsible for arranging the removal of locks in an emergency situation by the locksmith department and in the presence of a witness. The locksmith department employee and the witness may be the same person. *SHOULD AN EMERGENCY REMOVAL OCCUR, AN INCIDENT REPORT ON THE EVENT SHOULD BE WRITTEN BY THE TRADE SUPERVISOR TO THE MANAGER OF MAINTENANCE. THE REPORT WILL CONTAIN A REVIEW OF THE ROOT CAUSE OF THE OCCURRENCE AND A RECOMMENDATION FOR PREVENTATIVE MEASURES.

7 METHODS OF LOCKING-OUT VARIOUS TYPES OF CONTROLS

- Most disconnect switches with a pull-down handle have lock-out facilities as part of the switch equipment. If difficulty is experienced in ensuring correct lock-out of parts of multiple components operated in unison or sequence, contact the appropriate trade to make sure all components are locked out.
- For other equipment it may be necessary to construct attachments to which locks or a lock-out bar can be attached. Unless the box is locked, making it impossible to replace a fuse, the mere removal of a fuse does not constitute an adequate lock-out procedure.
- The attachments may consist of chains for valves; the common hasp for locking cabinets or boxes; sliding bar which when extended would prevent operation of the control handle. The sliding bar would be provided with several holes which line up with similar holes on a fixed piece for the attachment of locks. Reversing starters shall be locked-out in both directions.
- Electrical control equipment must be clearly identified as to the machine controlled.

8 TRAINING

All employees who are required to lock out a machine or piece of equipment must be trained. Training shall consist of two parts:

- A classroom portion, with a quiz to verify understanding. This training should be refreshed once every three years. It can be arranged by contacting the Health, Wellness and Safety Office.
- A practical portion, documented on the form included at the end of this procedure. Workers must demonstrate their understanding by performing a lockout and filling in a tag in the presence of their supervisor. The form will be signed and dated by both parties and is to be retained as a permanent record by the trainer.

LOCK OUT AND TEST PRACTICAL TRAINING

EMPLOYEE NAME: _____ DEPARTMENT: _____

EMPLOYEE EQUIPMENT

PERSONAL PADLOCKS; NUMBERS: _____

BOARD PADLOCKS; NUMBERS: _____

TAGS: _____

OTHER: _____

LOCK OUT DEMONSTRATION

DATE: _____

LOCATION: _____

EQUIPMENT LOCKED OUT: _____

REMARKS

TRAINER: _____

EMPLOYEE: _____

EMPLOYEE SIGNATURE: _____

TRAINER SIGNATURE: _____

CC: EMPLOYEE, SUPERVISOR

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