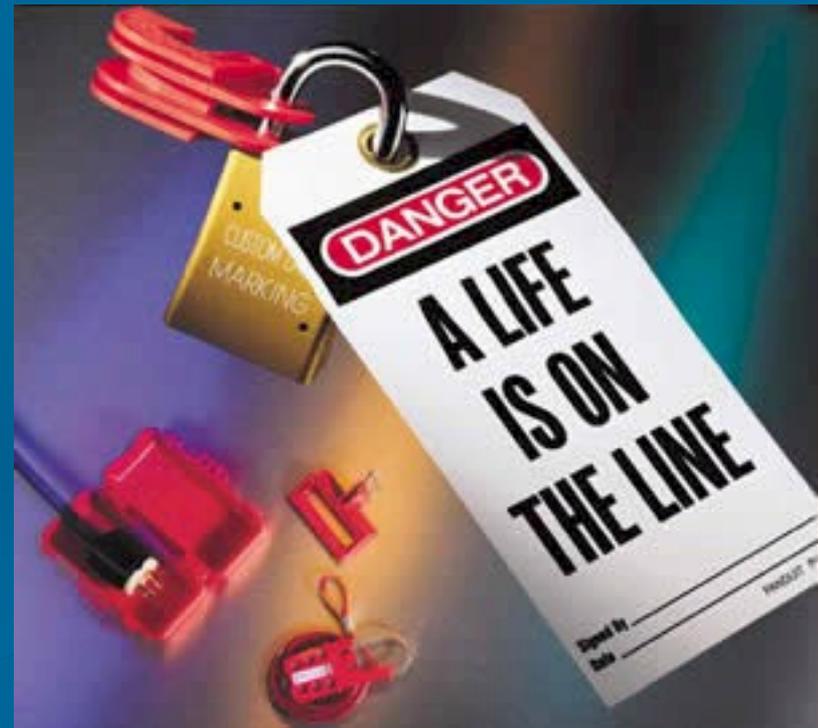
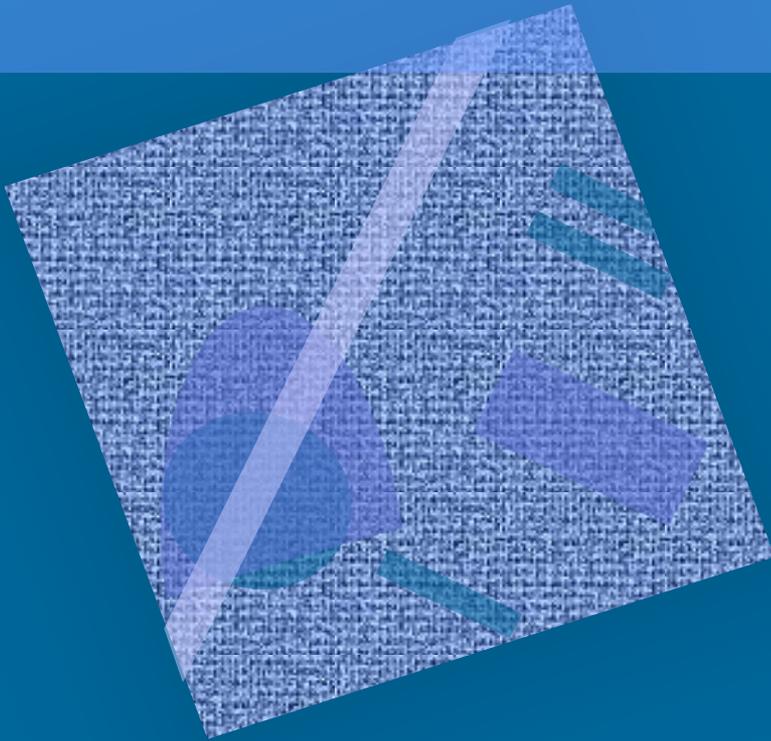


# Lock Out & Tag Out (LOTO)



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# Regulation

Slide-2

11-2017

- Fed-OSHA regulates the control of hazardous energy under 29 CFR (Code of Federal Regulations) General Industry Section 1910.147.
  - Appendix A of 29CFR1910.147 serves as a non-mandatory guideline to assist in complying with the requirements of the standard, as well as to provide other helpful information.
  - Nothing in the appendix adds to or detracts from any of the requirements of the standard.
- If the state regulation is more stringent than the Federal standard you must follow state.



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# Regulation

Slide-3

11-2017

- The following 22 states or territories have OSHA-approved State Plans that cover both private and public sector workers:
  - Alaska, Arizona
  - California, Hawaii, Indiana, Iowa
  - Kentucky, Maryland, Michigan, Minnesota
  - Nevada, New Mexico, North Carolina
  - Oregon, Puerto Rico
  - South Carolina
  - Tennessee, Utah
  - Vermont, Virginia, Washington, Wyoming

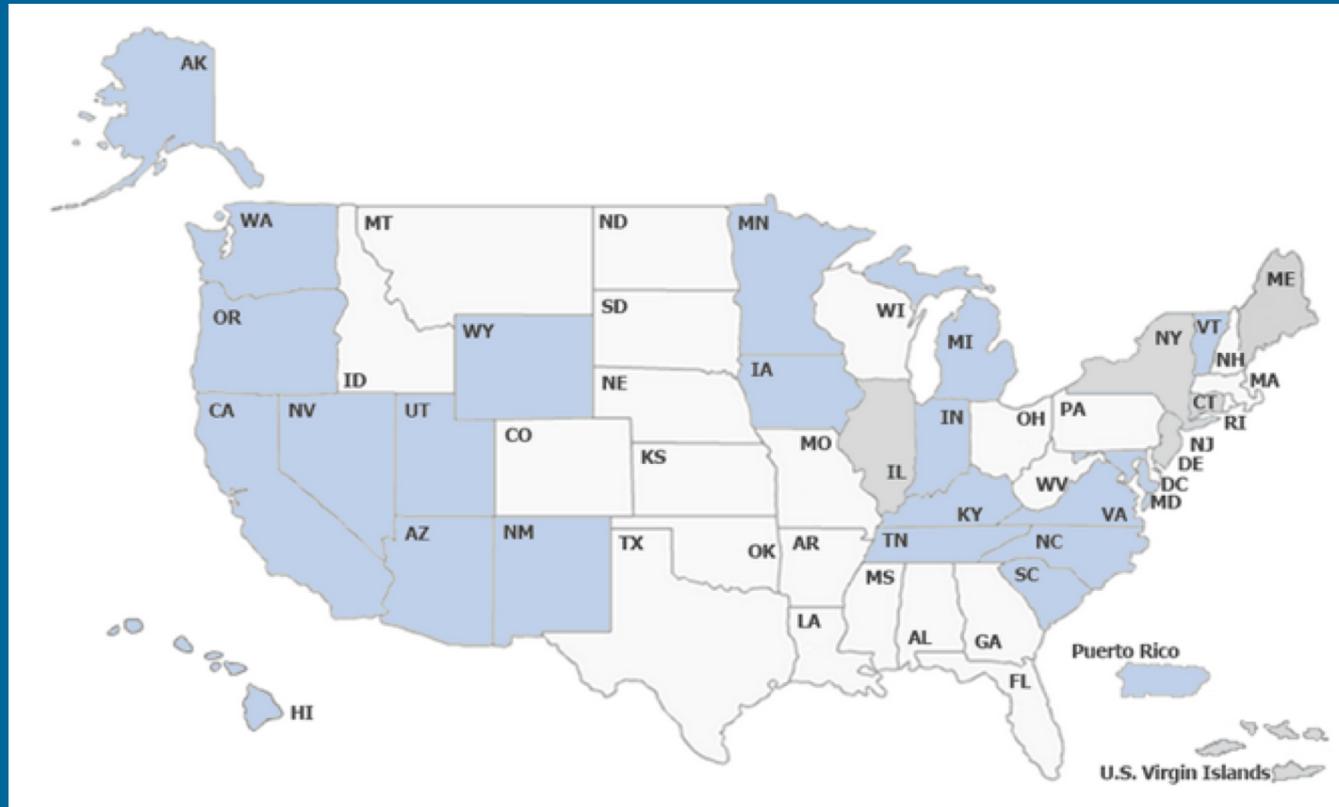


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# Regulation

- Six additional states and one U.S. territory have OSHA-approved State Plans that only cover state and local government public sector workers:

- Connecticut
- Illinois
- Maine
- New Jersey
- New York
- Virgin Islands

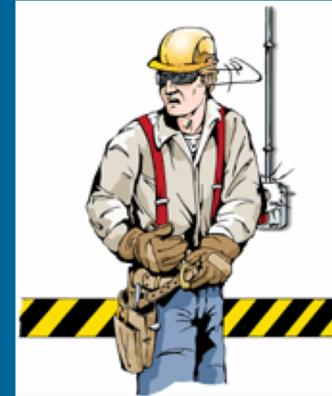


# Regulation

Slide-5

11-2017

- The OSHA Lock Out Tag Out (LOTO) regulation covers the servicing and maintenance of equipment in which the unexpected energization or startup, or release of stored energy could cause an injury.
  - Normal production operations are not covered by this standard.
- Servicing and/or maintenance during normal production operations is covered only if:
  - An employee is required to remove or bypass a guard or other safety device; or
  - An employee is required to place any part of his or her body into an area on a machine or piece of equipment where work is actually performed upon the material being processed (point of operation) or where an associated danger zone exists during a machine operating cycle.



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# Regulation

Slide-6

11-2017

- Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing equipment is regulated by the LOTO standard.
  - These activities include lubrication, cleaning or un-jamming of machines or equipment and making adjustments or tool changes, where the employee may be exposed to the unexpected energization or start-up of the equipment or release of hazardous energy.
  - Minor equipment changes and adjustments, and other minor servicing activities, which take place during normal production operations, are not covered by this standard if they are routine, repetitive, and integral to the use of the equipment for production, provided that the work is performed using alternative measures which provide effective protection.



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# Regulation

Slide-7

11-2017

- The LOTO standard does not apply to work on cord and plug connected electric equipment for which exposure to the hazards of unexpected energization or start up of the equipment is controlled by the unplugging of the equipment from the energy source and by the plug being under the exclusive control of the employee performing the maintenance.
  - Under the exclusive control of the employee means that the authorized employee has the authority to and is continuously in a position to prevent (exclude) other individuals from re-energizing the equipment during the maintenance activity.



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# Regulation

Slide-8

11-2017

- As long as the method of isolating the energy to the equipment is limited to unplugging the equipment and maintaining control of the plug, 29CFR1910.147 does not require an employee who performs maintenance on cord and plug connected equipment to be an "authorized employee."
  - The cord and plug exception is not established if employee fails to unplug the machine prior to the servicing operation (case law).



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# Regulation

Slide-9

11-2017

- The Fed standard does not apply to:
  - Construction,
  - Agriculture and
  - Maritime employment;
  - Installations under the exclusive control of electric utilities for the purpose of power generation, transmission and distribution, including related equipment for communication or metering; and
  - Oil and gas well drilling and servicing.



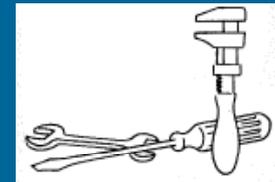
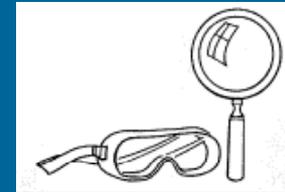
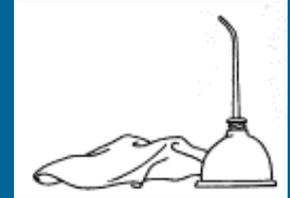
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# Tasks Needing LOTO

Slide-10

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- The following activities may require LOTO:
  - Inspection
  - Preventative Maintenance
  - Repair
  - Calibration
  - Installation
  - Adjustment



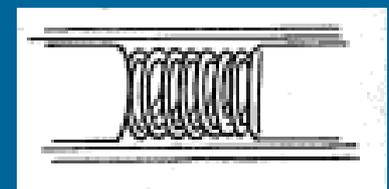
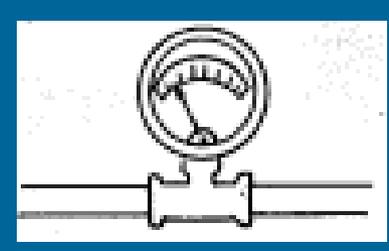
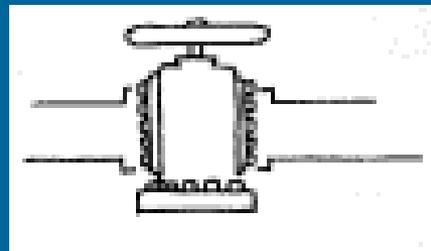
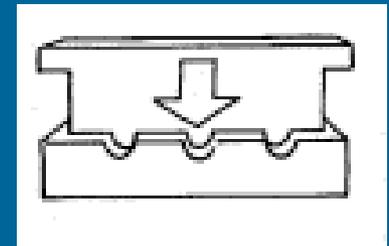
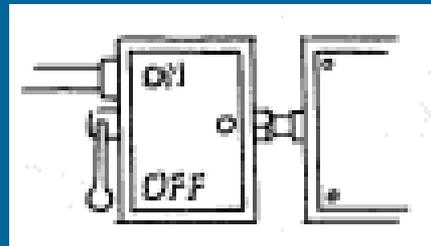
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# Energy Sources

Slide-11

11-2017

- The energy sources to be LOTOd:
  - Electrical
  - Thermal
  - Gravity
  - Chemical
  - Springs
  - Hydraulic
  - Compressed Gas

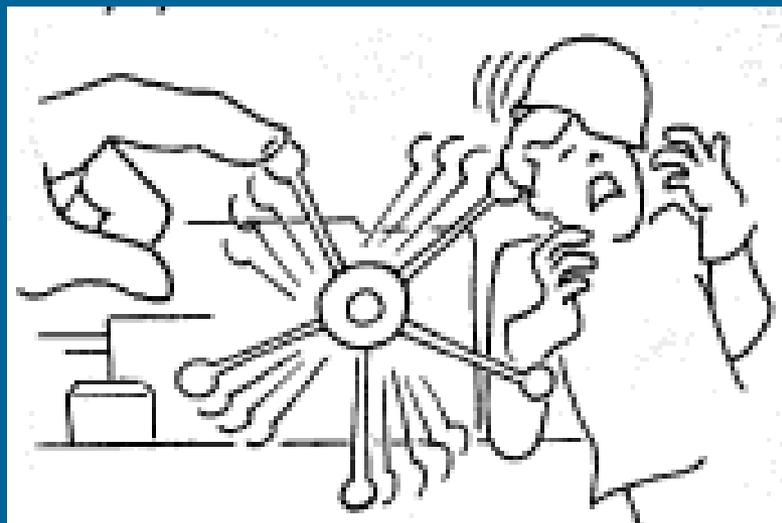
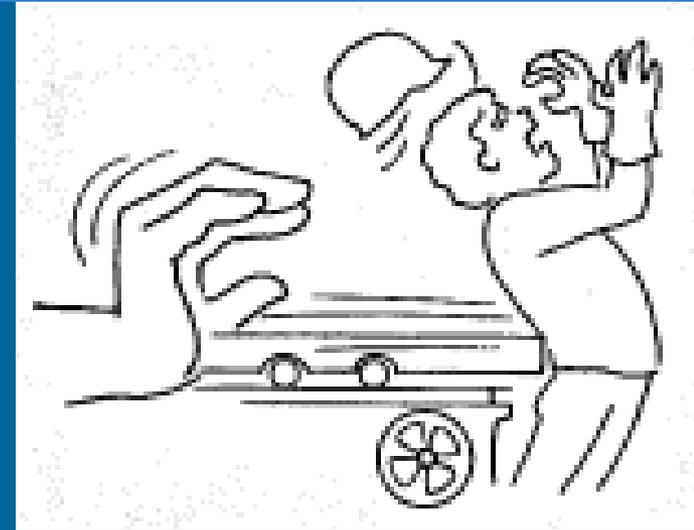


# Hazards

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Slide-12

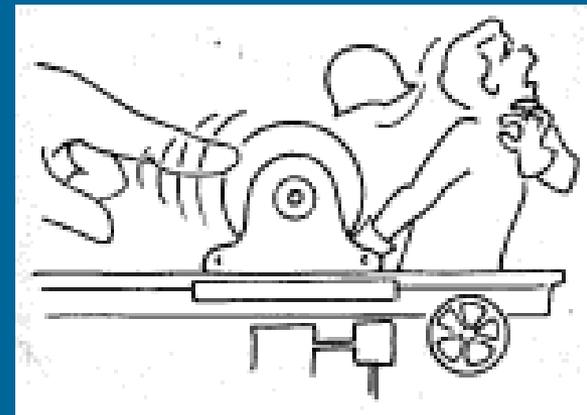
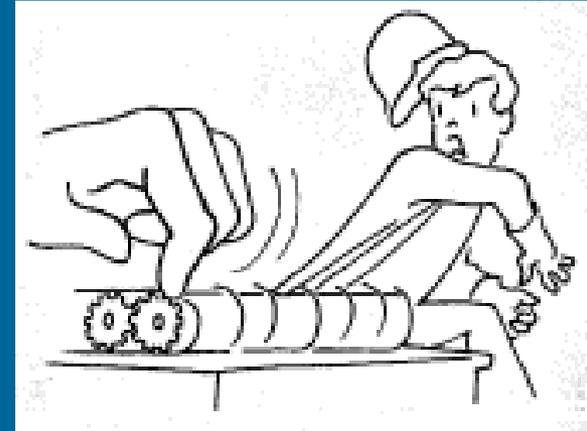
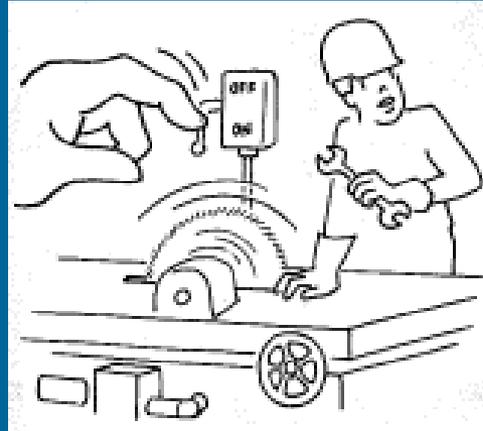
- Hazards associated with failure to LOTO:
  - Being struck
  - Being crushed



# Hazards

Slide-13

- Being Pinched
- Being Cut



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# Hazards

Slide-14

- Being burned
  - Thermally or
  - Chemically
- Being electrocuted



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# Definitions

Slide-15

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- Affected employee's job requires them to operate or use a equipment on which servicing or maintenance is being performed under LOTO, or whose job requires them to work in an area in which such servicing or maintenance is being performed.
- Authorized employee locks out or tags out equipment in order to perform servicing or maintenance on that equipment.
  - An affected employee becomes an authorized employee when that employee's duties include performing servicing or maintenance.



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# Definitions

Slide-16

11-2017

- Hazardous Energy.
  - Any energy, including mechanical (e.g., power transmission apparatus, counterbalances, springs, pressure, gravity), pneumatic, hydraulic, electrical, chemical, nuclear, and thermal (e.g., high or low temperature) energies, that could cause injury to employees.
  - Danger is only present when energy may be released in quantities or at rates that could injure employees.
  - Hazardous chemical energy, for purposes of this standard, includes chemicals (e.g., flammable and combustible liquids; flammable gases; acids and alkaline chemicals) that may thermally produce burn injury through high or low temperature.



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# Definitions

Slide-17

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- Servicing and/or maintenance

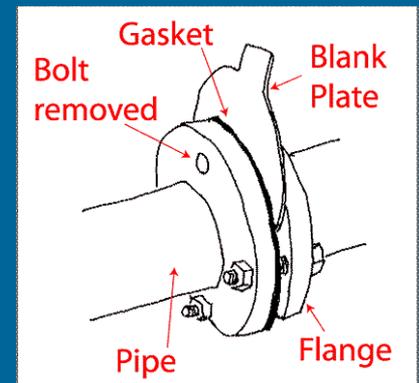
- Workplace activities such as constructing, installing, setting up, adjusting, inspecting, modifying, and maintaining and/or servicing machines or equipment.
- These activities include lubrication, cleaning or unjamming of machines or equipment and making adjustments or equipment changes, where the employee may be exposed to the **unexpected** energization or startup of the equipment or release of hazardous energy.



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# Definitions

- Lockout device
  - A device that utilizes a positive means such as a lock, either key or combination type, to hold an energy isolating device in the safe position and prevent the energizing of a machine or equipment.
  - Included are blank flanges and bolted slip blinds.



# Definitions

11-2017

Slide-19

- Capable of being locked out:
  - An energy isolating device with a hasp or means of attachment to which a lock can be affixed or it has a locking mechanism built into it so that a lock can be applied to it without the need to dismantle the energy isolating device.



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# Definitions

- Energy Isolating Device (EID) is a mechanical device that physically prevents energy flow such as:
  - Manually operated electrical circuit breaker
  - Disconnect switch
  - Line valve
- An electrical switch may be an EID if it physically prevents the transmission of electrical energy.
  - Additionally, the mechanical isolating device must also simultaneously open all ungrounded conductors of the supply circuit and no pole can be operated independently.
  - OSHA requires electric equipment to be approved by an independent, third party to be acceptable for workplace use.



# Definitions

Slide-21

11-2017

- Push buttons, selector switches and other control circuit type devices are not energy isolating devices.
- Programmable Logic Controllers (PLCs) are used in many machine applications, and these control circuit devices are not considered energy isolating devices for purposes of the LOTO standard (LOI).
  - Safety functions, such as stopping or preventing hazardous energy (motion), can fail due to component failure, program errors, magnetic field interference, electrical surges, improper use or maintenance, etc.



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# Definitions

Slide-22

11-2017

- Two-hand control devices and safety mat devices safeguard machine hazard areas during normal production, testing, and positioning operations as they utilize control circuitry to prevent employees from having any part of their body in the danger zone during the press's operating cycle.
  - However, control circuit devices are not energy isolating devices and do not adequately protect employees from hazardous energy exposures for all servicing and maintenance activities.



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# Compliance

Slide-23

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- Written Program (energy control program)
  - Equipment specific LOTO procedures
- Training
- Extension Equipment
- Locking
- Tagging
- Blocking
- Live Operations
- Periodic Inspection
- Contractors



*Alternative measure - extension tool*



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# Energy Control Program

11-2017

Slide-24

- The OSHA LOTO regulation requires employers to establish an Energy Control Program (ECP) and utilize procedures to prevent injury to employees from unexpected equipment energization, start up or release of energy.
- The ECP must clearly and specifically outline:
  - Scope,
  - Authorization,
  - Rules,
  - Means to enforce compliance
  - Employee training,
  - Periodic inspections to ensure LOTO procedures are being followed.



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# Energy Control Program

11-2017

Slide-25

- Specific procedural steps for shutting down, isolating, blocking and securing machines or equipment to control hazardous energy;
- A specific statement of the intended use of the procedure;
- Specific procedural steps for the placement, removal and transfer of LOTO devices and the responsibility for them;
- Specific requirements for testing equipment to determine and verify the effectiveness of LOTO devices, and other energy control measures.
- Protective materials and hardware.



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# Training

Slide-26

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- The employer shall provide training to ensure that the purpose and function of the ECP are understood by employees and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are acquired by employees.
  - The authorized employee training shall include recognition of hazardous energy sources, the type and magnitude of the energy available in the workplace, and the methods and means necessary for energy isolation and control.



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# Training

Slide-27

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- Each affected employee shall be instructed in the purpose and use of the ECP.
  - All other employees whose work operations are or may be in an area where energy control procedures may be utilized, shall be instructed about the procedure, and about the prohibition relating to attempts to restart or reenergize machines or equipment which are LOTOd.



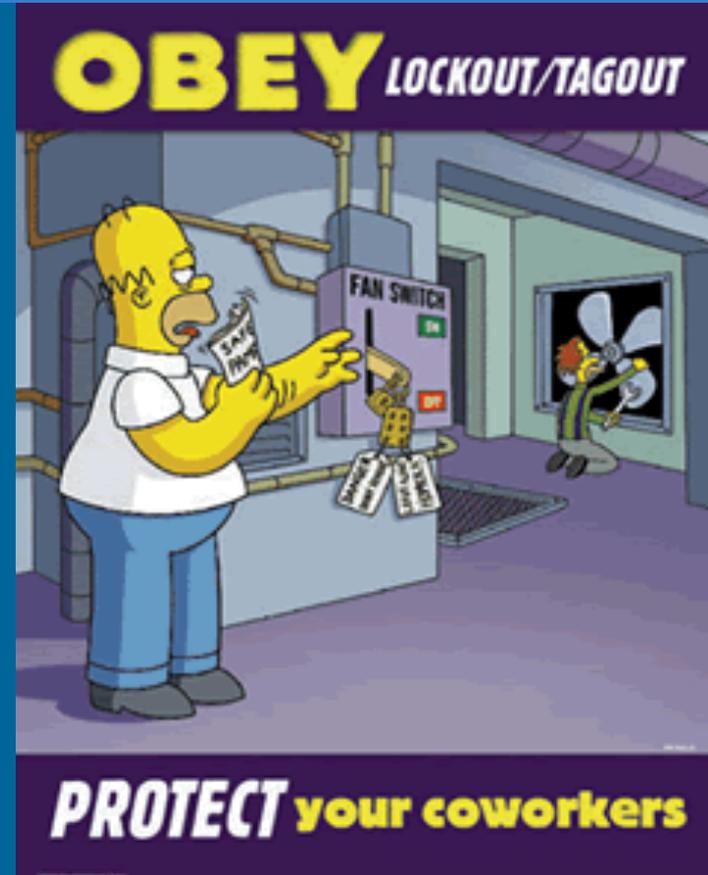
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# Retraining

Slide-28

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- Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in machines, equipment or processes that present a new hazard, or when there is a change in the ECP.
- Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever the employer has reason to believe that there are deviations from or inadequacies in the employee's knowledge or use of the ECP.



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# Retraining

Slide-29

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- The retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.
- The employer shall certify that employee training has been accomplished and is being kept up to date.
  - The certification shall contain each employee's name and dates of training.



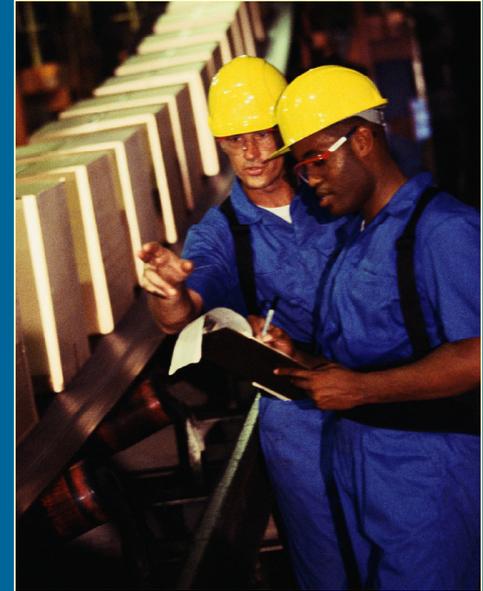
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# Notification

11-2017

Slide-30

- Affected employees shall be notified by the authorized employee of the application and removal of LOTO devices.
  - Notification shall be given before the controls are applied, and after they are removed from the equipment.



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# Pre Shutdown

Slide-31

11-2017

- Preparation for shutdown.
  - Before an authorized or affected employee turns off equipment, the authorized employee shall have knowledge of the type and magnitude of the energy, the hazards of the energy to be controlled, and the method or means to control the energy.



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# Equipment Shutdown

11-2017

Slide-32

- The machine or equipment shall be turned off or shut down using the procedures established for the machine or equipment.
- An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of the equipment stoppage.



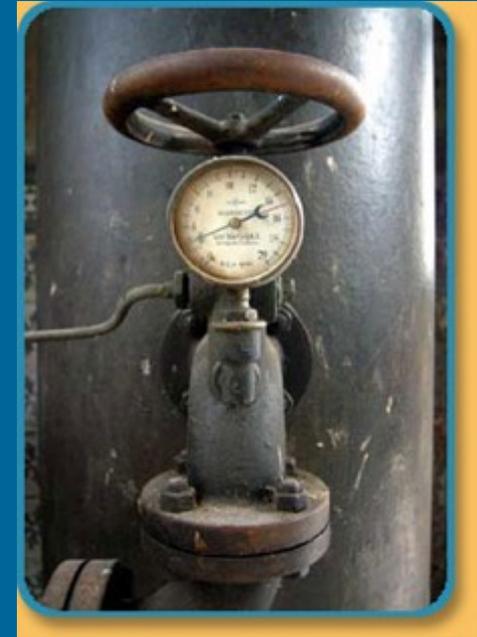
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# Equipment Isolation

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Slide-33

- All energy isolating devices that are needed to control the energy to the equipment shall be physically located and operated in such a manner as to isolate the equipment from the energy source(s).



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# Device Application

11-2017

Slide-34

- LOTO devices shall be affixed to each energy isolating device by authorized employees.
  - Lockout devices, where used, shall be affixed in a manner to that will hold the energy isolating devices in a "safe" or "off" position.
  - Tagout devices, where used, shall be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the "safe" or "off" position is prohibited.



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# LOTO Devices

11-2017

Slide-35

- Locks, tags, chains, wedges, key blocks, adapter pins, self-locking fasteners, or other hardware shall be provided by the employer for isolating, securing or blocking of equipment from energy sources and shall be:

- Singularly identified;
- The only device(s) used for controlling energy;
- Not be used for other purposes;
- Durable.
- Capable of withstanding the environment to which they are exposed for the maximum period of time that exposure is expected.



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# LOTO Devices

11-2017

Slide-36

- Lockout devices shall be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters.
- LOTO devices shall indicate the identity of the employee applying the device(s).
- LOTO devices shall be standardized within the facility in at least one of the following criteria:
  - Color;
  - Shape; or
  - Size;
  - Print and format shall be standardized for the LOTO tag.



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# LOTO Tags

Slide-37

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- The print and format for LOTO tags shall be standardized.
- LOTO tags shall warn against hazardous conditions if the equipment is energized and shall include a legend such as:
  - Do Not Start.
  - Do Not Energize.
  - Do Not Operate.
- Tags, including their means of attachment, shall be substantial enough to prevent inadvertent or accidental removal.
  - Tagout device attachment means shall be of a non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds and having the general design and basic characteristics of being at least equivalent to a one-piece all environment-tolerant nylon cable tie.



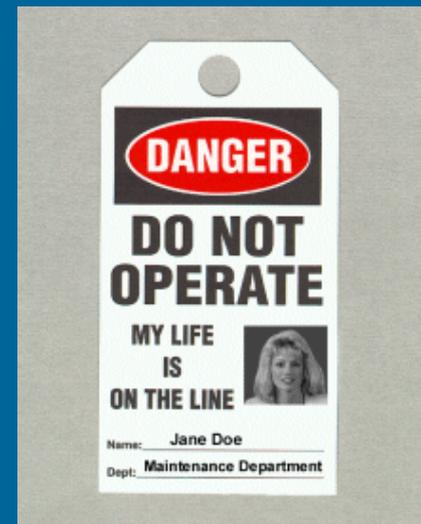
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# LOTO Tags

Slide-38

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- Tags shall be constructed and printed so that exposure to weather conditions or wet and damp locations will not cause the tag to deteriorate or the message on the tag to become illegible.
  - Tags shall not deteriorate when used in corrosive environments such as areas where acid and alkali chemicals are handled and stored.



# Stored Energy

11-2017

Slide-39

- Following the application of LOTO devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained, and otherwise rendered safe.
  - If there is a possibility of reaccumulation of stored energy to a hazardous level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists.



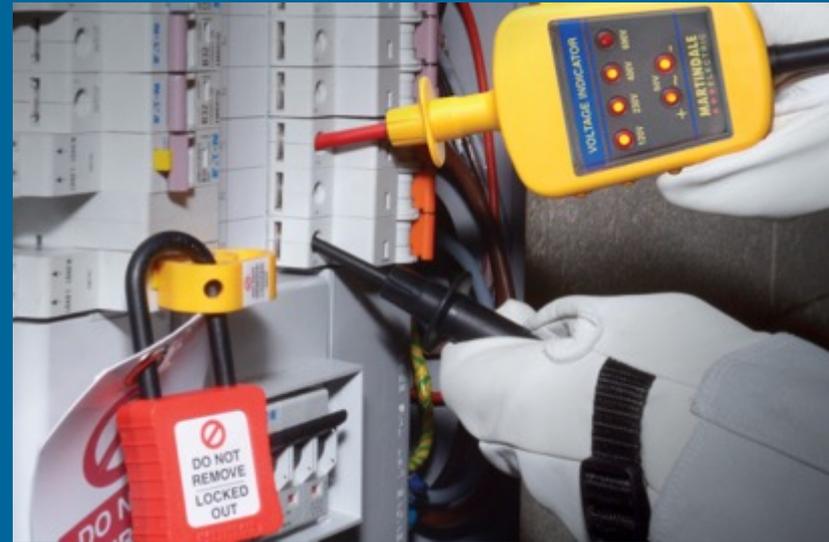
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# Verify Isolation

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Slide-40

- Prior to starting work on equipments that have been LOTOd, the authorized employee shall verify that isolation and deenergization of the equipment have been accomplished.
  - Energy control procedures must include specific requirements for the testing of equipment to determine the effectiveness of LOTO devices and other control measures.



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# Release from LOTO

Slide-41

11-2017

- Before LOTO devices are removed and energy is restored to the equipment:
  - The work area shall be inspected to ensure that nonessential items have been removed and to ensure that machine or equipment components are operationally intact.
  - The work area shall be checked to ensure that all employees have been safely positioned or removed.



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# Device Removal

11-2017

Slide-42

- LOTO devices shall be removed by the employee who applied the device.
  - When the authorized employee who applied the LOTO device is not available to remove it, that device may be removed under the direction of the employer, provided that specific procedures and training for such removal have been developed, documented and incorporated into the employer's energy control program.
  - The employer shall demonstrate that the specific procedure provides equivalent safety to the removal of the device by the authorized employee who applied it.



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# Device Removal

Slide-43

11-2017

- The specific procedure for device removal by a second party shall include at least the following elements:
  - Verification by the employer that the authorized employee who applied the device is not at the facility,
  - Making all reasonable efforts to contact the authorized employee to inform him/her that their LOTO device has been removed; and
  - Ensuring that the authorized employee has this knowledge before he/she resumes work at that facility.



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# Release from LOTO

11-2017

Slide-44

- After LOTO devices have been removed and before a equipment is started, affected employees shall be notified that the LOTO device(s) have been removed.



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# Equipment Specific LOTO

11-2017

Slide-45

- An Equipment Specific LOTO Procedure (ESLP) is required for the following type of equipment:

- Potential for stored or residual or reaccumulation of energy after shut down which could endanger employees (example capacitor);
- Has more than one energy source or the source cannot be readily identified and isolated;
- The equipment is not isolated from the energy source and locked out during servicing or maintenance (equipment is live or hot) ;



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# Equipment Specific LOTO

11-2017

Slide-46

- More than one LOTO device is needed to lock out the equipment;
- The lockout device is not under the exclusive control of the authorized employee performing the servicing or maintenance;
- An accident involving the unexpected activation or reenergization of the equipment has occurred during servicing or maintenance.
- The servicing or maintenance creates hazards for other employees;



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# Equipment Specific LOTO

Slide-47

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- For identical or similar equipments you can use one ESLP as long as any differences between the equipments are detailed.
- ESLP shall be in writing.



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# Group LOTO

Slide-48

11-2017

- When more than one person will work on a piece of equipment, each employee is to lock and tag all the energy isolating devices.
  - The use of a hasp allows more than one employee to lock and tag the energy isolating device.
- A group lock box is usually used when the number of employees needing to place a lock exceeds the capacity of a hasp.



# Group LOTO

Slide-49

11-2017

- The standard group lock box procedure requires that a lock or job-tag with tab is placed on each energy isolation device after de-energization.
  - The key(s) and/or removed tab(s) are then placed into a lock-box.
- Each authorized employee shall affix a personal lock OR tag device to the group LOTO device, or group lockbox when they begin work, and shall remove those devices when they stop working on the equipment being serviced.
  - Each authorized employee verifies that all hazardous energy has been rendered safe.



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# Group LOTO

Slide-50

11-2017

- Then each appropriate key is matched to its lock or tag, and the equipment can be re-energized.
- The LOTO devices cannot be removed or the energy isolating device turned on until each individual employee removes their personal lock or tag from the lockbox.
- When servicing and/or maintenance is performed by a crew, they shall utilize a procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal LOTO device.
- Verbal accountability is not considered to be equivalent to each employee placing a personal lock and tag on a group LOTO mechanism (OSHRC case law & CPL).



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# Group LOTO

Slide-51

11-2017

- OSHA has accepted an alternative to the individual employee verification requirement where complex LOTO operations involve many employees and numerous energy isolating devices.
  - In such situations, the employer may designate a primary authorized employee, with the primary responsibility for a set number of employees working under the group LOTO device(s).
  - The primary authorized employee must implement and coordinate the LOTO of hazardous energy sources and verify that the steps taken, in accordance with the specific energy control procedure, have in fact isolated the equipment effectively from the hazardous energy sources.
  - This must be accomplished before authorized employees participating in the group LOTO affix their personal lock and tag to the group LOTO box and before they perform servicing/maintenance activities.



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# Group LOTO

Slide-52

11-2017

- A group energy control procedure listed in the CPL requires that a primary authorized employee to be designated.
  - This employee would exercise primary responsibility for implementation and coordination of the overall LOTO of hazardous energy sources for the equipment to be serviced. 1910.147(f)(3)(ii)
  - The primary authorized employee would coordinate authorized employee changes and affected workforces (multiple work crews) with equipment operators before and after completion of servicing and maintenance operations that require LOTO.
  - He also has the responsibility to ensure continuity of protection with respect to multi-shift energy isolation.



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# Group LOTO

Slide-53

11-2017

- The CPL requires that a Principal authorized employee(s) be designated for each crew.

- When more than one crew is involved, one principal authorized employee would account for a single group of servicing/maintenance personnel.
- Each principal employee is responsible (to the primary authorized employee) for maintaining accountability and for the individual exposure status of each employee in that specific group in conformance with the company procedure.



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# Group LOTO

Slide-54

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- A verification system is required to be implemented to ensure the continued isolation and de-energization of hazardous energy sources during the course of maintenance operations.
  - Once the equipment is shut down and the hazardous energy has been controlled, maintenance/servicing personnel must test the equipment to verify that the isolation of the equipment's energy source(s) is effective.
  - Verification must be performed by each authorized employee before starting work following a shift change unless the employer elects to incorporate the primary authorized employee verification system alternative.
  - If there is a potential for the release or re-accumulation of hazardous energy, verification of isolation must be continued.



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# Group LOTO

11-2017

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- When a primary authorized employee verifies isolation, all authorized employees participating in the group LOTO must be informed of their right also to verify the effectiveness of the lockout measures and must be allowed to personally verify that hazardous energy sources have been effectively isolated, if they so choose.
  - An authorized employee who opts to verify the effectiveness of the isolation measures must perform this verification after affixing his personal LOTO device to the lock box and before performing servicing/maintenance activities.



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# Group LOTO

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11-2017

- Shutdown Preparation.

- Before equipment are shut down, each authorized employee (who is to be involved during the servicing/maintenance operation) must have knowledge of the type and magnitude of the hazards related to the energy to be controlled and of the means to control the energy.  
[ § 1910.147(d)(1).]
- In the event that the equipment was shut down on a previous shift, the authorized employee must be made aware of these elements before beginning his work.



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# Group LOTO

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11-2017

- There are 2 types of lockboxes:
  - Master
  - Satellite
- Lockbox (Master).
  - The lockbox into which all the keys from the lockout devices securing the equipment are inserted and which would be secured by individual authorized employee locks and tags and by a “Job-Lock” (during multi-shift operations).
- Lockbox (Satellite).
  - A secondary lockbox or lockboxes to which each authorized employee affixes their personal lock and tag.

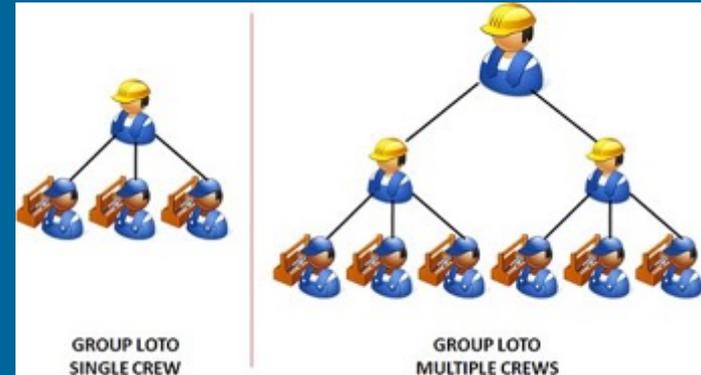


# Group LOTO

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- After each EID is LOTOed and the keys placed into a master lockbox, each PRINCIPAL authorized employee places their personal lock and tag on the MASTER lockbox.
  - Then the PRINCIPAL authorized employee inserts his key into a SATELLITE lockbox to which each AUTHORIZED employee in that specific group affixes his personal lock and tag.
  - Each authorized employee verifies that all hazardous energy has been rendered safe.
  - Only after the maintenance functions of the specific subgroup have been concluded and the personal locks and tags of the respective employees within the group have been removed from the SATELLITE lock-box can the PRINCIPAL authorized employee remove their key from the SATELLITE box and remove his lock from the MASTER lock-box.



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# Group LOTO

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- Alternative Group LOTO (Control and Accountability) Procedures (CPL).
  - Under most circumstances, where servicing or maintenance is to be conducted during only one shift by a small number of persons, the installation of each individual's LOTO device would not be a burdensome procedure.
  - When complex equipment are being serviced, when there are many sources of energy, and/or when servicing/maintenance work extends over more than one work shift, OSHA permits employers to utilize an alternative procedure to each employee locking or tagging out each energy isolating device.
  - In the servicing of sophisticated and complex equipment, such as process equipment in petroleum refining, there may be a need for the adaptation and modification of normal group energy control procedures in order to ensure the safety of employees.



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# Group LOTO

11-2017

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- The use of the work permit and/or master tag system, combined with the verification of hazardous energy control, work procedures, and walk-through, is an acceptable approach to compliance with the group LOTO and shift transfer provisions, as long as the control and accountability procedure provides a level of protection equivalent to each individual authorized employee affixing their lock and tag to the EID.



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# Shift/Personnel Changes

Slide-61

11-2017

- Specific procedures shall be utilized during shift or personnel changes to ensure the continuity of LOTO protection, including provision for the orderly transfer of LOTO device protection between out-going and incoming employees, to minimize exposure to hazards from the unexpected energization or start-up of the machine or equipment, or the release of stored energy.



- In multi-shift group LOTO operations, Individual incoming employees must be provided an opportunity to verify that the equipment has been de-energized.
- The incoming employees may not depend upon the actions of another employee or supervisor from an earlier shift for assurance that the job is safe to work.



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# Shift/Personnel Changes

Slide-62

11-2017

- During operations to be conducted over more than one shift (or even many days or weeks), a system incorporating a job lock might be used in order to ensure continuation of LOTO protection for employees during shift or personnel changes.



- First, a PRIMARY authorized employee secures the master lock-box with a job-lock after all the keys/tag stubs (from the LOTO devices that were affixed to the equipment) are inside the lock-box/tag-box.
- This step is completed before subsequent locks are applied to the group LOTO mechanism by the various types of authorized employees as described in the above procedures.
- A job-lock may have multiple keys if they are in the sole possession of the various primary authorized employees (one on each shift).



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# Shift/Personnel Changes

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- Thereafter, each authorized employee, through the established group LOTO procedures, affixes their personal lock/tag to a MASTER or SATELLITE (via a principal authorized employee) lock-box.
  - After individual LOTO devices are affixed, each authorized employee then verifies that all hazardous energy has been rendered safe or the primary authorized employee may verify isolation on behalf of a group of authorized employees.
  - In this manner, the continuity of LOTO protection for authorized employees is maintained during shift and during personnel changes while the procedure also provides the primary authorized employee flexibility and control over the equipment at any appropriate time or shift.



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# Outside Personnel

11-2017

Slide-64

- Whenever outside servicing personnel are to be engaged in operations requiring LOTO, the on-site employer and the outside employer shall inform each other of their respective LOTO procedures.
- The on-site employer shall ensure that his/her employees understand and comply with the restrictions and prohibitions of the outside employer's ECP.



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# Outside Personnel

11-2017

Slide-65

- On multi-employer worksites, both the host employer and outside contractors may be citable for a hazardous condition(s).
- Host and outside (contractor) employers, depending upon the established energy control responsibilities (e.g., by contract or by actual practice), may be a creating, controlling, correcting or exposing employer.
- When a contractor is engaged in servicing and maintenance activities within another employer's facility, the OSHA inspector usually will evaluate both employers' compliance with the LOTO standard (CPL).



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# New Equipment

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Slide-66

- After January 2, 1990, whenever replacement or major repair, renovation or modification of a equipment is performed, and whenever new equipments are installed, energy isolating devices for such machine or equipment shall be designed to accept a lockout device.



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# Lock Out vs Tag Out

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Slide-67

- If an energy isolating device is capable of being locked out, it shall be locked out unless the employer can demonstrate that the utilization of a tagout system will provide full employee protection.
- If an energy isolating device is not capable of being locked out, the employer shall utilize a tagout system which must be detailed in the written ECP.



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# Tagout Only

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- When a tagout device is used on an energy isolating device which is capable of being locked out:
  - The tagout device shall be attached at the same location that the lockout device would have been attached, and
  - The employer shall demonstrate that the tagout program will provide a level of safety equivalent to that obtained by using a lockout program with such additional safety measures such as:
    - The removal of an isolating circuit element,
    - Blocking of a controlling switch,
    - Opening of an extra disconnecting device, or
    - The removal of a valve handle to reduce the likelihood of inadvertent energization.



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# Tagout Training

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- When only tagout systems are used, employees shall also be trained in the following limitations of tags:
  - Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock.
  - When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated.
  - Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective.



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# Tagout Training

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Slide-70

- Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace.
- Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall ECP.
- Tags must be securely attached to energy isolating devices so that they cannot be inadvertently or accidentally detached during use.



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# Periodic Inspection

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- The employer shall conduct a periodic inspection of the ECP at least annually to ensure that the procedure and the requirements of the LOTO regulation are being followed.
  - The periodic inspection shall be performed by an authorized employee other than the one(s) utilizing the ECP being inspected.
  - Periodic inspection shall include a review between the inspector and each authorized employee, of that employee's responsibilities under the ECP being inspected.
  - The periodic inspection shall be conducted to correct any deviations or inadequacies identified.



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# Periodic Inspection

11-2017

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- The employer shall certify that the periodic inspections have been performed. The certification shall identify the:
  - Equipment on which the ECP was being utilized,
  - Date of the inspection,
  - Employees included in the inspection, and
  - Person performing the inspection.
- The evaluation needs to determine whether (CPL):
  - The steps in the energy control procedure are being followed;
  - The employees involved know their responsibilities under the procedure; and
  - The procedure is adequate to provide the necessary protection and what changes, if any, are needed.



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