Lockout/Tagout

Objectives

- Define lockout/tagout.
- Identify hazardous sources of stored energy.
- Understand the importance of lockout/tagout.
- Know your site's policy regarding lockout/tagout.

Why is this important?

Workers have been seriously injured, even killed, when a power source has come on unexpectedly during machine maintenance or repair. Energy controls must be locked before maintenance is done in order to prevent these accidents.

WHAT IS LOCKOUT/TAGOUT?

Lockout: The placement of a lockout device, such as a lock, on an energy-isolating device that ensures that the particular device and the equipment being controlled cannot be operated until the lockout device is removed.

Tagout: The placement of a tagout device, such as a caution tag, on an energy-isolating device to indicate that the device and the equipment being controlled may not be operated until the tagout device is removed.

Authorized Employees: Employees who are responsible for implementing the energy-control procedures or performing the service or maintenance activities. A specific and formal training is required to be an authorized employee.

Affected Employees: Employees who operate the relevant machinery or whose jobs require them to be in the area where service or maintenance is performed. These employees do not service or maintain machinery or perform lockout/tagout activities. Affected employees must receive training in the purpose and use of energy-control procedures.

IMPORTANT: This lockout/tagout training does *NOT* qualify you to be an Authorized Employee. It is only to make you aware of hazardous energy sources and the lockout/tagout procedure.

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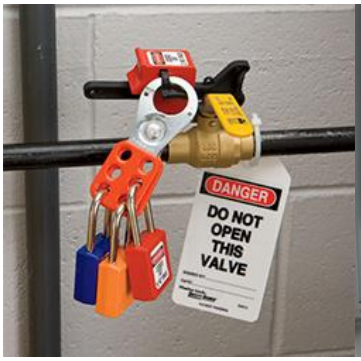
HAZARDOUS ENERGY SOURCES

Hazardous Energy Sources	
Energy Type	**Description**
Mechanical	Relating to springs, rotating parts, etc. that are produced by a machine.
Magnetic	Energy stored in magnetic fields, found in capacitors and superconducting magnetic storage.
Gravity	Found in machine/equipment parts that might fall down or slide if left unblocked.
Electrical	Present in transmission lines, transformers, circuit breakers or motors.
Hydraulic	Involves fluid that is under pressure in cylinders, pipes and tanks.
Pneumatic	Involves compressed air or gas in cylinders, lines and pipes.
Thermal	Heat generated from heating and cooling systems.
Chemical	Produced as a result of a chemical reaction.
Steam	Water vapor that is kept under pressure.



Which types of hazardous energy sources are at your site??

Lockout/Tagout

THE CONTROL OF HAZARDOUS ENERGY

When is lockout/tagout needed?

- When making adjustments or modifications.
- When inspecting equipment and machinery.
- When replacing missing or broken parts.
- When lubricating various pieces of the machine.
- When cleaning the machine or equipment.
- When a tool needs to be changed.

The 5 most common ways that injuries occur during a lockout/tagout are:

- Failure to shut off equipment.
- Failure to disconnect power source.
- Failure to release stored energy.
- Unexpected restarting of equipment.
- Failure to clear work area before restarting.

Employees can prevent injuries or deaths by:

- Following all lockout/tagout procedures created for that specific piece of equipment.
- Notifying workers of the lockout/tagout.
- Applying locks/tags to the energy isolating device.
- Verifying machines are safe to be serviced.
- Clearing area of all employees before restarting equipment.
- Never removing another employee's lock or tag. The only person who can remove them is the authorized employee who placed them there.

Lockout/Tagout

TEST YOUR KNOWLEDGE

1.	Anyone working with a piece of equipment or machinery can lock it out if it is in need of repair.	T	(F)
2.	Turning off the power switch and placing a lock on the energy source removes all the energy from powered equipment or machinery.	T	(F)
3.	Before lockout/tagout is applied, all workers in the affected area must be notified.	(T)	F
4.	If you are handy with repairs, it's OK to attempt to fix electrical equipment as long as you are very careful and have experience doing so.	T	(F)
5.	Any employee can remove a lock if they believe that the equipment or machinery has been repaired and is ready to be opened.	T	(F)
6.	Affected employees can help prevent injuries by reporting damaged equipment to their manager or supervisor.	(T)	F
7.	This safety training does not qualify you to be an Authorized Employee.	(T)	F