

# Lockout | Tagout

**SCS**

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# Session Objectives

You will be able to:

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- Understand OSHA Regulations
- Implement Lockout/Tagout Procedures
- Know Lockout/Tagout Standards



# Lockout | Tagout Procedures

- Intended to protect workers from injury when exposed to potential machine hazards. These procedures are implemented when:

- A machine needs to be serviced or repaired
- Clearing a jam from a machine
- Employee's must remove protective guards
- Employees enter hazards zones

- Potentially exposed hazards
  - The point of operation with cutting, shaping, or bending hazards
  - Nip points like a belt and pulley or chain and sprocket
  - Recipricating motion like robot arms that move back and forth
  - Rotating motion such as rotating shafts

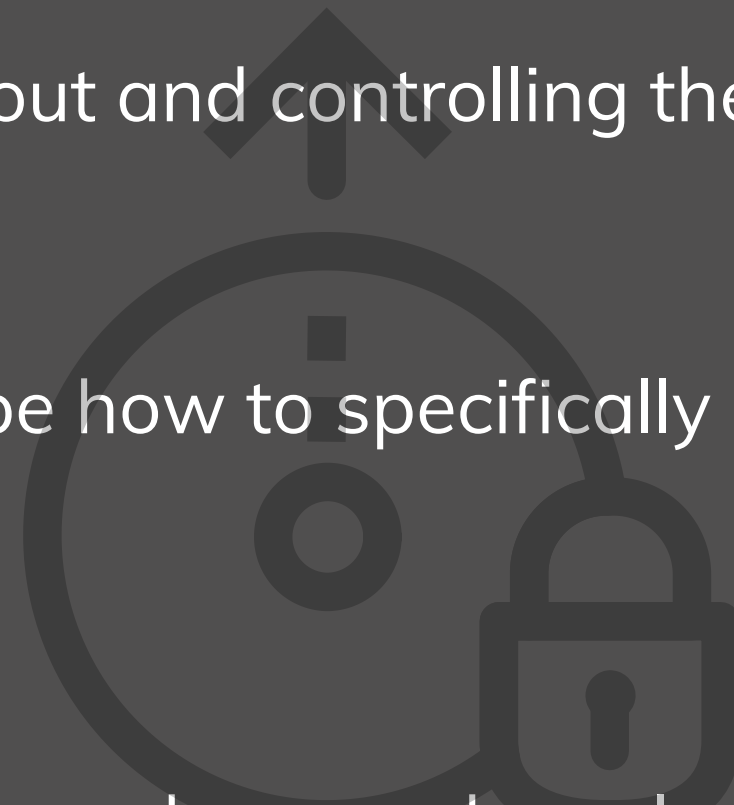
- Lockout | Tagout will prevent machinery from unexpectedly starting up and causing serious injury
- Stored energy must be dissipated because it may also cause equipment to move and injure a worker who is in the hazard zone

# OSHA Regulations

- The control of hazardous energy (lockout | tagout) can be found in 29 CFR 1910.147. Requirements include:
  - Written lockout | tagout program
  - Written machine-specific lockout | tagout procedures
  - Employee training plan
  - Lockout | tagout devices that need specific standards
- Lockout | tagout is one of the most frequently violated OSHA standards
  - OSHA issues many citations to companies that have violated the lockout | tagout standard

# Lockout | Tagout Program

- OSHA requires employers to develop a lockout | tagout program that includes the following key components
  - General procedures for locking out and controlling the hazardous energy on equipment and machines
  - Specific procedures that describe how to specifically lock out each machine
  - An employee training plan
  - Annual inspections of written procedures and employee competence
  - The types of hazardous energy sources that could cause the unexpected energizing , start up, or release of release of stored energy
  - Procedures for successfully isolating the energy sources of a machine to render it inoperative



# Employee Involvement



## • Authorized Employees

- Employees must be "authorized" before they are permitted to implement lockout | tagout procedures on equipment in order to repair or service the machine. Authorized employees receive specific training, that involve a written hands-on test.

## • Training should include:

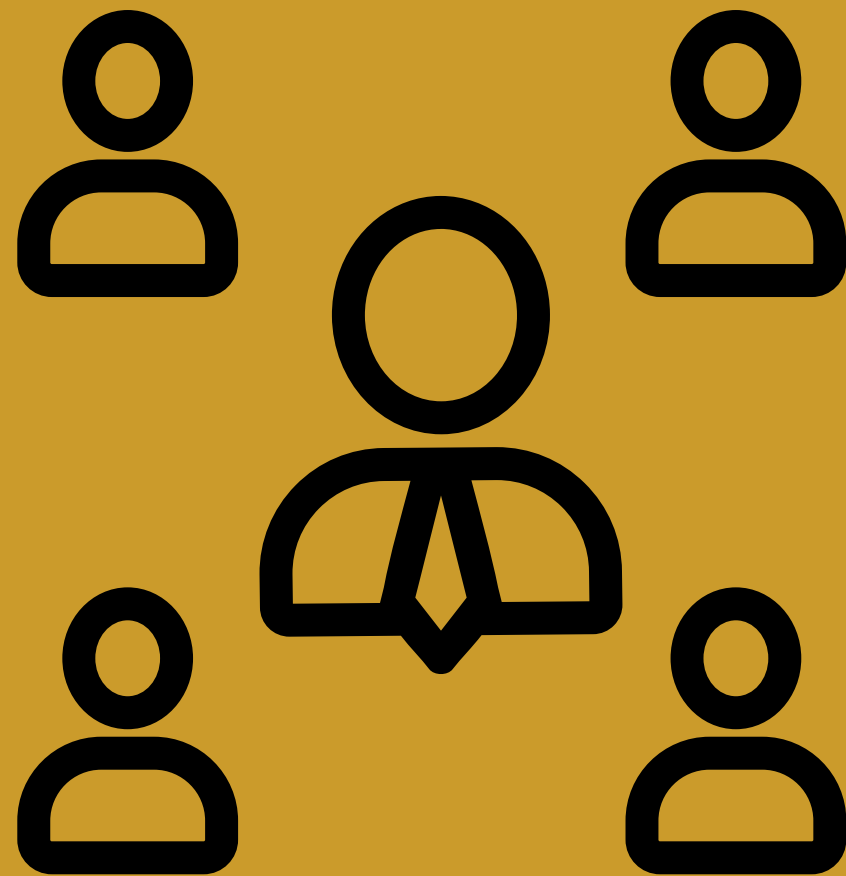
- Review of the OSHA lockout | tagout standard
- Review of the company's written lockout | tagout program
- How to identify and isolate hazardous energy sources
- General procedures
- Machine-specific lock out | tagout procedures
- How to remove lockout and restart the machine.

# Employee Involvement Cont.)



- Retraining
  - Authorized employees should receive refresher training each year. OSHA requires authorized employees to be retrained if:
    - The employee changes job assignments or moves to a different department that
    - has has different types of equipment
    - Installation of any new hazards or require modified lockout procedures
    - Specific lockout | tagout procedures are changed
    - The employee incorrectly perform a lockout | tagout procedure

# Employee Involvement (Cont.)



- "Affected" Employees - those who work in an area lockout | tagout procedures are conducted by authorized employees on nearby machinery  
Affected employees must receive training on the following:
  - How lockout | tagout protects the lives of those repairing or servicing equipment
  - The basics of how lockout | tagout works
  - Instructions to never perform lockout | tagout themselves
  - Instructions to never tamper with a machine or start a machine that is locked or tagged out
  - Instructions to never remove a lock or tag



# Hazardous Energy Sources

- Electricity
- Hydraulic systems pressurized
- Pneumatic or compressed air systems
- Mechanical systems; springs that are under compression
- Chemical systems; pipes, tanks, and valves
- Thermal devices; equipment with potential for heat or frost burns
- Steam systems
- Gravity- equipment that could fall on workers

# Controlling Energy Sources

- Controlling energy sources will prevent injury while servicing a machine

- Electricity

- Move the electrical disconnect switch to the "off" position and apply a lock through the disconnect switch so it cannot be moved back to the "on" position. Or flip the circuit breaker "off" and use a special locking device that prevents the breaker from being switched back "on".

- Chemicals

- Closing the valve to prevent the chemical, steam, or air from entering the equipment. Some valves are designed to be locked once they are in the "closed" position, while others will require a special lockout device to prevent them from being moved to the "open" position.

- Hydraulic or Pneumatic

- Pressure may cause a part of the machine to move so it is important to bleed off the pressure that remains in the machine.
- Mechanical Energy
  - Release pressure that remains in mechanical systems, such as, that in springs. Allow them to return to their normal and natural position.

- Gravity

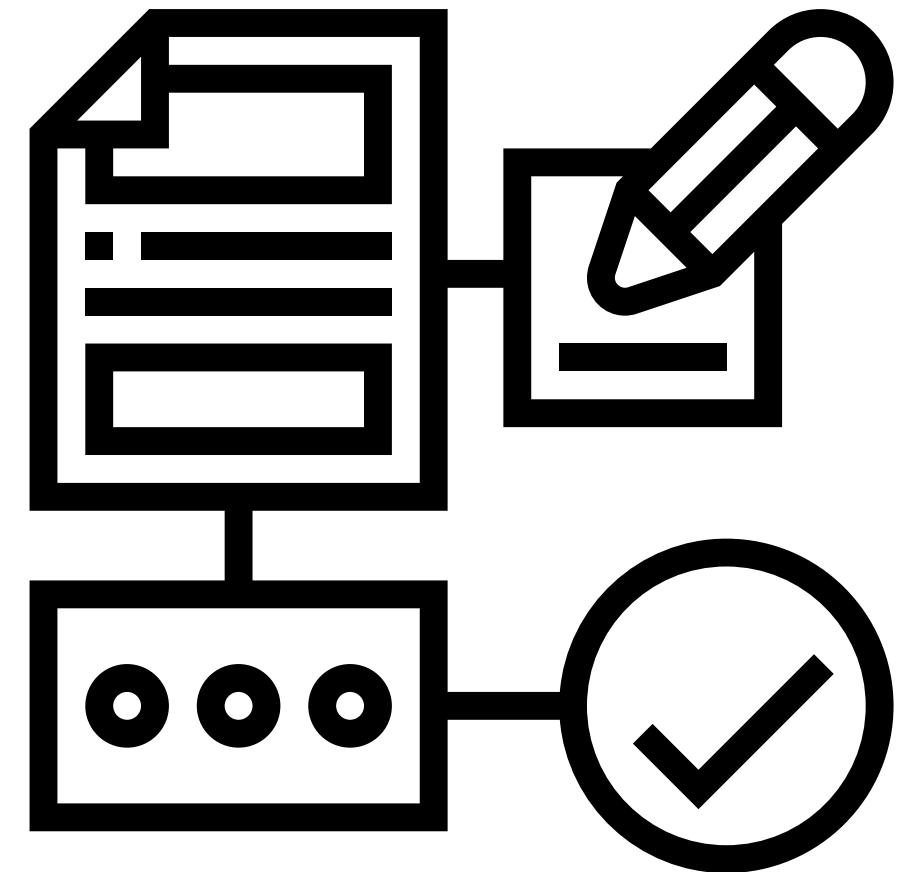
- Control this hazard by blocking the component in the "up" position so it will not come down on a worker.

- Thermal Energy

- Heating elements and other hot machine components must be given appropriate time to cool before workers can enter the area.

# General Lockout Procedures

- Identify hazards and get lockout equipment
- Notify "Affected" employees
- Turn off the machine
- Turn off all energy sources
- Apply locks to control energy
- Test operating controls
- Perform repair or service
- Remove tools, install guards, notify workers
- Remove locks and apply energy
- Startup and test equipment



# Machine Specific Procedures

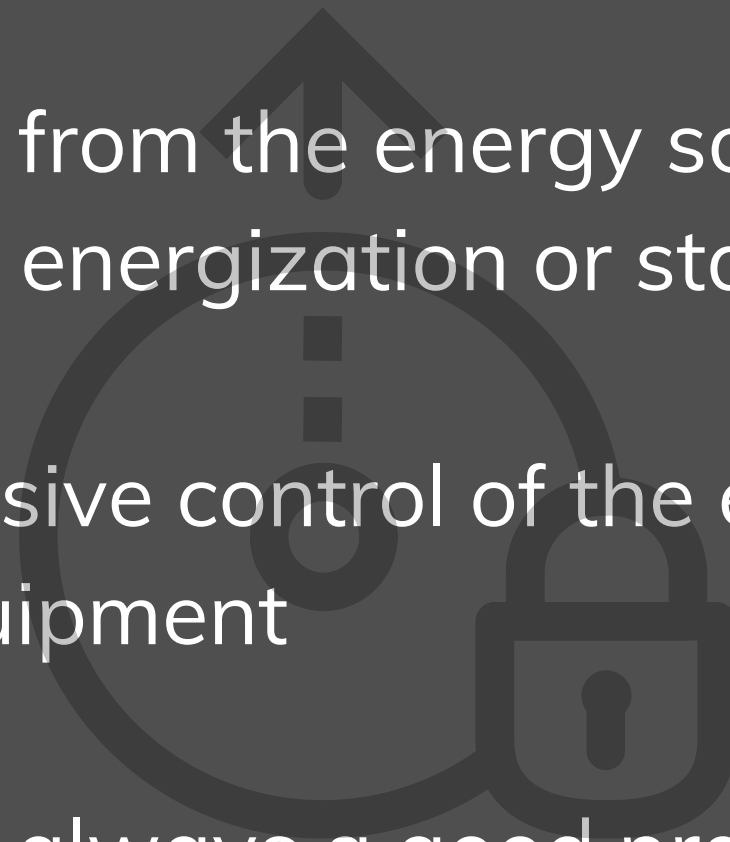
Additional to general lockout procedures, OSHA requires each machine to have specific procedures.

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- Steps for shutting down, isolating, blocking, and securing equipment
- Steps for placement, removal, and transfer of lockout devices
- Steps to test the machine in order to verify the lockout | tagout process

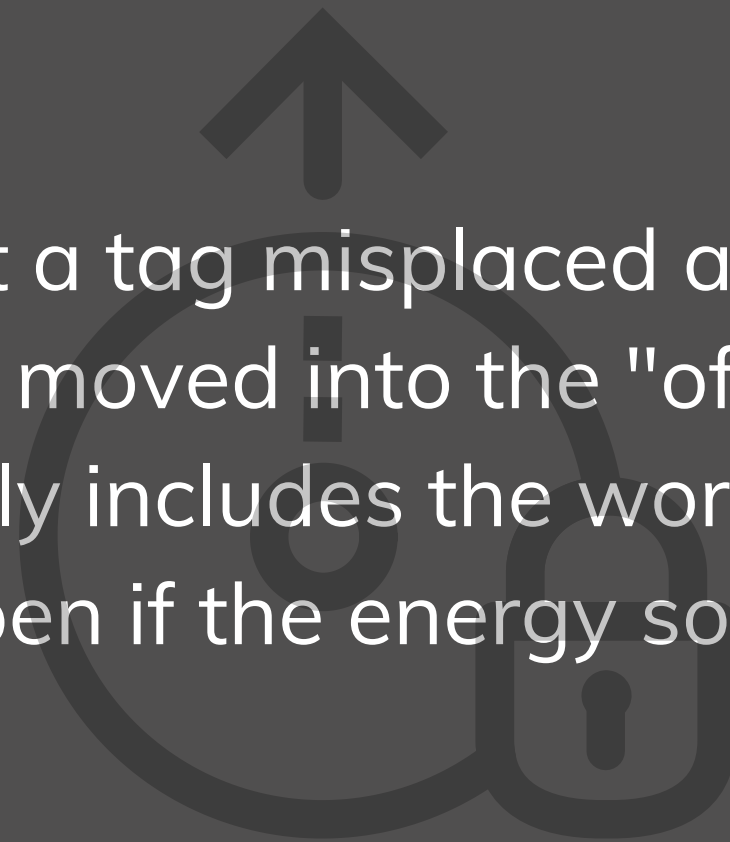
# Cord and Plug Requirements

- Lockout | tagout is not required when working on cord and plug equipment, as long as the following requirements are met
  - Unplugging the equipment from the energy source controls exposure to the hazards of unexpected energization or start-up of the equipment
  - The plug is under the exclusive control of the employee performing the repair or service on the equipment
  - Despite this exception, it is always a good practice to prevent the machine from being plugged in by applying a plug lockout device.



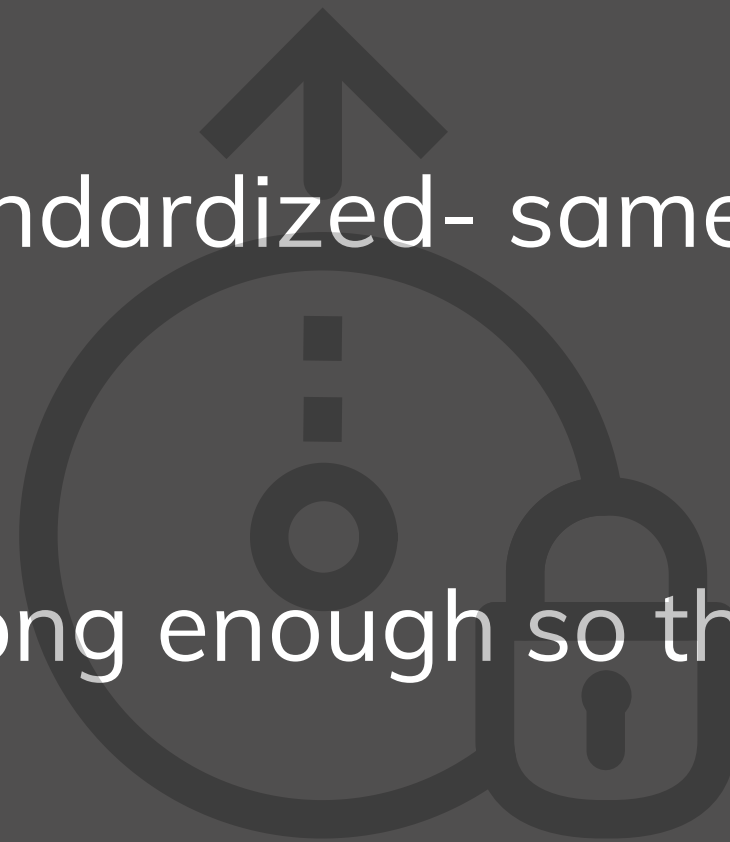
# Tagout Only Systems

- Tagout systems, without the application of a lock, can only be used on machines or energy sources that do not have the ability to be physically locked in the "off" position.
- When implementing target a tag misplaced a control button or some other device that has been moved into the "off" position. The tag has a printed warning that usually includes the work "danger" and then describes what could happen if the energy source were to be put in the "on" position
- Tagout systems to not protect the worker from injury



# Locks

- The locks and tags used by the employees in the lockout | tagout process at your company must meet certain requirements.
  - Locks must be standardized- same color, size, or shape throughout facility
  - Locks must be strong enough so they cannot be easily removed
  - Locks must be identified with name or picture of the person that applied the lock



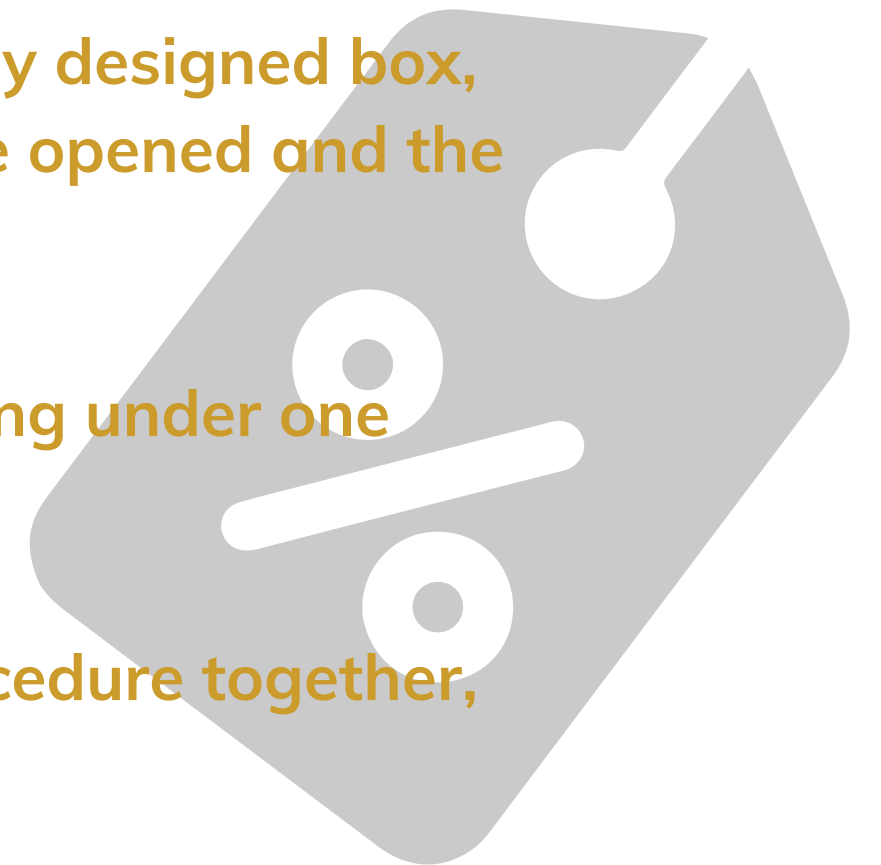
# Removing Locks

- Only "authorized" employees that applied the lockout | tagout is permitted to removed the lock unless they are unavailable. It is then the responsibility of a designated person in management
  - Verify that the "authorized" person that applied the lock is not in the workplace.
  - Contact the "authorized" person and have him or her return to the facility to remove the lock or give permission for the lock to be removed.
  - If permission is granted, then the designated management representative can remove the lock by cutting it with bolt cutters
  - If the employee cannot be reached, management must notify the employee that the lock was removed before the employee returns to work



# Group Lockout

- Two or more people cannot work under the locks applied by one person. A person cannot work under the protection of someone else's locks. You can only work on a machine or enter the machine's hazard zones if you have applied locks to the hazardous energy source
- Each person must apply a lock to every isolated source of hazardous energy. If five people are in a machine that has electrical and pneumatic hazards, then there must be five locks on the electrical disconnect switch and five locks on the valve controlling the pneumatic system.
- Group lockout | tagout devices can be done with a lockout hasp, which allows up to six workers to apply locks to a single energy source. Group lockout can also be done with a lockout box in which one lock is applied to every energy source and the keys for those locks are placed a specially designed box, then each "authorized" employee must remove their locks from the box before it can be opened and the keys inside accessed.
- Group lockout requires all "authorized" employees and outside contractors to be working under one person who is responsible for the overall lockout procedure.
- Before starting the procedure, all "authorized" employees must review the specific procedure together, so everyone understands the lockout requirements.



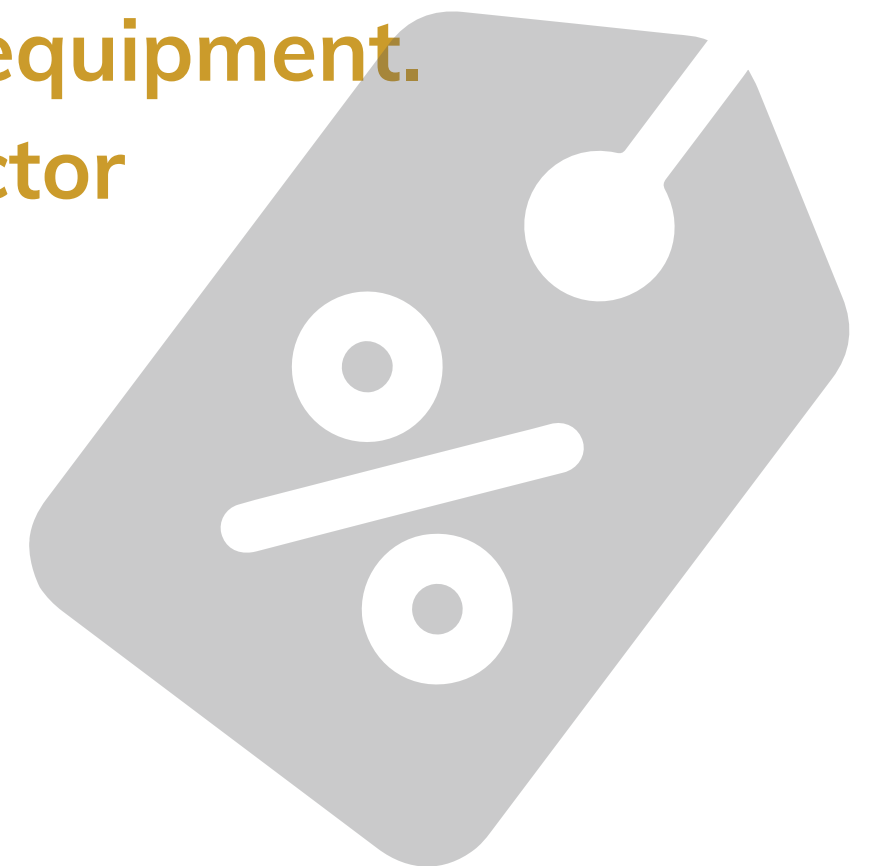
# Changing Shifts

- must be coordinated between the "authorized" employees that are responsible for the group lockout of each shift. For single lockouts the shift change only needs to be coordinated between the two individuals
  - The ending shift removes their locks from every hazardous energy source per the written lockout procedure. The responsible "authorized" employee for the ending shift remove his locks last.
  - The starting shift applies their locks onto every hazardous energy source per the written lockout procedure. The responsible "authorized" employee for the starting shift installs his locks first.
  - The responsible "authorized" employee for the starting shift ensures that all employees are clear of the hazards of the machine then, verifies that all energy sources have been controlled and are de-energized by testing the operating controls on the equipment.



# Outside Contractors

- Company "authorized" employees must work closely with outside contractors to ensure lockout | tagout procedures are performed correctly for the safety of all workers involved.
- The contractor and the company should exchange written lockout | tagout programs. Then the company and contractor need to meet and determine the optimum lockout | tagout procedure to apply to the specific equipment. Once the procedure is agreed to, then both company and contractor employees must follow the agreed-upon procedure.



# Annual Inspections

- OSHA requires employers to make sure the specific written procedures that have been written for each machine are inspected on an annual basis to verify that each written procedure is still correct.
- OSHA also requires that the competency of each "authorized" employee is inspected annually to ensure that the employee can still conduct lockout | tagout procedures correctly.
- The inspection is to be done by another "authorized" employee who will observe both the written procedure and the "authorized" employee. The inspection of both employee and the written procedure must be documented.
- If the procedure is inadequate, the inspector will immediately correct the procedure and inform all other "authorized" employees of any changes made to the specific lockout | tagout procedure. If the "authorized" employee deviated from the written procedure, then the employees will be corrected immediately and retrained.

# Key Points to Remember

- The control of hazardous energy (lockout | tagout) can be found in 29 CFR 1910.147

- Lockout |tagout procedures are intended to protect workers from injury when e exposed to potential machine hazards

- Employees much be "authorized" before they are permitted to implement lockout | tagout procedures on machines or equipment

- "Affected" employees are not permitted to implement lockout | tagout procedures on am chine



# TAKE THE QUIZ!

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