



DEPARTMENT OF THE NAVY
COMMANDER, NAVY INSTALLATIONS COMMAND
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CNICINST 5100.2
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CNIC INSTRUCTION 5100.2

From: Commander, Navy Installations Command (CNIC)

Subj: ENERGY CONTROL PROGRAM (LOCKOUT/TAGOUT)

Ref: (a) OPNAVINST 5100.23 (series), Navy Safety and Occupational Health Program Manual dated 30 Dec 2005
(b) American National Standard Institute, Machine Tools Safeguarding, ANSI B11.19-1990
(c) National Fire Protection Association, Standard for Electrical Safety Requirements in the Workplace, NFPA 70E

Encl: (1) Lockout/Tagout Procedures

1. Purpose. The purpose of this instruction is to establish policy guidance and assignment of responsibilities for the coordination of a comprehensive energy control (lockout/tagout) program at all Navy regions and installations.

2. Background. The energy control program serves as CNIC's principal method of implementing standards for the anticipation, recognition, evaluation and control of hazardous energy during servicing and maintenance activities. The program establishes uniform procedures for lockout/tagout as specified by references (a), (b) and (c).

3. Objective. The primary objective of the energy control program is to protect workers onboard Navy installations from potentially hazardous energy and to safeguard the protection of other persons in the immediate area through:

a. Implementation and documentation of lockout/tagout procedures including shutdown, equipment isolation, lockout/tagout application, release of stored energy, verification of isolation, start-up, certification of periodic inspections, and certification of training.

b. Strict compliance with this instruction and all other

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related and supplemental federal, state, and local laws and regulations pertaining to lockout/tagout and hazardous energy control.

4. Scope and Applicability

a. Per reference (a), this instruction applies to situations where injury could be caused by unexpected startup, energization or release of stored energy while a machine or equipment is being serviced or maintained. Requirements of this instruction extend to the control of all energy sources at all Navy installations in the United States, its territories and possessions, and overseas. This instruction specifically addresses hazards related to:

(1) Sources of energized, stored or residual energy that may be potentially transmitted or released from machinery, equipment or systems. Forms of kinetic and potential energy include but are not limited to: chemical, compressed air, electrical, gas, nuclear, pneumatic and hydraulic lines in machinery, spring tension or compression, steam and condensate lines under pressure, suspended parts or equipment, thermal, water, vacuum, and gravitational forces.

(2) Energized (i.e., pressurized) piping systems where potentially hazardous stored or residual energy may exist. Such systems must be relieved, disconnected, blocked/blanked, and otherwise rendered safe unless specifically exempted by this instruction or reference (a). If there is a possibility of reaccumulation of stored energy to a hazardous level, continued monitoring shall be performed while a potential hazard exists.

(3) High intensity electromagnetic fields of non-ionizing radiation regulated per reference (a), where a potentially hazardous exposure exists. Energized electromagnetic devices shall be de-energized and held off whenever workers are present in areas within the high intensity ambient field.

b. This instruction will apply to all work tasks where there is exposure to sources of energized, stored or residual energy as specified in this instruction, involving:

(1) CNIC personnel;

(2) Tenants who are receiving Base Operations Support (BOS) Occupational Safety and Health (OSH) services from Host (CNIC installations);

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(3) Contractors who are either working for CNIC installations or tenants who are receiving BOS OSH services from Host (CNIC installations); or

(4) Any tenant command that has not submitted their organization's energy control program to the region or installation commander for approval or that is awaiting written approval from the region or installation commander to implement their program.

c. This instruction does not apply to service/maintenance situations defined in reference (a), chapter 24 (i.e., specified shipboard operations, electrical power transmission distribution systems, electrical workers working on or near unguarded, uninsulated electrical components rated at 50 volts or above, corded plug connected electrical equipment, etc). This instruction also does not apply to Electrical Safety O&M (UFC 3-560-01) requirements, or service/maintenance situations in which:

(1) Workers are not exposed to "unexpected" release of hazardous energy.

(2) Safeguarding provisions (e.g., machine guarding) covered by other related or supplemental portions of reference (a) and national voluntary consensus standards of references (b) and (c) prevent worker exposure to hazards created by the unexpected energization or start-up of machinery or equipment. However, if these safeguards are rendered ineffective while a service or maintenance worker is exposed to hazardous portions of the machines or equipment, then effective implementation of lockout/tagout procedures described in enclosure (1) are required.

(3) Minor servicing activities of a repetitive and integral nature (e.g., minor tool changes and adjustments) are being performed, in accordance with alternative protective measures, as part of routine production operations related to the normal use of equipment for production. In such situations, lockout or tagout is not required by this instruction if the alternative protective measures have detailed procedures developed and documented for the control of hazardous energy which enable the servicing employee to clean or unjam or otherwise service the machine without being exposed to unexpected energization or activation of the equipment or the release of stored energy. In general, however,

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service/maintenance activities in which service/maintenance workers are otherwise unprotected and exposed to potentially hazardous energy and unexpected energization or start-up of the equipment (e.g., major machinery lubrication, cleaning or unjamming, making adjustments or tool changes) are covered by this instruction.

(4) Service/maintenance of energized fire alarm and extinguishing systems and their components, upon which other workers are dependent for fire safety, are not covered in this instruction if the workers performing service/maintenance upon fire extinguishing systems are protected from hazards related to the unexpected release of hazardous energy by appropriate alternative measures.

5. Responsibilities

a. General. It shall be the responsibility of the chain of command at all levels to implement this instruction.

b. Commander, Navy Installations Command. CNIC has overall responsibility for the development of energy control program (lockout/tagout) requirements at Navy shore installations in accordance with reference (a).

c. Region Commanders/Installation Commanders. Region and installation commanders have overall responsibility for implementing energy control program (lockout/tagout) requirements at Navy installations as set forth in this instruction and by direction of reference (a). Commanders/Commanding Officers shall:

(1) Ensure that energy control procedures are established for specific machinery, equipment or systems with identified hazardous energy sources in accordance with enclosure (1).

(2) Designate authorized personnel as defined in enclosure (1).

(3) Ensure that authorized, affected and other personnel including workcenter/immediate supervisors are adequately trained in the energy control program and that such training is documented before allowing service/maintenance work on potentially hazardous equipment.

(4) Approve or disapprove written requests by a tenant command to implement a tenant command-specific energy control

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program. This responsibility is designed to ensure that tenant command-specific programs meet, at a minimum, the standards set forth by this instruction.

(5) Maintain a list and electronic copies of tenant command-specific energy control programs that have been approved by the region or installation commander.

d. Region and Installation Safety Departments. Safety managers, in accordance with reference (a), shall have responsibility for:

(1) Providing assistance in determining whether particular servicing and maintenance operations are covered by this instruction and if the hazard analysis, survey, or other basis on which the program related to lockout/tagout was developed.

(2) Ensuring that, in coordination with Navy workplace supervision, hazardous energy sources subject to this instruction are identified and related procedures for the control of hazardous energy are documented and audited. Such procedures include, but are not limited to: shutdown, equipment isolation, lockout/tagout application and release of stored energy, verification of isolation, start-up, certification of periodic inspections, and certification of training.

(3) In accordance with Annex F of reference (c), complete a written risk assessment when lockout/tagout is not used or traditional lockout/tagout prohibits completion of the work tasks and work with workcenter/immediate supervisors to identify specific equipment and detailed procedures for an alternate method for the control of hazardous energy.

(4) Conduct an annual review of the energy control program.

e. Other Departments and Tenant Commands. All other departments within region and installation commands and tenant commands with host-tenant relationships will comply with requirements of this instruction as specified in enclosure (1). Tenant commands with host-tenant relationships may use the building manager or facilities' representative to act as the liaison with the host installation when a written agreement exists specifying that the host installation is responsible for carrying out energy control program (lockout/tagout) management responsibilities. Tenant commands shall submit to the region or

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installation commander the activities that are considered mission related for approval to be regulated by complimentary energy control programs. If the approval has not been granted by the installation commanding officer then the mission activity is subject to the Host's energy control program.

f. Supervisor. The supervisor of region and installation commands' departments and tenant commands' departments shall:

(1) Maintain a current list of all authorized personnel and ensure that the list is readily available to the installation safety department during normal working hours. Supervisors should note that training of authorized persons documented in CNIC standardized safety management system (i.e., Enterprise Safety Applications Management System) meets this requirement.

(2) Maintain a current list and a copy of the lockout/tagout procedures for all equipment and/or systems capable of being locked out within their division.

(3) Ensure a current list of all equipment that cannot be locked out is updated annually and sent to the installation safety department.

(4) Ensure authorized, affected and other personnel receive required training and that documentation of satisfactory completion of training is maintained in ESAMS and readily available for review.

(5) Ensure machinery, equipment and systems that cannot be locked out but are subject to this instruction are identified, have received approval from the installation safety department, and have a current approved Tagout-only procedure on file.

(6) Ensure that deficiencies found and corrective actions taken are reported to the safety department.

(7) Ensure specific energy control lockout/tagout procedures for control of hazardous energy sources are developed for machinery, equipment or systems before any maintenance or servicing is performed. A copy of these procedures should be forwarded to the installation safety department for review and approval.

(8) Control the issuing of singular lockout devices to

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ensure a particular locking device can be traced to a specific employee.

(9) Ensure training/retraining is provided to authorized, affected and other persons on hazards and safeguards related to the understanding, compliance and enforcement of this instruction and specific workplace energy control (lockout/tagout) procedures. Whenever such persons are newly assigned to the work or work area, it should also be documented that training and retraining has been provided.

(10) Ensure that, before any person performs servicing or maintenance on machinery, equipment or systems where the unexpected energizing, start up, or release of stored energy could occur and cause injury, the equipment or systems are isolated and rendered inoperative through the use of energy control devices.

g. Authorized Persons. Authorized persons shall:

(1) Complete training and re-training whenever any of the following occurs: change in job assignments, machines, or equipment; a process emerges that presents a new hazard; or energy control procedures change. Authorized persons shall, as required by installation safety department, satisfactorily demonstrate an applied working knowledge of hazardous energy sources, machinery, equipment and systems subject to this instruction.

(2) Comply with workplace energy control program requirements.

(3) Inform supervisor of any hazardous situation which may be harmful to personnel.

h. Affected Persons. Affected persons shall:

(1) Complete training and re-training whenever any of the following occurs: change in job assignments, machines, or equipment; a process emerges that presents a new hazard; or energy control procedures change.

(2) Comply with workplace energy control program requirements.

(3) Inform supervisor of any hazardous situation which may be harmful to affected personnel and any other personnel who

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may be in the exposed area.

6. Action. Region and installation commanders shall implement this instruction and enclosure.

7. Effective Date. This instruction is effective immediately.

A handwritten signature in black ink, appearing to read 'M. D. Patton', with a horizontal line extending to the right from the end of the signature.

M. D. PATTON
Captain, U.S. Navy
Chief of Staff

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LOCKOUT/TAGOUT PROCEDURES1. Introduction

a. This Lockout/Tagout Management Plan consolidates all lockout/tagout related activities on Navy installations to include all installation departments, tenant commands, and contractors. Before an authorized person/contractor performs service or maintenance on a machine, equipment, or process where the unexpected energizing, start-up or release of stored energy could occur and cause injury or death, the machine, equipment or process shall be isolated and rendered inoperative through the use of a lockout/tagout or other energy isolating device according to a written energy control program.

b. The energy control program is designed to meet all requirements of 29 CFR 1910.147, ANSI Z244.1-2003, *Control of Hazardous Energy Lockout/Tagout and Alternative Methods*, and OPNAV 5100.23(series), *Navy Safety and Occupational Health Program Manual*, chapter 24 and paragraph 11.6 of NAVFAC P-307 referenced in chapter 31.

2. Definitions

a. Affected Persons. Any employee whose job requires the operation of machines, equipment and/or systems on which maintenance activities require energy control procedures or whose job requires them to work in an area in which servicing or maintenance is being performed. Anyone working on a CNIC installation can be the affected person at any given time.

b. Authorized Persons. Any employee designated and trained by their supervisor to apply locks and/or tags or other energy control devices to equipment and/or systems in order to perform servicing or maintenance. An affected person becomes an authorized person when that affected person's duties include performing servicing or maintenance. In order to be designated as authorized personnel, the designated employee shall:

(1) Complete training on recognizing applicable hazardous energy sources, the type and magnitude of the energy available, the minimum approach distances, and the methods and means necessary for energy control in the workspace; and

(2) Receive such training from a supervisor who has been previously trained as an authorized person on the specific equipment.

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c. Capable of Being Locked Out. Any energy isolating device is considered capable of being locked out if it meets one of the following requirements:

(1) It is designed with a hasp to which, or through which, a lock can be attached;

(2) It is designed with any other integral part through which a lock can be affixed;

(3) It has a locking mechanism built into it; or

(4) It can be easily locked without dismantling, rebuilding, or replacing the energy isolating device or permanently altering its energy control capability.

d. Contractor. A contractor is any worker or group of workers, either government or non-government, who is performing work aboard the installation but is not under the direct supervision of a work center/department head. Equipment installers, service mechanics, test operators and similar workers from other commands are included in this definition.

e. Energized. Machinery, equipment and systems are energized when they:

(1) Are connected to an energy source; or

(2) Contain residual or stored energy.

f. Energy Isolation/Control. The application of a lock, tag, chain or other device or combination of devices, intended to prevent unauthorized or unexpected energizing of equipment, systems or components on which service or maintenance is being performed.

g. Energy Isolating Device. A mechanical device that physically prevents the transmission or release of energy, including but not limited to: a manually operated electrical circuit breaker, a disconnect switch, a manually operated switch by which the conductors of a circuit can be disconnected from all ungrounded supply conductors and, in addition, no pole can be operated independently; two in-line valves; a block or blank; and any similar device used to block or isolate energy.

h. Energy Source. An energy source is any source of

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electrical, mechanical, hydraulic, pneumatic, chemical, thermal, or other energy. Energy sources become hazardous when unexpected transmission or releases of energy causes machinery, equipment or systems to suddenly start-up or go into motion.

i. Locked Out (Lockout). A positive means such as a lock that secures an energy isolating device in a position that prevents the energizing of a machine, equipment or process.

j. Lockout Device. A physical locking device used to prevent an inadvertent energizing of a machine, equipment, or system, which may lead to injury to personnel or damage to equipment. This device is unique and is used only for the energy control program. A lockout device must be used if possible.

k. Qualified Persons. As outlined in OSHA 29 CFR 1910.332 and 1910.269, any employee who by training and applied demonstration is familiar with the skills and techniques for:

(1) Distinguishing exposed live parts from other parts of electrical equipment;

(2) Determining the nominal voltage of exposed live parts; and

(3) Maintaining minimum clearance distances corresponding to the voltages to which that person will be exposed.

(4) The proper use of the special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools for working on or near exposed energized parts of electric equipment.

l. Risk Assessment. A comprehensive evaluation of the probability and the degree of the possible injury or damage to health in a hazardous situation in order to select appropriate safeguarding.

m. Servicing and/or Maintenance. Workplace activities such as erecting, installing, constructing, repairing, adjusting, inspecting, unjamming, setting up, trouble shooting, testing, cleaning, dismantling, servicing, modifying, inspecting and maintaining machines, equipment or processes, where the employee may be exposed to the unexpected energization or startup of the equipment or release of hazardous energy.

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n. Tagged Out (Tagout). Tagout consists of placing a tag in an appropriate location to warn workers of hazardous conditions if equipment or a system is energized. Tagout is used as an energy control device if lockout can not be installed and is used to secure system.

o. Tagout Device. A tagout device is a prominent warning system consisting of a tag and securing feature that can withstand exposure to wet or damp conditions without deterioration to itself or the information on it. The tag device means of attachment shall be non-reusable, hand attachable, self-locking and non-releasable with a minimum unlocking strength of 50 pounds equivalent to a nylon cable tie. Tags are used to notify personnel that equipment is locked, out of service, and can not be operated until maintenance action is completed.

3. Standard Operating Procedures/Job Hazard Analysis

a. Standard Operating Procedures/Job Hazard Analysis (SOPs/JHA) for the energy control program ensure that the risk of exposure to hazardous energy will be identified, eliminated or minimized before authorized individuals performs any activity involving potential exposure to hazardous energy.

b. Effective SOPs/JHA include methods for training authorized and affected persons/contractors, and their supervisors. Other elements of the written procedures will include:

(1) A survey of all hazardous energy which specifies all affected locations at the installation and the specific method(s) for controlling hazardous energy;

(2) Identification and specification of energy isolating devices;

(3) The specific identification of authorized persons;

(4) Written procedures for shut down, de-energization, energization and start-up sequences;

(5) Records of training personnel and method of retaining these training records; and

(6) Auditing program elements and audit results with recommendations and corrective actions.

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c. The procedures shall clearly outline the scope, purpose, authorization, rules, and techniques to be used for the control of hazardous energy for each specific machine, equipment or system. This is accomplished by including:

- (1) A specific statement of the intended use of the procedure.
- (2) Specific procedural steps for shutting down, isolating, blocking and securing the machine, equipment, or system to control hazardous energy.
- (3) Specific procedural steps for the placement, removal and transfer of lockout devices or tagout devices and the responsibility for them.
- (4) Specific requirements for testing the machine, equipment, or system to determine and verify the effectiveness of lockout devices, tagout devices, and other energy control measures.

d. Where applicable, the SOP/JHA will also clearly specify training by a qualified person for each authorized and affected person required to work on or near exposed energized parts. At a minimum, such training enables exposed personnel to distinguish exposed live parts from other parts of electrical equipment, apply techniques necessary to determine the nominal voltage of exposed live parts, and calculate clearance distances for corresponding voltages present.

4. Example Sequence for Lockout

a. Shutdown Process

(1) Preparation for shutdown

(a) A survey is conducted by an authorized person to locate and identify all energy sources and energy isolating devices to verify which switches or valves supply energy to specific equipment or system. Steps are taken to ensure dual or redundant controls, if present, are removed.

(b) Upon completion of the survey, the authorized person refers to the SOP/JHA to identify the type and magnitude of the energy that the equipment or system utilizes, understand the hazards of the energy to be controlled, and verify the

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established methods and means to control the energy.

(2) Routine Shutdown

(a) Notify all affected persons that servicing or maintenance is required on the equipment or system and that the equipment or system must be taken out of service, shut down and locked and tagged out to perform servicing or maintenance.

(b) If the equipment or system is operating, the equipment or system is turned off or shutdown by the authorized or an affected person using the normal stopping procedures specified in the SOP/JHA (e.g., depress stop button, open toggle switch, close valve) for that specific machine or piece of equipment. A normal, orderly shutdown is used to avoid any additional or increased hazards to affected or other persons as a result of equipment de-energization.

(c) Once stopped, the switch/panel arms are moved to "off" or "safe" position.

(d) A supervisor shall lockout/tagout equipment when the equipment is to be out of service for an extended period of time (over eight hours).

(3) Non-Routine/Emergency Shutdown. If the equipment or system is operating and the equipment or system is turned off or shutdown without using normal stopping procedures (i.e., electrical power, water, gas, or sewer outage), then the authorized person shall use sudden, unplanned stopping procedures specified in the SOP/JHA (e.g., place equipment or system in normal shutdown mode and coordinate with NAVFAC or servicing utility authority).

b. Equipment and/or System Isolation

(1) All energy control devices that are needed to control the energy to the equipment or system are physically located by the authorized person and operated in such a manner as to disconnect or isolate the equipment or system from the energy source.

(2) Identification of energy isolating devices is facilitated by using easy to understand labeling or marking, unless they are located and arranged so that their purpose is evident. A good labeling or marking protocol should readily identify the specific equipment or system supplied and the

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source energy type and magnitude (e.g., Bay 1 compressed air (100 psi); Main Press (480V); Bldg 3 pressurized steam line (800 psi)).

(3) Approved energy isolating devices are capable of either being locked or otherwise secured in an effective isolating position. When alternative methods are used during setup, troubleshooting, or other tasks requiring energization or partial energization, additional protective systems are used to ensure that a device or system will stop or prevent initiation of hazardous motion or release of hazardous energy in the event of a single component failure within the device. Where applicable, the authorized person uses approved alternative methods for a specific machine or piece of equipment in accordance with the SOP/JHA.

c. Lockout/Tagout Application

(1) Protective materials and hardware systems. Lock and tag out all energy devices by use of hasps, locks, tags, chains, wedges, key blocks, valve covers, adapter pins, self-locking fasteners, or other hardware that is:

(a) Approved and standardized by the installation facility department with other lockout/tagout devices approved for use throughout the installation by the installation facility department;

(b) Provided by the workcenter supervisor, singularly issued and labeled with suitable warnings and the identity of the authorized person/contractor; and

(c) Specified in the energy control program (lockout/tagout) SOP/JHA for isolating, securing or blocking of machines or equipment from energy sources.

(2) Lockout devices are affixed to energy isolating devices by authorized persons/contractors with their assigned individual lock(s). Lockout devices are affixed in a manner that will hold the energy isolating devices in the "safe" or "off" position.

(3) Where tagout devices are used, such devices are affixed in such a manner that will clearly state that operation or the movement of energy isolating devices from the "safe" or "off" positions is prohibited. The tagout device is attached to the same point that a lock would be attached. If the tag cannot

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be affixed at that point, the tag is located as close as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.

(4) When servicing and/or maintenance is performed by more than one person, such as crew, craft, department or other group, use a group procedure which affords the employees a level of protection equivalent to that provided by the implementation of a personal lockout or tagout device.

(5) Each authorized person/contractor shall affix a personal lock or tag device to the group lockout device, group lock box or comparable mechanism when he/she begins work. Each individual authorized person/contractor shall remove his/her own lock.

d. Release of Stored Energy

(1) Following the application of the lockout or tagout devices to the energy isolating devices, all potential or residual energy is relieved, disconnected, restrained, and otherwise rendered safe.

(2) The authorized person dissipates or restrains stored or residual energy (e.g., capacitors, springs, elevated machine members, rotating fly wheels, and hydraulic/air/gas/steam or water pressure systems) using specified SOP/JHA methods such as grounding, repositioning, blocking or bleeding down. Where the re-accumulation of stored energy to a hazardous energy level is possible, verification of isolation is continued until the maintenance or servicing is complete.

e. Verification of Isolation

(1) Prior to starting service or maintenance activities on a piece of equipment or system that has been locked or tagged out, the authorized person/contractor:

(a) Reviews current SOP/JHA to obtain personal protective equipment requirements, identify all equipment where the unexpected energizing or release of stored energy could occur, and what equipment if any is unable to be locked-out with the reasons why the equipment cannot be locked out; and

(b) Verifies that isolation or deenergization of the equipment or system has been accomplished. To ensure that the equipment or system is disconnected from the energy source(s),

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the authorized person first checks to see that no personnel are exposed, and then verify isolation of the equipment or system by operating the start-up push button or other normal operating control(s); or by alternative testing to make certain the equipment will not operate.

(2) After verifying the isolation of the equipment or system, the authorized person returns the operating control(s) to the "safe" or "off" position.

(3) The equipment or system is now locked out.

(4) Should the shift change before the equipment or system can be restored to service, the lock and tag out device must remain. If the task is reassigned to another authorized person on the next shift, the oncoming authorized person must lock and tag out before the previous shift may remove their lock and tag. If more than one authorized person on the next shift is assigned to a task requiring a lock and tag out, each must also place his or her own lock and tag on the energy isolating device(s) before the previous shift may remove their lock and tag.

f. Start-Up

(1) Before lockout or tagout devices are removed permanently and energy is restored to the equipment or system, the following actions are taken:

(a) The authorized person must check the equipment or system and the immediate area around the machine to ensure that nonessential items have been removed, removed guards have been replaced, and that the equipment or system components are operationally intact.

(b) The authorized person also checks the work area to ensure that all employees have been safely positioned or removed from the area. Once this is verified and before the lockout or tagout devices are removed, the affected persons are notified that the lockout or tagout devices are being removed.

(c) Verify that the equipment or system operating controls are in neutral.

(d) Each lockout or tagout device is removed from respective energy isolating device(s) by the authorized person who applied the locked or tagged out device. The lockout

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devices are removed and the equipment or system is reenergized. In the event that certain forms of blocking were used, removal of blocking may require re-energization of the equipment or system before safe removal.

(e) In the event that the authorized person who applied the lock and tagout device has left the facility before removing his/her lock and tag, the supervisor who is also trained as an authorized person may remove the lock and tag only after following the procedures that the authorized person would have used. Standard operating procedures, such as log books and turn-over procedures, should be established to ensure equipment is not re-energized before maintenance is safely completed. If the supervisor places his/her lock/tag on the device instead of the oncoming authorized person/contractor, the oncoming authorized person/contractor shall also place his/her lock/tag on the device before starting work.

(f) The authorized person or authorized supervisor notifies affected persons that the servicing or maintenance is completed and the equipment or system is ready for use.

(2) In situations in which lockout or tagout devices must be temporarily removed from the energy isolating device so that the equipment or system may be re-energized to test or position the equipment or component thereof, the following sequence of actions as specified in the SOP/JHA is performed by the authorized person:

(a) Clear the equipment or system of tools and materials and to ensure that the equipment or system components are operationally intact.

(b) Remove all personnel not required for the test or positioning from the equipment and/or process area.

(c) Verify all affected persons are in a safe location.

(d) Remove the energy control device(s).

(e) Energize and proceed with testing or positioning.

(f) De-energize all systems and reapply energy control devices to continue the servicing and/or maintenance.

5. Certification of Annual Inspections

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a. Annual inspections are used to assess the condition and effectiveness of individual elements of the hazardous energy control program and include evaluation of specific machines, equipment, processes, procedures, lockout/tagout hardware, energy isolating devices, alternative methods, risk assessment and communication, and training. The annual audit/inspection includes a review, between the inspector and each authorized person/contractor, of that employee's responsibilities under the energy control procedure being inspected.

b. Installations certify that the annual audit/inspections have been performed. The certification identifies specific machinery or equipment on which an energy control procedure is used, the date of the inspection, identity of individuals included in the inspection and the person performing the inspection.

c. Records of this audit/inspection are maintained for five years. Audit findings including positive and negative feedback are provided from affected and authorized persons to appropriate individuals and supervisors involved with the hazardous energy control program. Where deficiencies are found, approved corrective action is taken and authorized, affected, and other persons who may be affected by energy control procedures are informed.

6. Certification of Training

a. Documentation of successful training completion ensures that the purpose and function of the energy control program are understood by supervisors, authorized, affected and other personnel who may be affected by energy control procedures and that the knowledge and skills required for the safe application, usage, and removal of the energy controls are demonstrated in the work area.

b. General training of other personnel who may be affected by energy control procedures includes the following:

- (1) Recognition of applicable hazardous energy sources;
- (2) Type and magnitude of the energy; and
- (3) Methods and means necessary for energy isolation and control.

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c. Each affected person shall be instructed in the purpose and use of the energy control procedure. All other employees working in an area where energy control procedures are used should be informed about the procedures and about the prohibition relating to attempts to restart or reenergize machines or equipment which are locked or tagged out.

d. Retraining is provided for all authorized and affected persons/contractors 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 energy control procedures.

e. Additional retraining is conducted whenever a periodic inspection reveals, or whenever the employer has reason to believe, that there are deviations from or inadequacies in personnel knowledge or use of the energy control procedures. Retraining is provided to reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

f. At a minimum following training, authorized and affected personnel demonstrate to the area supervisor, his/her ability, knowledge and skill to understand and follow established safety measures provided so that they can safely complete their assigned work using the necessary tools, procedures and safety precautions in accordance with the SOP/JHA.

g. Retraining is provided and documented when an authorized, affected or other personnel change jobs, or when a new hazard or changes affecting an existing hazard is introduced into the work area, or when periodic audit findings indicate that retraining is needed. Retraining is typically focused on the following as a minimum:

(1) Other personnel new to the work or work area receive the following information and training during new employee orientation covering:

(a) Procedures and prohibitions relating to attempts to reenergize equipment and/or systems that have been locked or tagged out;

(b) The definition of authorized, affected, and other persons, as well as their role and responsibility in the energy control program; and

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(c) Recognition of potential hazardous energy and when the energy control program elements must be implemented.

(2) Affected persons receive the same information and training as other personnel and also receive additional training covering:

(a) The purpose and use of energy control procedures;

(b) Procedures and prohibitions relating to attempts to restart or reenergize machines or equipment that are secured by energy controls;

(c) Limitations of lockout/tagout procedures (e.g., tags are warning devices only and provide no physical control over energizing switches);

(d) Prohibition against unauthorized removal, bypassing or ignoring of energy controls and the consequences of such action; and

(e) Physical description of the energy isolation devices used.

(3) Authorized persons and supervisors receive the same information and training as affected personnel and also receive additional training covering:

(a) Recognition of applicable hazardous energy sources; the type(s) and magnitude of energy available in the work place and the methods and means necessary for isolation and control of the energy;

(b) The necessity of ensuring that tags are legible and fully completed to provide adequate warning information;

(c) The necessity of ensuring that all personnel who may be involved in work on equipment and/or systems--including other shifts, departments or divisions--are aware of the energy controls established, for what reason they were established, and who established them.

(d) Actual energy control installation methods, procedures and limitations.