Prevent serious injuries with proper lockout procedures

By Jeffrey Rotin

The WCB has identified eleven work practices that have a high risk of death, serious injury, or occupational disease. Improper lockout of machinery or equipment is high on that list.

Over the years, B.C. workers have been caught in machinery, crushed by equipment, and electrocuted by wires thought to be inactive. These accidents could have been prevented if the machinery was locked out properly.

What is lockout?

Lockout is the use of a lock (or several) to render machinery or equipment inoperable. The purpose is to prevent an energy-isolating device — such as a switch, circuit breaker, or valve — from accidentally or inadvertently being operated while workers are clearing obstructions or doing maintenance on or near the machinery.

Before locking out equipment or machinery, the energy must be removed from it. This is called de-energization.

When is lockout required?

B.C.'s Occupational Health and Safety Regulation requires an energy source to be isolated and controlled if machinery or equipment could unexpectedly activate.

Employers are responsible for establishing and implementing lockout procedures at worksites. To determine if lockout is necessary, inspect the location where the work will be done, and ask:

1. What would be the result if any of the energy sources were released?
2. Would the release of energy or an inadvertent movement be hazardous to a worker?

If there is a hazard to workers, lockout is required.

Identifying hazardous energy

Lockout requires identifying and controlling all energy sources that could activate moving parts on machinery or equipment. Any energy source that could cause injury or death to workers while they are performing maintenance is considered hazardous energy, including:

Kinetic energy — Moving equipment or materials

Chemical energy — Flammable, combustible, or corrosive substances that can explode if stored near a fuel source

Potential energy — Materials that are suspended, elevated, or coiled, such as a loaded spring or elevated forklift

Thermal energy — Substances like hot air, steam, hot water, fire, gases, and liquefied gases

Electrical energy — Conductors, motors, generators, lighting systems, or electrical panels

Radiation — Non-ionizing radiation, such as light and lasers, and ionizing radiation, such as X-rays

Five basic steps to a successful lockout

The following steps apply to all types of machinery and equipment:

1. Identify the machinery or equipment that needs to be locked out.
2. Shut off the machinery or equipment. Ensure all moving parts have come to a complete stop. Be sure that shutting off the equipment does not cause a hazard to other workers.
3. Identify and de-activate the main energy-isolating device for each energy source, for example, the master power switch.
4. Apply a personal lock to the energy-isolating device for each energy source. Ensure all parts and attachments are secured against inadvertent movement.
5. Test the lockout to make sure it is effective and to verify that each energy source has been effectively locked out. Before testing, ensure all workers are in the clear, and that no hazard will be created if the lockout is not effective.

Follow-up is essential

Even at worksites where lockout procedures are established, employers often overlook training, supervision, and follow-up procedures, says Tom Lauritzen, WCB regional manager of Prevention Services. "We've seen accidents happen where workers have gone through the lockout procedure but they haven't taken that last step of testing the equipment to make sure it is in fact off."

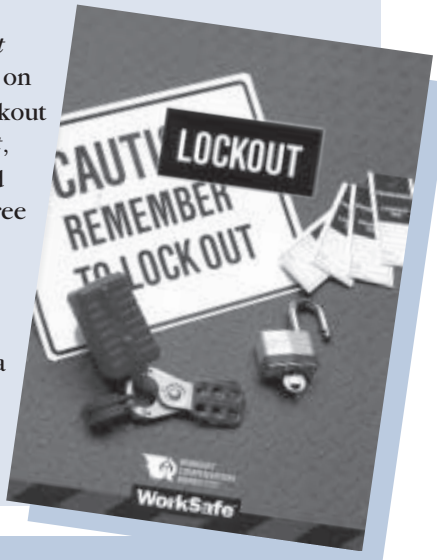
Ensure safe lockouts

- **Written procedures** — Put lockout procedures in writing and make them available to all workers who work on the machinery or equipment.
- **Training** — Instruct all workers on safe lockout procedures.
- **Supervision** — Ensure that all workers follow safe lockout procedures.
- **Testing the lockout** — Make sure that workers test the lockout to confirm it is effective.
- **Regular inspection** — Conduct regular lockout audits.
- **Follow-up** — Ensure the enforcement of lockout requirements.

WCB publication can help

The WCB publication *Lockout* provides detailed information on how to implement proper lockout procedures. To order *Lockout*, contact WCB Publications and Videos at 604 276-3068 (toll-free in B.C. 1 800 661-2112, local 3068), or e-mail pubvid@wcb.bc.ca.

For more information, talk to a WCB occupational safety officer or call 1 888 621-SAFE (7233).



Lockout failure results in death

In 2000, a J-bar attendant working at a Prince George sawmill died after failing to lock out machinery before removing a jam.

The worker had just lowered a load of lumber from a bin onto the removal chain. Parts of the load became jammed, which automatically stopped the removal chain. The attendant entered the bin area to clear the obstruction. When the obstruction was cleared, the photo sensor automatically restarted the bin-removal chain. This caused another load of lumber on the chain to move forward, crushing the attendant under a partially lowered bin.

This death was preventable.