Life Saving Rules

03

Energy Isolations

Life Saving Rules 03: Energy Isolations

Poor isolation of energy sources (e.g., electricity, pressure, and mechanical) is a leading cause of incidents and injury in the workplace:

- Proper energy isolation requires, as a minimum:
  - Identification of all potential sources of energy
  - Installation of proper lock out devices and tagout signage
  - Confirmation of effective isolation (e.g., bump testing); and
  - Verification that zero-energy stored within the isolated equipment

Life Saving Rule:

- When performing energy isolations or working on isolated equipment YOU MUST:
  - Identify all potential source of energy
  - Confirm that potential sources of hazardous energy sources have been:
    - Isolated
    - Locked; and
    - Tagged
  - Check for ‘Zero Energy’; and
  - ‘Bump Test’ the isolation devices to ensure effective

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Step 1: Develop and implement a plan to isolate the equipment identified:

- Assign:
  - An authorised person to oversee the isolation process; and
  - Competent personnel responsibilities within the isolation plan
- Identify the potential sources of hazardous energy, for example:
  - Electrical
  - Mechanical
  - Pneumatic
  - Chemical
  - Hydraulic; and
  - Thermal
- Confirm the location of the energy isolation points
- Determine the isolation devices required to safely isolate energy sources, (i.e., Lockout/Tagout (LOTO) equipment); and
- Complete a Clearance Certificate, which details the isolation process, including hazards and control measures

Step 2: Notify affected personnel of the plan to isolate equipment:

- Users of the equipment; and
- Other persons who may be affected by the isolations:

Step 3: Shutdown the equipment:

- Safely shutdown the equipment; and
- Confirm equipment is safely shutdown (i.e., de-energized) and is ready for isolation

Step 4: Isolate all sources of energy:

- Locate energy isolation points
- Isolate all sources of energy using suitable energy isolation devices (i.e., Lockout devices)

Note: *Lockout devices must be used to isolate equipment. The equipment's 'ON/OFF' controls and/or Emergency Stop Button, must not be used.*

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Step 5: Installing physical energy isolations:

- Install the required energy isolation devices (LOTO) to the identified energy isolation points:
  - Those applying isolation devices should use unique locks, specific to the company applying the lock
  - Install the isolation devices and apply a lock on the equipment; and
  - Consider the needed for other locks to be applied to the isolation devices (i.e., other contractors), and record isolation installed

Step 6: Prepare and install tags:

- Tags should be:
  - Applied to all locks; and
  - Used to provide visual information, for example:
    - Do Not use the equipment
    - Person who installed the lock; and
    - Reason for the isolation

Note: *If LOTO equipment cannot be installed on an energy isolation point, under controlled conditions it is acceptable to use a tag stating the equipment is isolated and cannot be used.*

Step 7: Confirm zero energy in the system:

- Following physical isolation of the equipment ensure:
  - Any dissipated energy is safely relieved; and
  - Cannot re-accumulate in the system

Step 8: Test the isolations:

- After confirming zero stored energy in the system:
  - Verify that suitable LOTO equipment has been:
    - Installed at all identified energy isolation points; and
    - Fitted correctly
  - In a control manner 'bump test' the energy isolations:
    - Try to start the equipment; or
    - Check for flow through a pipeline (e.g., open a vent)

Note: *If the equipment does not energise work can proceed. If the system become energized during testing DO NOT PROCEED, investigate the cause of the failure to correctly isolated.*

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Step 9: Perform the work on the isolated equipment:

- Remain vigilant throughout the work
- If inadequate isolations are identified STOP THE WORK
- Investigate and correct the issues that led to stopping the work

Step 9: Re-Energise the equipment:

- Verify all required work on the isolated equipment has been completed
- Confirm the equipment is ready in all aspect for the removal of energy isolation devices
- Inspect the equipment, confirm that:
  - All tools; and
  - Materials, have been removed
- The person who installed the energy isolation devices will:
  - Safely remove the isolation devices
  - Confirm that all isolation devices have been removed
  - Notify affected personnel of isolation devices removal; and
  - Record the removal of the isolation devices
- The Job Supervisor will:
  - Be advised that the isolation devices have been removed; and
  - Confirm:
    - All isolation devices have been removed
    - The equipment is ready in all aspects for re-start; and
    - The work is fully completed and can be signed off

Examples of Energy Isolation Devices (LOTO)