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emptied at least every day, unless unused.

(2) The employer shall not permit employees to work in the immediate vicinity of uncovered garbage that could endanger their safety and health.

(3) The employer shall ensure that employees working beneath or on the outboard side of a vessel are not contaminated by drainage or waste from overboard discharges.

(j) *Vermin control.* (1) To the extent reasonably practicable, the employer shall clean and maintain the workplace in a manner that prevents vermin infestation.

(2) Where vermin are detected, the employer shall implement and maintain an effective vermin-control program.

§ 1915.89 Control of hazardous energy (lockout/tags-plus).

(a) *Scope, application, and effective dates.* (1) *Scope.* This section covers the servicing of machinery, equipment, and systems when the energization or startup of machinery, equipment, or systems, or the release of hazardous energy, could endanger an employee.

(2) *Application.* (i) This section applies to the servicing of any machinery, equipment, or system that employees use in the course of shipyard employment work and that is conducted:

(A) In any landside facility that performs shipyard employment work; and

(B) On any vessel or vessel section.

(ii) This section applies to such servicing conducted on a vessel by any employee including, but not limited to, the ship's officers and crew unless such application is preempted by the regulations of another federal agency.

(3) When other standards in 29 CFR part 1915 and applicable standards in 29 CFR part 1910 require the use of a lock or tag, the employer shall use and supplement them with the procedural and training requirements specified in this section.

(4) *Exceptions.* This section does not apply to:

(i) Work on cord-and-plug-connected machinery, equipment, or system, provided the employer ensures that the machinery, equipment, or system is unplugged and the plug is under the ex-

clusive control of the employee performing the servicing;

(ii) Minor servicing activities performed during normal production operations, including minor tool changes and adjustments, that are routine, repetitive, and integral to the use of the machinery, equipment, or system, provided the employer ensures that the work is performed using measures that provide effective protection from energization, startup, or the release of hazardous energy.

(b) *Lockout/tags-plus program.* The employer shall establish and implement a written program and procedures for lockout and tags-plus systems to control hazardous energy during the servicing of any machinery, equipment, or system in shipyard employment. The program shall cover:

(1) Procedures for lockout/tags-plus systems while servicing machinery, equipment, or systems in accordance with paragraph (c) of this section;

(2) Procedures for protecting employees involved in servicing any machinery, equipment, or system in accordance with paragraphs (d) through (m) of this section;

(3) Specifications for locks and tags-plus hardware in accordance with paragraph (n) of this section;

(4) Employee information and training in accordance with paragraph (o) of this section;

(5) Incident investigations in accordance with paragraph (p) of this section; and

(6) Program audits in accordance with paragraph (q) of this section.

(c) *General requirements.* (1) The employer shall ensure that, before any authorized employee performs servicing when energization or startup, or the release of hazardous energy, may occur, all energy sources are identified and isolated, and the machinery, equipment, or system is rendered inoperative.

(2) If an energy-isolating device is capable of being locked, the employer shall ensure the use of a lock to prevent energization or startup, or the release of hazardous energy, before any

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servicing is started, unless the employer can demonstrate that the utilization of a tags-plus system will provide full employee protection as set forth in paragraph (c)(6) of this section.

(3) If an energy-isolating device is not capable of being locked, the employer shall ensure the use of a tags-plus system to prevent energization or startup, or the release of hazardous energy, before any servicing is started.

(4) Each tags-plus system shall consist of:

- (i) At least one energy-isolating device with a tag affixed to it; and
- (ii) At least one additional safety measure that, along with the energy-isolating device and tag required in (c)(4)(i) of this section, will provide the equivalent safety available from the use of a lock.

NOTE TO PARAGRAPH (c)(4) OF THIS SECTION: When the Navy ship's force maintains control of the machinery, equipment, or systems on a vessel and has implemented such additional measures it determines are necessary, the provisions of paragraph (c)(4)(ii) of this section shall not apply, provided that the employer complies with the verification procedures in paragraph (g) of this section.

(5) After October 31, 2011, the employer shall ensure that each energy-isolating device for any machinery, equipment, or system is designed to accept a lock whenever the machinery, equipment, or system is extensively repaired, renovated, modified, or replaced, or whenever new machinery, equipment, or systems are installed. This requirement does not apply when a shipyard employer:

- (i) Does not own the machinery, equipment, or system; or
- (ii) Builds or services a vessel or vessel section according to customer specifications.

(6) *Full employee protection.* (i) When a tag is used on an energy-isolating device that is capable of being locked out, the tag shall be attached at the same location that the lock would have been attached, and;

(ii) The employer shall demonstrate that the use of a tags-plus system will provide a level of safety equivalent to that obtained by using a lock. In demonstrating that an equivalent level of safety is achieved, the employer shall:

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(A) Demonstrate full compliance with all tags-plus-related provisions of this standard; and

(B) Implement such additional safety measures as are necessary to provide the equivalent safety available from the use of a lock.

NOTE TO PARAGRAPH (c)(6) OF THIS SECTION: When the Navy ship's force maintains control of the machinery, equipment, or systems on a vessel and has implemented such additional measures it determines are necessary, the provisions of paragraph (c)(6)(ii)(B) of this section do not apply, provided that the employer complies with the verification procedures in paragraph (g) of this section.

(7) *Lockout/tags-plus coordination.* (i) The employer shall establish and implement lockout/tags-plus coordination when:

(A) Employees on vessels and in vessel sections are servicing multiple machinery, equipment, or systems at the same time; or

(B) Employees on vessels, in vessel sections, and at landside facilities are performing multiple servicing operations on the same machinery, equipment, or system at the same time.

(ii) The coordination process shall include a lockout/tags-plus coordinator and a lockout/tags-plus log. Each log shall be specific to each vessel, vessel section, and landside work area.

(iii) The employer shall designate a lockout/tags-plus coordinator who is responsible for overseeing and approving:

(A) The application of each lockout and tags-plus system;

(B) The verification of hazardous-energy isolation before the servicing of any machinery, equipment, or system begins; and

(C) The removal of each lockout and tags-plus system.

(iv) The employer shall ensure that the lockout/tags-plus coordinator maintains and administers a continuous log of each lockout and tags-plus system. The log shall contain:

(A) Location of machinery, equipment, or system to be serviced;

(B) Type of machinery, equipment, or system to be serviced;

(C) Name of the authorized employee applying the lockout/tags-plus system;

(D) Date that the lockout/tags-plus system is applied;

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(E) Name of authorized employee removing the lock or tags-plus system; and

(F) Date that lockout/tags-plus system is removed.

NOTE TO PARAGRAPH (c)(7) OF THIS SECTION: When the Navy ship's force serves as the lockout/tags-plus coordinator and maintains control of the lockout/tags-plus log, the employer will be in compliance with the requirements in paragraph (c)(7) of this section when coordination between the ship's force and the employer occurs to ensure that applicable lockout/tags-plus procedures are followed and documented.

(d) *Lockout/tags-plus written procedures.* (1) The employer shall establish and implement written procedures to prevent energization or startup, or the release of hazardous energy, during the servicing of any machinery, equipment, or system. Each procedure shall include:

(i) A clear and specific outline of the scope and purpose of the lockout/tags-plus procedure;

(ii) The means the employer will use to enforce compliance with the lockout/tags-plus program and procedures; and

(iii) The steps that must be followed for:

(A) Preparing for shutting down and isolating of the machinery, equipment, or system to be serviced, in accordance with paragraph (e) of this section;

(B) Applying the lockout/tags-plus system, in accordance with paragraph (f) of this section;

(C) Verifying isolation, in accordance with paragraph (g) of this section;

(D) Testing the machinery, equipment, or system, in accordance with paragraph (h) of this section;

(E) Removing lockout/tags-plus systems, in accordance with paragraph (i) of this section;

(F) Starting up the machinery, equipment, or system that is being serviced, in accordance with paragraph (j) of this section;

(G) Applying lockout/tags-plus systems in group servicing operations, in accordance with paragraph (k) of this section;

(H) Addressing multi-employer worksites involved in servicing any machinery, equipment, or system, in accord-

ance with paragraph (l) of this section; and

(I) Addressing shift or personnel changes during servicing operations, in accordance with paragraph (m) of this section.

NOTE TO PARAGRAPH (d)(1) OF THIS SECTION: The employer need only develop a single procedure for a group of similar machines, equipment, or systems if the machines, equipment, or systems have the same type and magnitude of energy and the same or similar types of controls, and if a single procedure can satisfactorily address the hazards and the steps to be taken to control these hazards.

(2) The employer's lockout procedures do not have to be in writing for servicing machinery, equipment, or systems, provided that all of the following conditions are met:

(i) There is no potential for hazardous energy to be released (or to reaccumulate) after shutting down, or restoring energy to, the machinery, equipment, or system;

(ii) The machinery, equipment, or system has a single energy source that can be readily identified and isolated;

(iii) The isolation and lock out of that energy source will result in complete de-energization and deactivation of the machinery, equipment, or system, and there is no potential for reaccumulation of energy;

(iv) The energy source is isolated and secured from the machinery, equipment, or system during servicing;

(v) Only one lock is necessary for isolating the energy source;

(vi) The lock is under the exclusive control of the authorized employee performing the servicing;

(vii) The servicing does not create a hazard for any other employee; and

(viii) The employer, in utilizing this exception, has not had any accidents or incidents involving the activation or reenergization of this type of machinery, equipment, or system during servicing.

(e) *Procedures for shutdown and isolation.* (1) Before an authorized employee shuts down any machinery, equipment, or system, the employer shall:

(i) Ensure that the authorized employee has knowledge of:

(A) The source, type, and magnitude of the hazards associated with

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energization or startup of the machine, equipment, or system;

(B) The hazards associated with the release of hazardous energy; and

(C) The means to control these hazards; and

(ii) Notify each affected employee that the machinery, equipment, or system will be shut down and deenergized prior to servicing, and that a lockout/tags-plus system will be implemented.

(2) The employer shall ensure that the machinery, equipment, or system is shut down according to the written procedures the employer established.

(3) The employer shall use an orderly shutdown to prevent exposing any employee to risks associated with hazardous energy.

(4) The employer shall ensure that the authorized employee relieves, disconnects, restrains, or otherwise renders safe all potentially hazardous energy that is connected to the machinery, equipment, or system.

NOTE TO PARAGRAPH (e) OF THIS SECTION: When the Navy ship's force shuts down any machinery, equipment, or system, and relieves, disconnects, restrains, or otherwise renders safe all potentially hazardous energy that is connected to the machinery, equipment, or system, the employer will be in compliance with the requirements in paragraph (e) of this section when the employer's authorized employee verifies that the machinery, equipment, or system being serviced has been properly shut down, isolated, and deenergized.

(f) *Procedures for applying lockout/tags-plus systems.* (1) The employer shall ensure that only an authorized employee applies a lockout/tags-plus system.

(2) When using lockout systems, the employer shall ensure that the authorized employee affixes each lock in a manner that will hold the energy-isolating device in a safe or off position.

(3) When using tags-plus systems, the employer shall ensure that the authorized employee affixes a tag directly to the energy-isolating device that clearly indicates that the removal of the device from a safe or off position is prohibited.

(4) When the tag cannot be affixed directly to the energy-isolating device the employer shall ensure that the authorized employee locates it as close as

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safely possible to the device, in a safe and immediately obvious position.

(5) The employer shall ensure that each energy-isolating device that controls energy to the machinery, equipment, or system is effective in isolating the machinery, equipment, or system from all potentially hazardous energy source(s).

NOTE TO PARAGRAPH (f) OF THIS SECTION: When the Navy ship's force applies the lockout/tags-plus systems or devices, the employer will be in compliance with the requirements in paragraph (f) of this section when the employer's authorized employee verifies the application of the lockout/tags-plus systems or devices.

(g) *Procedures for verification of deenergization and isolation.* (1) Before servicing machinery, equipment, or a system that has a lockout/tags-plus system, the employer shall ensure that the authorized employee, or the primary authorized employee in a group lockout/tags-plus application, verifies that the machinery, equipment, or system is deenergized and all energy sources isolated.

(2) The employer shall ensure that the authorized employee, or the primary authorized employee in a group lockout/tags-plus application, continues verifying deenergization and isolation while servicing the machinery, equipment, or system.

(3) Each authorized employee in a group lockout/tags-plus application who will be servicing the machinery, equipment, or system must be given the option to verify that the machinery, equipment, or system is deenergized and all energy sources isolated, even when verification is performed by the primary authorized employee.

(h) *Procedures for testing.* In each situation in which a lockout/tags-plus system must be removed temporarily and the machinery, equipment, or system restarted to test it or to position a component, the employer shall ensure that the authorized employee does the following in sequence:

(1) Clears tools and materials from the work area;

(2) Removes nonessential employees from the work area;

(3) Removes each lockout/tags-plus system in accordance with paragraph (i) of this section;

(4) Restarts the machinery, equipment, or system and then proceeds with testing or positioning; and

(5) After completing testing or positioning, deenergizes and shuts down the machinery, equipment, or system and reapplies all lockout/tags-plus systems in accordance with paragraphs (e)–(g) of this section to continue servicing.

NOTE TO PARAGRAPH (h) OF THIS SECTION: When the Navy ship's force serves as the lockout/tags-plus coordinator, performs the testing, and maintains control of the lockout/tags-plus systems or devices during testing, the employer is in compliance with paragraph (h) when the employer's authorized employee acknowledges to the lockout/tags-plus coordinator that the employer's personnel and tools are clear and the machinery, equipment, or system being serviced is ready for testing, and upon completion of the testing, verifies the reapplication of the lockout/tags-plus systems.

(i) *Procedures for removal of lockout and tags-plus systems.* (1) Before removing any lockout/tags-plus system and restoring the machinery, equipment, or system to use, the employer shall ensure that the authorized employee does the following:

(i) Notifies all other authorized and affected employees that the lockout/tags-plus system will be removed;

(ii) Ensures that all employees in the work area have been safely positioned or removed; and

(iii) Inspects the work area to ensure that nonessential items have been removed and machinery, equipment, or system components are operationally intact.

(2) The employer shall ensure that each lock or tags-plus system is removed by the authorized employee who applied it.

(3) When the authorized employee who applied the lockout/tags-plus system is not available to remove it, the employer may direct removal by another authorized employee, provided the employer developed and incorporated into the lockout/tags-plus program the specific procedures and training that address such removal, and demonstrates that the specific procedures used provide a level of employee safety that is at least as effective in protecting employees as removal of the system by the authorized employee

who applied it. After meeting these requirements, the employer shall do the following in sequence:

(i) Verify that the authorized employee who applied the lockout/tags-plus system is not in the facility;

(ii) Make all reasonable efforts to contact the authorized employee to inform him/her that the lockout/tags-plus system has been removed; and

(iii) Ensure that the authorized employee who applied the lock or tags-plus system has knowledge of the removal before resuming work on the affected machinery, equipment, or system.

NOTE TO PARAGRAPH (i) OF THIS SECTION: When the Navy ship's force serves as lockout/tags-plus coordinator and removes the lockout/tags-plus systems or devices, the employer is in compliance with the requirements in paragraph (i) of this section when the employer's authorized employee informs the lockout/tags-plus coordinator that the procedures in paragraph (i)(1) of this section have been performed.

(j) *Procedures for startup.* (1) Before an authorized employee turns on any machinery, equipment, or system after servicing is completed, the employer shall ensure that the authorized employee has knowledge of the source, type, and magnitude of the hazards associated with energization or startup, and the means to control these hazards.

(2) The employer shall execute an orderly startup to prevent or minimize any additional or increased hazard(s) to employees. The employer shall perform the following tasks before starting up the machinery, equipment, or system:

(i) Clear tools and materials from the work area;

(ii) Remove any non-essential employees from the work area; and

(iii) Start up the machinery, equipment, or system according to the detailed procedures the employer established for that machinery, equipment, or system.

NOTE TO PARAGRAPH (j) OF THIS SECTION: When the Navy ship's force serves as lockout/tags-plus coordinator and maintains control of the lockout/tags-plus systems or devices during startup, and the employer is prohibited from starting up the machinery, equipment, or system, the employer is in

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compliance with the requirements in paragraph (j) of this section when the employer's authorized employee informs the lockout/tags-plus coordinator the procedures in paragraphs (j)(2)(i) and (j)(2)(ii) of this section have been performed.

(k) *Procedures for group lockout/tags-plus.* When more than one authorized employee services the same machinery, equipment, or system at the same time, the following procedures shall be implemented:

(1) *Primary authorized employee.* The employer shall:

(i) Assign responsibility to one primary authorized employee for each group of authorized employees performing servicing on the same machinery, equipment, or system;

(ii) Ensure that the primary authorized employee determines the safe exposure status of each authorized employee in the group with regard to the lockout/tags-plus system;

(iii) Ensure that the primary authorized employee obtains approval from the lockout/tags-plus coordinator to apply and remove the lockout/tags-plus system; and

(iv) Ensure that the primary authorized employee coordinates the servicing operation with the coordinator when required by paragraph (c)(7)(i) of this section.

(2) *Authorized employees.* The employer shall either:

(i) Have each authorized employee apply a personal lockout/tags-plus system; or

(ii) Use a procedure that the employer can demonstrate affords each authorized employee a level of protection equivalent to the protection provided by having each authorized employee apply a personal lockout/tags-plus system. Such procedures shall incorporate a means for each authorized employee to have personal control of, and accountability for, his or her protection such as, but not limited to, having each authorized employee:

(A) Sign a group tag (or a group tag equivalent), attach a personal identification device to a group lockout device, or performs a comparable action before servicing is started; and

(B) Sign off the group tag (or the group tag equivalent), remove the personal identification device, or perform

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a comparable action when servicing is finished.

NOTE TO PARAGRAPH (k)(2) OF THIS SECTION: When the Navy ship's force maintains control of the machinery, equipment, or systems on a vessel and prohibits the employer from applying or removing the lockout/tags-plus system or starting up the machinery, equipment, or systems being serviced, the employer is in compliance with the requirements in paragraphs (k)(1)(iii) and (k)(2), provided that the employer ensures that the primary authorized employee takes the following steps in the following order: (1) Before servicing begins and after deenergization, (a) verifies the safe exposure status of each authorized employee, and (b) signs a group tag (or a group tag equivalent) or performs a comparable action; and (2) after servicing is complete and before reenergization, (a) verifies the safe exposure status of each authorized employee, and (b) signs off the group tag (or the group tag equivalent) or performs a comparable action.

(1) *Procedures for multi-employer worksites.* (1) The host employer shall establish and implement procedures to protect employees from hazardous energy in multi-employer worksites. The procedures shall specify the responsibilities for host and contract employers.

(2) *Host employer responsibilities.* The host employer shall carry out the following responsibilities in multi-employer worksites:

(i) Inform each contract employer about the content of the host employer's lockout/tags-plus program and procedures;

(ii) Instruct each contract employer to follow the host employer's lockout/tags-plus program and procedures; and

(iii) Ensure that the lockout/tags-plus coordinator knows about all servicing operations and communicates with each contract employer who performs servicing or works in an area where servicing is being conducted.

(3) *Contract employer responsibilities.* Each contract employer shall perform the following duties when working in a multi-employer worksite:

(i) Follow the host employer's lockout/tags-plus program and procedures;

(ii) Ensure that the host employer knows about the lockout/tags-plus hazards associated with the contract employer's work and what the contract employer is doing to address these hazards; and

(iii) Inform the host employer of any previously unidentified lockout/tags-plus hazards that the contract employer identifies at the multi-employer worksite.

NOTE 1 TO PARAGRAPH (1) OF THIS SECTION: The host employer may include provisions in its contract with the contract employer for the contract employer to have more control over the lockout/tags-plus program if such provisions will provide an equivalent level of protection for the host employer's and contract employer's employees as that provided by paragraph (1) of this section.

NOTE 2 TO PARAGRAPH (1) OF THIS SECTION: When the U.S Navy contracts directly with a contract employer and the Navy ship's force maintains control of the lockout/tags-plus systems or devices, that contract employer shall consider the Navy to be the host employer for the purposes of §1915.89(1)(3).

(m) *Procedures for shift or personnel changes.* (1) The employer shall establish and implement specific procedures for shift or personnel changes to ensure the continuity of lockout/tags-plus protection.

(2) The employer shall establish and implement provisions for the orderly transfer of lockout/tags-plus systems between authorized employees when they are starting and ending their workshifts, or when personnel changes occur during a workshift, to prevent energization or startup of the machinery, equipment, or system being serviced or the release of hazardous energy.

(n) *Lockout/tags-plus materials and hardware.* (1) The employer shall provide locks and tags-plus system hardware used for isolating, securing, or blocking machinery, equipment, or systems from all hazardous-energy sources.

(2) The employer shall ensure that each lock and tag is uniquely identified for the purpose of controlling hazardous energy and is not used for any other purpose.

(3) The employer shall ensure that each lock and tag meets the following requirements:

(i) *Durable.* (A) Each lock and tag is capable of withstanding the existing environmental conditions for the maximum period of time that servicing is expected to last;

(B) Each tag is made so that weather conditions, wet or damp conditions, corrosive substances, or other condi-

tions in the work area where the tag is used or stored will not cause it to deteriorate or become illegible;

(ii) *Standardized.* (A) Each lock and tag is standardized in at least one of the following areas: color, shape, or size; and

(B) Each tag is standardized in print and format;

(iii) *Substantial.* (A) Each lock is sturdy enough to prevent removal without the use of extra force or unusual techniques, such as bolt cutters or other metal-cutting tools;

(B) Each tag and tag attachment is sturdy enough to prevent inadvertent or accidental removal;

(C) Each tag attachment has the general design and basic safety characteristics of a one-piece, all-environment-tolerant nylon tie;

(D) Each tag attachment is non-reusable, attachable by hand, self-locking, and non-releasable, and has a minimum unlocking strength of 50 pounds;

(iv) *Identifiable.* Each lock and tag indicates the identity of the authorized employee applying it; and

(v) Each tag warns of hazardous conditions that could arise if the machinery, equipment, or system is energized and includes a legend such as one of the following: "Do Not Start," "Do Not Open," "Do Not Close," "Do Not Energize," or "Do Not Operate."

(o) *Information and training—(1) Initial training.* The employer shall train each employee in the applicable requirements of this section no later than October 31, 2011.

(2) *General training content.* The employer shall train each employee who is, or may be, in an area where lockout/tags-plus systems are being used so they know:

(i) The purpose and function of the employer's lockout/tags-plus program and procedures;

(ii) The unique identity of the locks and tags to be used in the lockout/tags-plus system, as well as the standardized color, shape or size of these devices;

(iii) The basic components of the tags-plus system: an energy-isolating device with a tag affixed to it and an additional safety measure;

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(iv) The prohibition against tampering with or removing any lockout/tags-plus system; and

(v) The prohibition against restarting or reenergizing any machinery, equipment, or system being serviced under a lockout/tags-plus system.

(3) *Additional training requirements for affected employees.* In addition to training affected employees in the requirements in paragraph (o)(2) of this section, the employer also shall train each affected employee so he/she knows:

(i) The use of the employer's lockout/tags-plus program and procedures;

(ii) That affected employees are not to apply or remove any lockout/tags-plus system; and

(iii) That affected employees are not to bypass, ignore, or otherwise defeat any lockout/tags-plus system.

(4) *Additional training requirements for authorized employees.* In addition to training authorized employees in the requirements in paragraphs (o)(2) and (o)(3) of this section, the employer also shall train each authorized employee so he/she knows:

(i) The steps necessary for the safe application, use, and removal of lockout/tags-plus systems to prevent energization or startup or the release of hazardous energy during servicing of machinery, equipment, or systems;

(ii) The type of energy sources and the magnitude of the energy available at the worksite;

(iii) The means and methods necessary for effective isolation and control of hazardous energy;

(iv) The means for determining the safe exposure status of other employees in a group when the authorized employee is working as a group's primary authorized employee.

(v) The requirement for tags to be written so they are legible and understandable to all employees;

(vi) The requirement that tags and their means of attachment be made of materials that will withstand the environmental conditions encountered in the workplace;

(vii) The requirement that tags be securely attached to energy-isolating devices so they cannot be accidentally removed while servicing machinery, equipment, or systems;

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(viii) That tags are warning devices, and alone do not provide physical barriers against energization or startup, or the release of hazardous energy, provided by locks, and energy-isolating devices; and

(ix) That tags must be used in conjunction with an energy-isolating device to prevent energization or startup or the release of hazardous energy.

(5) *Additional training for lockout/tags-plus coordinator.* In addition to training lockout/tags-plus coordinators in the requirements in paragraphs (o)(2), (o)(3), and (o)(4) of this section, the employer shall train each lockout/tags-plus coordinator so he/she knows:

(i) How to identify and isolate any machinery, equipment, or system that is being serviced; and

(ii) How to accurately document lockout/tags-plus systems and maintain the lockout/tags-plus log.

(6) *Employee retraining.*

(i) The employer shall retrain each employee, as applicable, whenever:

(A) There is a change in his/her job assignment that presents new hazards or requires a greater degree of knowledge about the employer's lockout/tags-plus program or procedures;

(B) There is a change in machinery, equipment, or systems to be serviced that presents a new energy-control hazard;

(C) There is a change in the employer's lockout/tags-plus program or procedures; or

(D) It is necessary to maintain the employee's proficiency.

(ii) The employer also shall retrain each employee, as applicable, whenever an incident investigation or program audit indicates that there are:

(A) Deviations from, or deficiencies in, the employer's lockout/tags-plus program or procedures; or

(B) Inadequacies in an employee's knowledge or use of the lockout/tags-plus program or procedures.

(iii) The employer shall ensure that retraining establishes the required employee knowledge and proficiency in the employer's lockout/tags-plus program and procedures and in any new or revised energy-control procedures.

(7) Upon completion of employee training, the employer shall keep a record that the employee accomplished

the training, and that this training is current. The training record shall contain at least the employee's name, date of training, and the subject of the training.

(p) *Incident investigation.* (1) The employer shall investigate each incident that resulted in, or could reasonably have resulted in, energization or start-up, or the release of hazardous energy, while servicing machinery, equipment, or systems.

(2) Promptly but not later than 24 hours following the incident, the employer shall initiate an incident investigation and notify each employee who was, or could reasonably have been, affected by the incident.

(3) The employer shall ensure that the incident investigation is conducted by at least one employee who has the knowledge of, and experience in, the employer's lockout/tags-plus program and procedures, and in investigating and analyzing incidents involving the release of hazardous energy. The employer may also use additional individuals to participate in investigating the incident.

(4) The employer shall ensure that the individual(s) conducting the investigation prepare(s) a written report of the investigation that includes:

(i) The date and time of the incident;

(ii) The date and time the incident investigation began;

(iii) Location of the incident;

(iv) A description of the incident;

(v) The factors that contributed to the incident;

(vi) A copy of any lockout/tags-plus log that was current at the time of the incident; and

(vii) Any corrective actions that need to be taken as a result of the incident.

(5) The employer shall review the written incident report with each employee whose job tasks are relevant to the incident investigation findings, including contract employees when applicable.

(6) The employer shall ensure that the incident investigation and written report are completed, and all corrective actions implemented, within 30 days following the incident.

(7) If the employer demonstrates that it is infeasible to implement all of the corrective actions within 30 days, the

employer shall prepare a written abatement plan that contains an explanation of the circumstances causing the delay, a proposed timetable for the abatement, and a summary of the steps the employer is taking in the interim to protect employees from hazardous energy while servicing machinery, equipment, or systems.

(q) *Program audits.* (1) The employer shall conduct an audit of the lockout/tags-plus program and procedures currently in use at least annually to ensure that the procedures and the requirements of this section are being followed and to correct any deficiencies.

(2) The employer shall ensure that the audit is performed by:

(i) An authorized employee other than the one(s) currently using the energy-control procedure being reviewed; or

(ii) Individuals other than an authorized employee who are knowledgeable about the employer's lockout/tags-plus program and procedures and the machinery, equipment, or systems being audited.

(3) The employer shall ensure that the audit includes:

(i) A review of the written lockout/tags-plus program and procedures;

(ii) A review of the current lockout/tags-plus log;

(iii) Verification of the accuracy of the lockout/tags-plus log;

(iv) A review of incident reports since the last audit;

(v) A review conducted between the auditor and authorized employees regarding the authorized employees' responsibilities under the lockout systems being audited; and

(vi) A review conducted between the auditor and affected and authorized employees regarding their responsibilities under the tags-plus systems being audited.

(4) The employer shall ensure that, within 15 days after completion of the audit, the individual(s) who conducted the audit prepare and deliver to the employer a written audit report that includes at least:

(i) The date of the audit;

(ii) The identity of the individual(s) who performed the audit;

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- (iii) The identity of the procedure and machinery, equipment, or system that were audited;
- (iv) The findings of the program audit and recommendations for correcting deviations or deficiencies identified during the audit;
- (v) Any incident investigation reports since the previous audit; and
- (vi) Descriptions of corrective actions the employer has taken in response to the findings and recommendations of any incident investigation reports prepared since the previous audit.

TABLE TO PARAGRAPH (r)(1) OF THIS SECTION—RETENTION OF RECORDS REQUIRED BY § 1915.89

The employer must keep the following records . . .	For at least . . .
(i) Current lockout/tags-plus program and procedures	Until replaced by updated program and procedures.
(ii) Training records	Until replaced by updated records for each type of training.
(iii) Incident investigation reports	Until the next program audit is completed.
(iv) Program audit report	12 months after being replaced by the next audit report.

(2) The employer shall make all records required by this section available to employees, their representatives, and the Assistant Secretary in accordance with the procedures and time periods specified in 29 CFR 1910.1020(e)(1) and (e)(3).

(s) *Appendices.* Non-mandatory Appendix A to this section is a guideline to assist employers and employees in complying with the requirements of this section, and to provide them with other useful information. The information in Appendix A does not add to, or in any way revise, the requirements of this section.

APPENDIX A TO § 1915.89 (NON-MANDATORY)— TYPICAL MINIMAL LOCKOUT/TAGS-PLUS PROCEDURES

GENERAL

LOCKOUT/TAGS-PLUS PROCEDURE

Lockout/Tags-Plus Procedure for

[Name of company for single procedure or identification of machinery, equipment, or system if multiple procedures used.]

PURPOSE

This procedure establishes the minimum requirements for the lockout/tags-plus application of energy-isolating devices on vessels and vessel sections, and for landside facilities whenever servicing is done on machin-

ery, equipment, or systems in shipyards. This procedure shall be used to ensure that all potentially hazardous-energy sources have been isolated and the machinery, equipment, or system to be serviced has been rendered inoperative through the use of lockout or tags-plus procedures before employees perform any servicing when the energization or start-up of the machinery, equipment, or system, or the release of hazardous energy could cause injury.

COMPLIANCE WITH THIS PROGRAM

All employees are required to comply with the restrictions and limitations imposed on them during the use of lockout or tags-plus applications. Authorized employees are required to perform each lockout or tags-plus application in accordance with this procedure. No employee, upon observing that machinery, equipment, or systems are secured using lockout or tags-plus applications, shall attempt to start, open, close, energize, or operate that machinery, equipment, or system.

Type of compliance enforcement to be taken for violation of the above.

PROCEDURES FOR LOCKOUT/TAGS-PLUS SYSTEMS

(1) Notify each affected employee that servicing is required on the machinery, equipment, or system, and that it must be isolated and rendered inoperative using a lockout or tags-plus system.

Method of notifying all affected employees.

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(2) The authorized employee shall refer to shipyard employer's procedures to identify the type and magnitude of the energy source(s) that the machinery, equipment, or system uses, shall understand the hazards of the energy, and shall know the methods to control the energy source(s).

Type(s) and magnitude(s) of energy, its hazards and the methods to control the energy.

(3) If the machinery, equipment, or system is operating, shut it down in accordance with the written procedures (depress the stop button, open switch, close valve, etc.) established by the employer.

Type(s) and location(s) of machinery, equipment, or system operating controls.

(4) Secure each energy-isolating device(s) through the use of a lockout or tags-plus system (for instance, disconnecting, blanking, and affixing tags) so that the energy source is isolated and the machinery, equipment, or system is rendered inoperative.

Type(s) and location(s) of energy-isolating devices.

(5) *Lockout System.* Affix a lock to each energy-isolating device(s) with assigned individual lock(s) that will hold the energy-isolating device(s) in a safe or off position. Potentially hazardous energy (such as that found in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be controlled by methods such as grounding, repositioning, blocking, bleeding down, etc.

(6) *Tags-Plus System.* Affix a tag to each energy-isolating device and provide at least one additional safety measure that clearly indicates that removal of the device from the safe or off position is prohibited. Potentially hazardous energy (such as that found in capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems and air, gas, steam, or water pressure, etc.) must be controlled by methods such as grounding, repositioning, blocking, bleeding down, etc.

Type(s) of hazardous energy—methods used to control them.

(7) Ensure that the machinery, equipment, or system is relieved, disconnected, restrained, or rendered safe from the release of all potentially hazardous energy by checking that no personnel are exposed, and then verifying the isolation of energy to the machine, equipment, or system by operating the push button or other normal operating control(s), or by testing to make certain it will not operate.

CAUTION: Return operating control(s) to the safe or off position after verifying the isolation of the machinery, equipment, or system.

Method of verifying the isolation of the machinery, equipment, or system.

(8) The machinery, equipment, or system is now secured by a lockout or tags-plus system, and servicing by the authorized person may be performed.

PROCEDURES FOR REMOVAL OF LOCKOUT/TAGS-PLUS SYSTEMS

When servicing is complete and the machinery, equipment, or system is ready to return to normal operating condition, the following steps shall be taken:

(1) Notify each authorized and affected employee(s) that the lockout/tags-plus system will be removed and the machinery, equipment, or system reenergized.

(2) Inspect the work area to ensure that all employees have been safely positioned or removed.

(3) Inspect the machinery, equipment, or system and the immediate area around the machinery, equipment, or system to ensure that nonessential items have been removed and that the machinery, equipment or system components are operationally intact.

(4) Reconnect the necessary components, remove the lockout/tags-plus material and hardware, and reenergize the machinery, equipment, or system through the established detailed procedures determined by the employer.

(5) Notify all affected employees that servicing is complete and the machinery, equipment, or system is ready for testing or use.

§ 1915.90 Safety color code for marking physical hazards.

The requirements applicable to shipyard employment under this section are identical to the requirements set forth at 29 CFR 1910.144 of this chapter.

§ 1915.91 Accident prevention signs and tags.

The requirements applicable to shipyard employment under this section are identical to the requirements set forth at 29 CFR 1910.145 of this chapter.

§ 1915.92 Retention of DOT markings, placards, and labels.

(a) Any employer who receives a package of hazardous material that is required to be marked, labeled, or placarded in accordance with the U.S. Department of Transportation Hazardous Materials Regulations (49 CFR parts