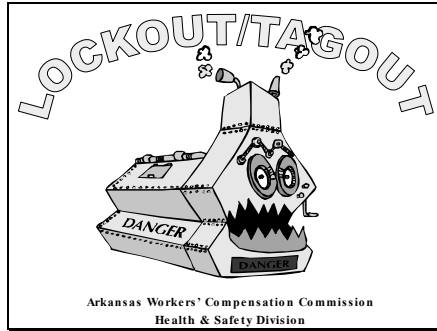


Slide 1



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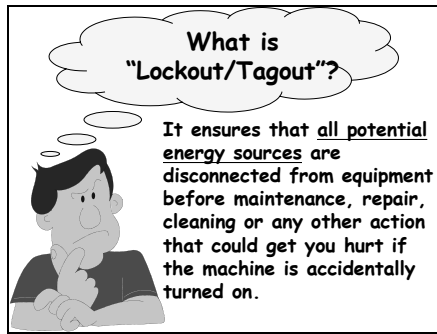
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Slide 2



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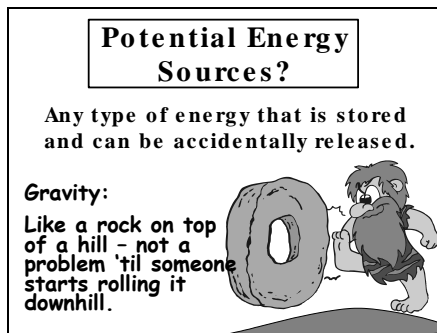
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Slide 3



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Slide 4

Potential Energy Sources Found in the Workplace	
Electrical:	Generated or Static
Mechanical:	Like a coiled spring ready to release
Thermal:	Steam or heated systems
Chemical Energy:	Released during chemical reactions
Hydraulic, vacuum or pneumatic pressure	

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Slide 5



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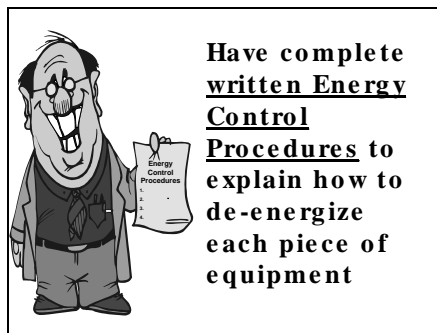
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Slide 6



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Slide 7

### Lockout Procedures



Lockout is used to prevent the release of hazardous energy, or to prevent the hazardous energy from escaping.

A padlock is placed on the appropriate energy isolating device that is in the off, or closed, position.



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Slide 8


### Tagout Procedures



➤Put the tag on the equipment noting that it should not be used.

➤Put the date and your name

This is not the best way to ensure the equipment cannot be turned on accidentally, because tags can be removed or ignored.



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Slide 9

### The “Fatal Five” Main Causes of Lockout/Tagout Injuries

1. Failure to stop equipment
2. Failure to disconnect from power source
3. Failure to dissipate (bleed, neutralize) residual energy
4. Accidental re-starting of equipment
5. Failure to clear work areas before restarting



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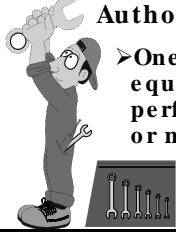
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Slide 10

<b>Who Performs Lockout/Tagout?</b>	
	<b>Authorized Employee</b> ➤ One who locks out equipment in order to perform the servicing or maintenance on that equipment.

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Slide 11

<b>Affected Employee</b>	
	➤ One whose job requires him/her to operate equipment on which servicing or maintenance is being performed under lockout, or whose job requires him/her to work in an area in which such servicing or maintenance is being performed.

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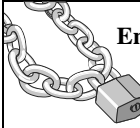

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Slide 12

<b>What are.....?</b>	
	<b>Energy Isolating Devices</b> ➤ Mechanical devices that physically prevent the transmission or release of energy.
	

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Slide 13

**What are.....?**



**Energy Control Procedures**

- Written step-by-step procedures detailing how each piece of equipment is completely de-energized.
- This also includes provisions for inspecting the procedures and training employees in the lockout/tagout procedures.

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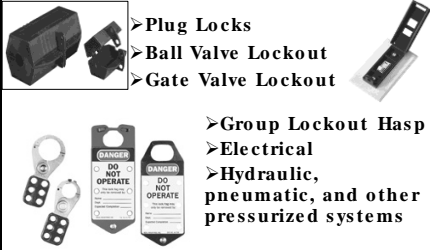
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Slide 14

**Types of Lockout Devices**



- Plug Locks
- Ball Valve Lockout
- Gate Valve Lockout
- Group Lockout Hasp
- Electrical
- Hydraulic, pneumatic, and other pressurized systems

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Slide 15

**Basic Steps for Lockout/Tagout**

Alert the operator(s) that power is being disconnected.

- ✓Identify all potential energy sources.
- ✓Determine how the sources can be safely locked out.
- ✓Get all the locks you will need.



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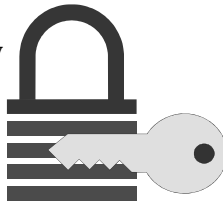
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Slide 16

**Note:**  
**Make sure**  
**there is only**  
**one (1) key**  
**for each**  
**lock.**



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Slide 17

✓**Train everyone**  
**who will be**  
**involved in**  
**lockout/tagout of**  
**equipment, such**  
**as the supervisors,**  
**maintenance,**  
**production, etc.**



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Slide 18



- ✓**Prepare for**  
**shutdown.**
- ✓**Turn off**  
**equipment.**
- ✓**Isolate all energy**  
**sources: block**  
**moveable parts,**  
**drain or bleed**  
**hydraulic lines,**  
**disconnect**  
**electricity, etc.**

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Slide 19

✓Apply lockout devices.

✓Control/or release any stored energy.

✓Verify that the equipment is completely de-energized. Make sure everyone is safely out of the way; then try starting the machine to make sure it is completely shutdown.



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Slide 20

**Removal of Lockout and Restarting Equipment**


➤Ensure equipment is safe to operate.

➤Safeguard all employees.

➤Remove lockout/tagout devices. Except in emergencies, each device must be removed by the person who put it on.

➤Last person to take off lock notifies affected employees of the status of the equipment.

➤Follow checklist to re-energize equipment.



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Slide 21

**Temporarily Reactivating Equipment**

➤Remove unnecessary tools from the work area and make sure everyone is clear of the equipment.

➤Remove lockout/tagout devices and re-energize the system.

➤As soon as the energy is no longer needed, isolate the equipment and re-apply lockout/tagout.



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Slide 22

**Special Situations**



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

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Slide 23

**Tidbits of Information**

- Never attempt lockout/tagout procedures unless you have been trained and certified by your employer under an approved Energy Control Program.
- Never loan or share your lock, combination, or key with anybody else.



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Slide 24



- Always be sure all lockout/tagout devices are compatible with the environment in which they will be used, i.e. corrosive, humid, etc.

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Slide 25



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Slide 26



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