

| HEALTH & SAFETY OPERATIONAL GUIDELINE | | | |
|--------------------------------------------------|-------------------------|------------------------|-------------------------|
| Title: | LOCK OUT/TAG OUT | | |
| Section: | SAFE WORK RULES | Number: | 05-009 |
| Subsection: | General Health & Safety | Effective Date: | January 25, 2008 |

Definitions

“Energy sources” include kinetic, chemical, potential and electrical

“Stored Energy Hazards” include

- electrical capacitance
- batteries
- spring-loaded devices
- suspended weight
- compressed air or gas.

Purpose and Scope

- To ensure energy sources are isolated and effectively controlled prior to any work being done on or in proximity to machinery or equipment
- Describe roles and responsibilities

General

Before starting work on any machinery or equipment, all energy sources will be isolated.

Isolation is a five step process:

1. Lock
2. Tag
3. Clear
4. Try
5. Release

Upon the completion of the maintenance/repairs, the person in charge of the work will make a final inspection to ensure that all repairs are completed; all guards etc. have been replaced. All personnel are informed prior to the equipment being re-energized. The locks are removed in reverse sequence and the equipment brought on-line by the person in charge of the work.

Each person working on the machinery, equipment or process is responsible for locking out the energy-isolating device. Multiple locks can be applied with scissor adaptors.

Procedures

1. Lock
 - The supervisor or person in charge of the work will notify all affected personnel of the extent and duration of the shutdown of the machinery, equipment and process

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- The person in charge of the work will ensure that all machinery, equipment or process are shut down, locked and tagged
 - Each individual working on or near the equipment must place their assigned lock and tag at the lockout point(s). A lockout scissor clip may be required.
2. Tag
 - A tag must be securely attached to each lock
 - The tag used must be made of non-conductive material with the words “DO NOT OPERATE” written on it, the name of the worker and the date of the lockout.
 3. Clear
 - The supervisor or person in charge of the work will clear the machinery, equipment or process of any hazards or people.
 4. Try
 - Once the person in charge of the work is assured that all sources of energy are locked-out and tagged and all is clear, he will try to activate the equipment:
 - Make certain everyone stands clear, then have the equipment controls (push buttons, switches, etc) operated to ensure the machinery or equipment or process will not activate; and
 - Ensure the machinery/equipment/process controls are returned to the off or neutral position immediately after the test, and
 - Relieve or restrain any residual or stored energy, and
 - Ground electrical energy stored in capacitors, and
 - Test with appropriate test equipment and visually check to determine energy sources have been neutralized.
 5. Release
 - If it is assessed that everything is properly locked out, the person in charge will release the equipment for work to be done. Individual worker’s lock and tag must remain on any system that was rendered inoperable until such time that:
 - They complete the repair of the system and it is safe to operate, or
 - They turn over responsibility for the system to another person, and the lock and tag of the individual accepting the responsibility is properly affixed to the equipment.

Locks can only be removed by the individual who installed the lock.

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Isolation of Electrical Energy Sources

For plugged in type of equipment, a personal lock is not necessary if the person doing the work keeps the plug in view and under control while working on the equipment. If the worker must leave the equipment, then a lock is required. For hardwired equipment, the equipment or machine will need to be shut-down making sure that all moving parts have come to a complete stop.

Isolation by means of start/stop button or other control switch is not acceptable.

Isolation of lighting circuits in fused panels can be achieved by removing the fuse and locking and tagging the lighting panel door closed.

When operating a power disconnect switch, employees must look away from the box, stand to one side of the switch box, on the side of the handle, and open or close the switch.

Isolation for Line-breaking

Line-breaking hazards include:

- shock along the pipeline, which can result in a rupture
- damage to flange faces
- exposure to pressures
- corrosive materials
- hot steam or condensate
- danger from failing pipe sections once the pipeline integrity has been disturbed.

Prepare the Job Site

- Regardless of the procedures to render the pipeline and connected equipment non-hazardous, all lines shall be treated as though they are under pressure
- A barrier shall be set up when it is necessary to keep unauthorized people away
- Pipelines to be opened shall have additional supports provided so that the pipeline section does not fall when flange, coupling, connector or joint is opened.

Isolation

- The point where the equipment will be cut or parted shall be isolated by the nearest valve (closed and chain locked and tagged) on each side of the point of entry

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- Where pumps are involved, pump lockout procedures must be followed
- Bleed all pressure from the isolated section of the pipeline
- It may be necessary to lockout valves on the downstream side as well, never depend on check valves to prevent flow

Pipeline/Pipe Flange Entry

- The point of entry into a line, or equipment containing hazardous material, shall be adequately sheathed to prevent spraying or splashing of material
- Always keep the body out of direct line that material could be discharged from the open line
- Loosen studs on opposite sides of the flange far enough to determine if any material remains in the pipeline
- Once it has been verified that the pipeline is clear of material, remove the remaining studs.

Close the Entry

- Broken lines remaining in place shall have all openings blanked or capped off to prevent drips or spills.

Complete the Job

- The job is not complete until all safety tags, locks, scaffolding and barriers are removed.

Isolation of Hydraulic or Pneumatic Systems

- Make sure that all moving parts have come to a complete stop
- Find the energy source, disconnect the electrical power to the pump/compressor or close the valve feeding the cylinder
- To ensure that all parts have been secured against inadvertent movement, you may have to pin or block a "weight" that is being supported by the stored pressure in the cylinder
- Test to ensure the pump or compressor won't start and that the flow doesn't bypass the valve. Bleed any residual pressure from the lines, reservoirs or accumulator feeding in the cylinder to ensure that there is no energy in the system.

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Personal Protective Equipment

The type of PPE that shall be worn will be dictated by the chemical contact hazard that may be present. PPE shall be utilized to provide added personnel protection, not replace safe work methods.

Maintenance/Testing/Inspection

Maintenance and operating personnel shall inspect the job site prior to starting work. This inspection is for the purpose of developing a plan for the safe performance of the job. Evaluate all potential hazards associated with the job and plan the necessary precautions to prevent injury.

THIS GUIDELINE TAKES EFFECT IMMEDIATELY AND REMAINS IN EFFECT UNTIL REPLACED BY A NEW GUIDELINE OR SUPERSEDED BY LEGISLATION/REGULATION

ORIGINAL SIGNED

Employer Co-Chair, JHSC

Worker Co-Chair, JHSC