



Lockout/Tag-out

It's Not Just For Electrical!!

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DMME

Division of Mineral Mining

Lockout/Tag Out Procedures Apply Whenever

- A circuit, system, machine or piece of equipment is repaired, serviced, lubricated, cleaned, un-jammed, adjusted or otherwise maintained, *regardless of how it is powered*.
- A guard, or other protection device, is removed or tampered with thus placing the worker in danger of injury.
- A worker places any part of his or her body in contact with a point of operation where it could be caught or trapped by moving machine or equipment parts.
- A worker places any part of his or her body into a danger zone associated with the flow of electric current, air/gas, liquid or other material that may result in injury.

Wait A Minute....

Lockout/tag out procedures apply to non-electric equipment?

Yes!

- Lockout/tag out valves, levers, switches or any other means of activating the system/equipment to be worked on.
- Be aware of and consider stored energy hazards that may need to be addressed before starting work.
- Safely release all stored energy within the system prior to performing any repairs or maintenance.

Hazardous Energy Sources

➤ Electrical:

Generated or static

➤ Mechanical:

Transitional

Rotational

➤ Thermal:

Machinery

Chemical Reactions

➤ Potential:

Pressure

**Hydraulic*

**Pneumatic*

**Vacuum*

Springs

Gravity

The “Fatal Five”

Main Causes Of Injuries:

- Failure to stop equipment
- Failure to disconnect from power source
- Failure to dissipate (bleed, neutralize) residual energy
- Accidental restarting of equipment
- Failure to clear work areas before restarting

Six Basic Shutdown Steps

1. **Prepare/plan for shutdown;** A) pre-visit the work area to assess/eliminate unsafe conditions prior to starting the work, B) notify affected employees and tell them which equipment will be involved, C) be sure to include circuits/machines that are not a safe distance from where work is to be performed, D) be certain any PPE that will be necessary is readily available.
2. Shut down the equipment, circuits, etc. by using normal/recommended stopping or rundown procedures.
3. Isolate the circuit, machine or equipment from all its energy sources.

Basic Shutdown Steps, con.

4. Apply appropriate lockout/tagout devices to the machine's, equipment's or circuit's energy-isolating devices (Be certain the persons performing the work have the necessary locks, keys, tags and other lockout devices).
5. Safely release all potentially hazardous stored energy.
6. Verify that the equipment cannot be turned on before starting service, maintenance or repairs.



Verify!!!

- The process of operating the start controls, engaging levers, measuring voltage, inspecting lockout devices, valves, disconnect switches, blades and piping systems in an area to make sure that all energy sources have been isolated and controlled.



Types of Lockout Devices

- Plug Locks
- Ball Valve Lockout
- Gate Valve Lockout



- Group Lockout Hasp



- Electrical

- Hydraulic, pneumatic, and other pressurized systems

Lock and Tag “Groups”



➤ Some facilities assign different color locks and different types of tags to various personnel.

➤ Lock colors and tag types may indicate who is working on the circuit and what sort of work is being done. Contractors may have special locks and tags.



Multiple Locks And Tags

Two people performing different tasks may be at work here.



Mobile Equipment Tagging



- Never attempt to operate equipment that has been tagged. The person who placed the tag should be the one to remove it.

- The tag should tell you who put it there and what is wrong with the equipment .



Removal of Lockout

- Ensure equipment is safe to operate; tools and other repair equipment have been removed, guards are in place, etc.
- Safeguard all employees; everyone in the area has been accounted for, notified and is in the clear.
- Remove lockout/tagout devices. Except in emergencies or other special situations, each device must be *removed by the person who put it on*.
- Follow procedures (checklist?) as may be required by management.

Special Situations

There should be procedures in place for dealing with these situations and should be a part of personnel training.

- Servicing lasts longer than one shift.
- Contractors are performing service or maintenance at your workplace.
- Worker who applied lock and/or tag is not available.

Temporarily Reactivating Equipment

- Remove unnecessary tools from the work area and make sure everyone is clear of the equipment.
- Remove lockout/tag out devices and re-energize the system. Activate start up alarms as required.
- As soon as the energy is no longer needed, isolate the equipment and re-apply lockouts/tag outs. Use the six step procedure discussed earlier.

Other Good Practices

- Never attempt lockout/tag out procedures until you have been properly task trained.
- Never loan or share your lock, combination or key with anybody else.
- Always be sure lockout/tag out devices are compatible with the equipment and environment in which they will be used (Are the lockouts the right size? Do the tags need to be weather/waterproof?)
- Never interfere or tamper with a lock or tag placed by someone else.

More Reminders

- Maintenance or repair should not be performed on air or fluid powered equipment until the pressure is relieved.
- Safety chains, blocks or other devices should be installed where a connection failure can occur.
- Keep inactive and active power lines a safe distance apart.
- Exercise extreme caution when working around high voltage lines. De-energize adjacent power.
- Report all unusual situations to your foreman.

REASONS WHY PEOPLE DO NOT LOCKOUT

- They performed the job before or witnessed someone else performing work without locking out.
- The disconnecting device is too far away! Not located where it is convenient for a person to use .
- Worker pulled disconnect but did not lock it out because they were by themselves and felt no need to lockout.
- They do not want to shut down system, section, plant or operation for this minor repair.



There is no good or acceptable reason for not locking out and/or tagging out!!!