Zero Mechanical State

Policy

Department of Human Services employees must ensure that all energy sources (electrical, mechanical, pressurized fluid, chemical, thermal, etc.) are neutralized, secured, and tagged as secured in a safe position, before setting up, adjusting, maintaining, testing, or repairing equipment.

Employees must be trained, supplied with and required to use individual lockout or tagout devices, to prevent an unexpected flow of energy, and possible resultant machine motion.

An evaluation of the effectiveness of ZMS procedures at facilities must be performed at least annually and written documentation of the evaluation must be maintained.

Outside contractors must be advised of the facility ZMS policy whenever they are engaged in activities covered by this policy.

If the cord is under the control of the employee servicing or maintaining the device, cord and plug connected devices are exempt from this policy.

Authority:

- 29CFR1910.147 Control of Hazardous Energy
- 29CFR1910.331-334 Electrical Safety Related Work Practices
- Minnesota Rules 5205.0330 Steam Boilers
- Minnesota Rules 5207.0600 Lockout Devices.
- American National Standard Z244.1 1982
- American National Standard Z241.1 1981

Purpose:

To ensure that equipment is secured in a safe position prior to employee exposure during setting up, adjusting, maintaining, testing, or repairing.

To ensure that employees have the necessary equipment and training to safely neutralize all equipment energy sources before exposure.

Definitions:

Energy Control (or Isolation) Device: Items regulating the transfer of all sources of energy. They include such items as switches, valves, levers, etc.

Energy Source: The source of energy for performing work. Energy sources include electrical, mechanical, pressurized fluid, chemical, or thermal.

Lockout Device: A keyed padlock (or equivalent) to positively prevent unauthorized, unexpected control, operation, or energy flow and the possible resultant unexpected motion. Lockout devices must require excessive force (bolt cutters) to remove, and must be assigned to individual employees.

Pressurized Fluid: Any fluid (air, water, steam, etc.) at a pressure higher than atmospheric.

Tagout Device: A prominent warning sign to identify energy isolating devices that may not be operated until the sign is removed. Tagout devices must be designed to prevent inadvertent or accidental removal.

Zero Mechanical State (ZMS): The process of ensuring that all equipment power sources are secured in as safe as possible position to prevent unexpected movement or energy flow and possible subsequent employee injury.

Responsibilities:

Program and Site Administrators (or Designee): Establish procedures and obtain the necessary equipment to implement this policy.

Physical Plant Managers (or Designee): Identify machines, equipment, processes, areas, or procedures (with safety administrators and supervisors) that must be secured in ZMS.

- Determine how ZMS will be obtained and maintained for specific devices and document the procedure in writing.
- Notify contractors of the ZMS policy whenever they are engaged in facility activities covered by this policy.
- Safety Administrators: Identify machines, equipment, processes, areas, or procedures (with physical plant managers and supervisors) that must be secured in ZMS.
- Determine how ZMS will be obtained and maintained for specific equipment and document the procedure in writing.
- Provide or ensure that ZMS training to provided to supervisors and/or employees.
- Inspect the effectiveness of the ZMS procedures on an annual basis and document the results.

Supervisors: Identify machines, equipment, processes, areas, or procedures (with physical plant managers and safety and health officers) that must be secured in ZMS.

- Determine how ZMS will be obtained and maintained for specific equipment and document the procedure in writing.

- Conduct periodic inspection of each Departmental Lock Out Procedure to ensure the procedures and provisions are being followed.
- Provide or ensure that ZMS training is provided to appropriate employees.
- Ensure that all employees who must use ZMS are supplied with individual lockout and tagout devices and are familiar with the required procedure.
- Ensure that all employees use lockout or tagout devices to secure ZMS.
- Make sure that ZMS training records are maintained.

Employees: Follow the requirements of this policy.

Procedures:

General:

1. Each employee who may be involved in the setting up, adjusting, maintaining, testing, repairing, etc., of equipment that, because of unexpected motion or energy flow may cause harm, will be supplied with, and required to use, individual lockout and tagout devices.
2. Each employee working on specific equipment must attach their individual lockout or tagout device; therefore, provisions must be made to permit multiple attachments.
3. No form of energy may be supplied to equipment unless the employee who attached a lockout or tagout device has removed the device.
4. No lockout or tagout device may be removed by anyone other than the employee to whom it was assigned; unless it can be proven that the employee who attached the lock is no longer in danger.

Generalized Sequence for Lockout or Tagout of Equipment:

1. Identify all control devices (valves, switches, levers, etc.) to isolate all energy sources.
2. Operate the energy isolation devices to prevent the energy flow. Stored energy (electrical, springs, flywheels, pressurized fluids, etc.) must be dissipated or restrained.
3. Lockout (and/or tagout) the energy isolation devices with the assigned individual lock (or tag) of the person(s) who may be exposed to an energy source.
4. After ensuring that no person is exposed, operate the normal operating controls to ensure that the equipment will not operate.
5. Return the operating controls to "off."
6. The equipment is now locked (or tagged) out. To restore energy, reverse the procedure.

Electrical Power Disconnect: Any main electrical power disconnect which controls a source of equipment power must be locked out with a lockout device before setting up, adjusting, maintaining, testing, repairing, etc., equipment. A "Do Not Start" tag must be attached to all operating controls.

Pneumatic and Hydraulic Lines: The pressure in any pneumatic or hydraulic line must be equalized with atmospheric pressure and the valve or blank holding back the pressure must have each exposed employee's lockout device attached to it.

Spring Tension or Compression: Equipment under spring tension or compression must be secured, or the tension or compression relieved, before being serviced.

Suspended Mechanisms: Suspended mechanisms or parts that cycle through a lower position must be lowered to the lowest position and be secured before being serviced.

Cancellation:

This policy cancels DHS Policy Zero Mechanical State, dated February, 2010.

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