

**NAVSEA
OCCUPATIONAL SAFETY,
HEALTH AND ENVIRONMENT
CONTROL MANUAL
FOR NAVAL SHIPYARDS**

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CHAPTER 250 HAZARDOUS ENERGY CONTROL

250.1 DISCUSSION:

A. Purpose: To establish Hazardous Energy Control (HEC) requirements for personnel protection while servicing Machinery, Equipment, and Systems (MES).

B. Standardization: To implement a standard Lockout/Tags-Plus (LOTP) Program in accordance with reference 250.3.A for all Department of the Navy shipyards and their associated activities that perform shipyard employment work.

C. Scope: To provide the requirements for HEC during servicing when startup of MES or the release of hazardous energy could endanger an employee.

D. Applicability:

1. This chapter provides hazardous energy controls for employees when servicing MES that employees use in the course of shipyard employment work conducted:

- a. In any landside facility that performs shipyard employment work.
- b. On ship's temporary support equipment connected to the ship's system and still under the cognizance of the shipyard.
- c. On any vessel or vessel section not covered by the Tag-out Users Manual (TUM).
- d. On service craft, as defined in paragraph 250.4.A.37.

2. This chapter meets the HEC requirements of references 250.3.A, B and C.

3. Contractors and other non-shipyard government organizations performing shipyard employment work in Naval Shipyards must follow the shipyard's LOTP Program.

E. Exceptions: This chapter DOES NOT apply to the following:

1. Navy Region servicing operations utilizing a Naval Facilities Engineering Command (NAVFAC) approved HEC Program for equipment under Region cognizance.
2. Uniformed Navy military personnel stationed shipboard.
3. Shipboard servicing operations under ship's force control, covered by the TUM, reference 250.3.D, which meet the requirements of Reference 250.3.A.

NOTE

This exception does not eliminate the requirements for Tier 1 training of shipboard personnel per 250.5.C.3 and program reviews that must be performed for shipboard HEC operations per 250.4.N.

4. Maintenance of diving equipment performed by diving personnel using Reference 250.3.D for HEC.
5. Work on cord and plug MES, provided the MES is unplugged and the plug is under the exclusive control of the employee performing the servicing.

NOTE

See requirement for removing load prior to disconnecting in reference 250.3.E.

6. 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 MES, provided the shipyard ensures that the work is performed using measures that provide effective protection from energization, startup, or the release of hazardous energy.

NOTE

This exception does not apply when an employee would be required to (a) remove or bypass a guard or other safety device, or (b) place any part of his or her body into an area on a machine, piece of equipment, or system where work is actually performed upon the material being processed.

7. Equipment removed for reasons other than servicing, as long as all hazardous energy sources have been disconnected and there is no potential for re-accumulation of hazardous energy.
8. Specialized facilities that support refueling and defueling work once these facilities are integrated with shipboard systems.
9. Instances where equipment or machinery use is controlled for purposes other than energy control (i.e., LOTP) purposes. This includes, but is not limited to, preventing unauthorized personnel from using the equipment or machinery, and identifying equipment that is being taken out of service for removal or disposal.

F. Background:

1. On May 2, 2011, OSHA published Subpart F of 29 CFR 1915 (General working conditions in shipyard employment), which included section 1915.89 (Reference 250.3.A). Reference 250.3.A establishes new requirements for the control of hazardous energy, also known as LOTP. The Naval Sea Systems Command (NAVSEA) has established this chapter to enable compliance with these new requirements.
2. Appendix A (Table of Acronyms) provides a list of acronyms used in this chapter.

250.2 APPENDICES:

- A. Table of Acronyms**
- B. Hazardous Energy Control Decision Matrix**
- C. Hazardous Energy Control Decision Flowcharts**
- D. Hazardous Energy Control Tag**
- E. Lockout/Tags-Plus Coordinator (LOTC) Log Form**
- F. Energy Control Procedure (ECP) Form**
- G. Primary Authorized Employee (PAE) Log**

250.3 REFERENCES:

- A. 29 Code of Federal Regulations (CFR) 1915.89, Control of hazardous energy (lockout/tags-plus)**
- B. 29 CFR 1910.269, Electric Power Generation, Transmission, and Distribution**
- C. 29 CFR 1910.331-333, Electrical**
- D. NAVSEA S0400-AD-URM-010/TUM Tag-out Users Manual**
- E. NFPA 79 Electrical Standard for Industrial Machinery**
- F. SECNAVINST 5030.1L Classification of Naval Ships and Craft**
- G. COMFLTFORCOMINST 4790.3, Joint Fleet Maintenance Manual**
- H. OPNAVINST 5100.23 (Latest Revision) Navy Safety and Occupational Health Program Manual**
- I. UIPI 0900-453 Critique and Problem Analysis Matrix Processes; Problem Identification and Investigation**
- J. NAVSEA ltr 5100 Ser 04R/035 of 8 Sep 10, Reporting Criteria for Level 1 and 2 Safety Incidents; Approval of**

250.4 OVERVIEW OF SUBJECT MATTER AND SPECIFIC POLICY:

- A. Definitions:**

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1. Additional Safety Measure. A component of the tags-plus system that provides an impediment (in addition to the energy-isolating device) to the release of energy or the energization or startup of the MES being serviced. Examples of additional safety measures include, but are not limited to, removing an isolating circuit element; blocking a controlling switch; blocking, blanking, or bleeding lines; removing a valve handle or wiring it in place; and opening or guarding an extra disconnecting device. A HEC tag will be affixed at the location of the additional safety measure.
2. Affected Employee (AFE). Everyone involved in shipyard employment, as there is a potential for any employee to be in a worksite where hazardous energy controls are in use.
3. Authorized Employee (AE). A trained and knowledgeable employee who performs one or more of the following LOTP responsibilities:
 - a. Executes the LOTP procedures.
 - b. Installs a lock or tags-plus system on MES.
 - c. Services any MES under LOTP application.

NOTE

Managers, engineers, inspectors, technical representatives, other production personnel, etc., must be AEs if they might be exposed to hazardous energy from any MES under LOTP application.

4. Capable of Being Locked Out. An energy-isolating device is capable of being locked out if it has a locking mechanism built into it, or it has a hasp or other means of attachment to which, or through which, a HEC lock can be affixed. Other energy-isolating devices are capable of being locked out if lockout can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device or permanently alter its energy-control capability.
5. Contract Employer. An employer, such as a painting, joinery, carpentry, or scaffolding contractor, that performs shipyard-related services or work under contract to the host employer or to another employer under contract to the host employer at the host employer's worksite. This excludes employers who provide services that are not directly related to shipyard employment, such as mail delivery, office supply, and food vending services.
6. Double Isolation (DI). Requires two pressure barriers between the servicing area and any high hazard energy source. DI prevents a fluid or gas from entering an area where work is being done.
7. Double Isolation & Bleed. The placement of two HEC isolations in series on a common source, with an intermediary bleed valve or line such that one can verify the energy/source is drained or at atmospheric pressure, to provide a working reference by monitoring the bleed

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source that demonstrates the energy/injurious source material is being properly contained by the first primary isolation device.

8. Energy Control Procedure (ECP). Detailed, written instructions to identify and prevent the energization or startup, or the release of hazardous energy, during the servicing of any MES. Other technical work documents, such as Task Group Instructions, Standard Operating Procedures, Lifting and Handling Work Instructions, or Industrial Process Instructions, can be used as ECPs, if they contain the information in an ECP and provide an equivalent level of protection from hazardous energy. Appendix F is an ECP form that can be used to describe and document LOTP procedures for a specific MES.

9. Energy-Isolating Device. A mechanical device that, when utilized or activated, physically prevents the release or transmission of energy. Energy-isolating devices include, but are not limited to, manually operated circuit breakers; machine connects; line valves; blocks; blank flanges; bolted slip blinds; and any similar device used to block or isolate energy. Control-circuit devices (for example, push buttons, selector switches) are not considered energy-isolating devices.

10. Exclusive Control. The employee has the authority to and is continuously in a position to prevent (exclude) other individuals from re-energizing the MES during the servicing activity.

11. Full Employee Protection. Use of a HEC lock or tags-plus system and measures to mitigate, dissipate, prevent restoration (energization) and release of hazardous energy in order to ensure that an employee is not exposed to hazardous energy during the course of the servicing activity.

12. Group LOTP. When more than one AE services the same MES at the same time and performs work in accordance with 250.4.J (Applying Group Lockout) or 250.4.K (Applying Group Tags-Plus) of this chapter.

13. Group Lockout. A method where a Primary Authorized Employee (PAE) controls each source of hazardous energy with a HEC lock, the keys of each HEC lock are placed in a Group Lockbox, and AEs hang their personal HEC locks on the Group Lockbox.

14. Group Tags-Plus. A method where a PAE controls each source of hazardous energy, but at least one tags-plus application is used, and AEs are logged on the PAE Log while performing servicing.

15. Hazardous Energy. Any energy source, including mechanical (for example, power transmission apparatus, counterbalances, springs, pressure, gravity), pneumatic, hydraulic, electrical, chemical, and thermal (for example, high or low temperature) energies that could cause injury to employees.

16. HEC Lock. A keyed device that utilizes a positive means to hold an energy-isolating device in a “safe” position that prevents the release of energy and the startup or energization of the MES to be serviced. An HEC lock must be:

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a. Red in color and identifiable to the AE attaching the HEC lock and exclusively used for lockout applications.

b. Individually keyed with that key under the exclusive control of the AE. A second key may be retained under the control of the LOTP Coordinator or other personnel designated by the shop/code. No two HEC locks shall have the same key (i.e., each HEC lock shall have unique keys that open no other HEC locks). No more than two keys shall exist for any HEC lock.

c. Each HEC lock shall be capable of withstanding the existing environmental conditions for the maximum period of time that servicing is expected to last and shall be sturdy enough to prevent removal without the use of extra force or unusual techniques, such as bolt cutters or other metal-cutting tools.

17. HEC Tag and Tag Attachment. A prominent warning device that includes a means of attachment that can be securely fastened to an energy-isolating device in accordance with an established procedure to indicate that the energy-isolating device and the equipment being controlled must not be operated until the HEC tag is removed by the AE who installed the HEC tag. Each HEC tag shall be capable of withstanding the existing environmental conditions for the maximum period of time that servicing is expected to last, and is made so that weather conditions, wet or damp conditions, corrosive substances, or other conditions in the work area where the HEC tag is used or stored will not cause it to deteriorate or become illegible. Each HEC tag and tag attachment shall be sturdy enough to prevent inadvertent or accidental removal. Each tag attachment shall have the general design and basic safety characteristics of a one-piece, all-environment-tolerant nylon tie, be non-reusable, attachable by hand, self-locking, and non-releasable, and have a minimum unlocking strength of 50 pounds. See Appendix D for illustrations of the front and back of the HEC tag.

18. Host Employer. An employer that is in charge of coordinating shipyard-related work or that hires other employers to perform shipyard-related work or to provide shipyard-related services, at a multi-employer worksite.

19. Individual Lockout. A method where each AE controls each source of hazardous energy with their assigned HEC lock.

20. Individual Tags-Plus. A method where each AE controls each source of hazardous energy, but at least one tags-plus application is used.

21. Interface Work. Work that involves LOTP controls and Navy tag-out controls. Example: A ship's temporary support system that is controlled landside via LOTP and controlled shipboard via the Navy tag-out system (i.e., the Tag-out Users Manual).

22. Line Blanking or Blinding. The absolute closure of a pipe, line, or duct by fastening of a solid plate that completely covers the bore and is capable of withstanding the maximum pressure of the pipe, line, or duct with no leakage beyond the plate.

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23. Lockout. The placement of a HEC lock on an energy-isolating device in accordance with this chapter, thereby ensuring that the energy-isolating device and the equipment being controlled cannot be operated until the HEC lock is removed.

24. Lockout Device. A mechanism that attaches to an energy isolating device and holds it in a safe position when the HEC lock is installed, preventing the energization to that MES. Examples include circuit breaker lockout devices, multiple person hasps, valve restraining devices, plug covers, chains, or cables. The lockout device must be capable of withstanding its environmental exposure for the maximum period of time that servicing is expected to last and be substantial enough to prevent removal without the use of excessive force or unusual techniques, such as with the use of bolt cutters or other metal cutting tools.

25. Lockout/Tags-Plus Coordinator (LOTC). A trained, designated employee who coordinates and oversees all lockout and tags-plus applications on vessels or vessel sections and at landside work areas when employees are performing several servicing operations on the same MES at the same time and when employees are servicing multiple MES on the same vessel or vessel section at the same time. A Lockout/Tags-Plus Coordinator always coordinates and oversees multiple employer work (i.e., work involving non-shipyard government organizations, lead contractors and their sub-contractors). Designated LOTCs maintain the Lockout/Tags-Plus Coordinator Logbook.

26. Lockout/Tags-Plus Coordinator Logbook. A logbook used to document the application and removal of lockout or tags-plus systems when LOTP coordination is required. A unique serial number will be used to document each group lockout or tags-plus isolation when LOTP coordination is required. The format for the LOTP Log Form is provided in Appendix E. Other pertinent LOTP information identified in paragraph 250.5.B is also required to be in each LOTP Log Form.

27. Lockout/Tags-Plus System. The use of energy isolation locks or tags-plus applications (including lockboxes and logs) that provide AEs the means to control hazardous energy. Examples include individual AEs applying LOTP at hazardous energy-isolating device(s), HEC locks being applied at hazardous energy-isolating device(s), and the keys being held in a group lockbox (with at least one PAE lock applied), or a group tags-plus applied (with at least one PAE assigned).

28. Multiple Employer. Host employer, such as Navy Shipyards, and at least one additional employer (e.g., contract employers and/or other outside activities, NAVFAC (unless Military Construction work), NAVSEA, Defense Logistics Agency, Navy Crane Center, etc., when working on the same MES at the same time.

29. Multiple Energy Sources. Any combination of energy sources which require multiple isolation devices to control all hazardous energy from the area where the AE will be servicing MES. Examples would be a large boiler that has gas, electrical, and pneumatic energy sources or electrical MES with multiple electrical feeds/sources.

30. Multiple Servicing.

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a. When two or more people are performing unrelated servicing operations on the same MES at the same time or when two or more people perform one servicing operation on multiple MES at the same time.

b. For landside individual lockout systems, LOTP coordination is not required for multiple servicing, if the isolation of a single hazardous energy source completely isolates the MES (or section of that MES) AND all individuals use their personal HEC lock, AND where one employee's action of changing the status of the LOTP system would NOT endanger another employee.

c. Multiple servicing performed on vessels and vessel sections requires LOTP coordination, per Appendix B.

31. Navy Ship's Force. The crew of a vessel that is owned or operated by the U.S. Navy, that is under the control of a Commanding Officer or Master.

32. Normal Production Operations. The use of MES, including, but not limited to, punch presses, bending presses, shears, lathes, keel press rollers, and automated burning machines, to perform a shipyard-employment production process.

33. Personal Lockout/Tags-Plus System. What an AE uses to personally control the LOTP system. Examples include: (1) applying LOTP at the hazardous energy-isolating device(s), (2) applying an HEC lock to a group lockbox, or (3) signing the PAE Sign-In/Sign-Out Log in a group tags-plus. Appendix G is the PAE Sign-In/Sign-Out Log.

34. Primary Authorized Employee (PAE). An authorized employee assigned by the LOTC as the representative for a specific group of AEs involved in a group LOTP application.

35. Primary Authorized Employee (PAE) Log. The log form used to account for the work status of AEs under the responsibility of an assigned PAE. AEs will sign in and out on this form to provide an accurate status of who is working under the group tags-plus system.

36. Safe Exposure Status. Knowledge that all AEs in a servicing group working under a PAE are protected from hazardous energy.

37. Service Craft. A classification of waterborne craft that comprises generally the waterborne utilitarian craft not classified as ships or boats, designed to operate in coastal and protected waters and provide general support to combatant forces and shore establishments. Service craft are designated by type in reference 250.3.F, and listed in the Craft and Boat Support System and Naval Vessel Register. Examples of service craft include dive tenders (YDT), radiological repair barges (YRR), floating cranes (YD), and floating dry docks (AFDL, AFDM, ARDM, and YFD). All servicing work performed on service craft will be performed in accordance with this chapter.

38. Servicing. Workplace activities that involve the construction, installation, removal, adjustment, inspection, modification, testing, or repair of MES. Servicing also includes

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maintaining MES when performing these activities would expose the employee to harm from the start-up or energization of the system being serviced or the release of hazardous energy.

39. Single Energy Source. An energy source which requires only one isolation device to control all hazardous energy from the area where the AE will be servicing MES.

40. Tags-Plus System. A system to control hazardous energy that consists of an energy-isolating device with a HEC Tag affixed to it, and at least one additional safety measure. An HEC tag shall be installed on the additional safety measure or as close as possible to the additional safety measure.

41. Verification of Isolation. The means necessary to detect the presence of hazardous energy, which may involve the use of a test instrument (for example, a voltmeter), and, for other than electric shock protection, a visual inspection, or a deliberate attempt to start-up the MES.

42. Vessel. A craft for traveling on or in water, such as a ship or boat.

43. Vessel Section. A subassembly, module, or other component of a vessel being built or repaired.

44. Work Area. A specific area, such as a machine shop, engineering space, or fabrication area, where one or more employees are performing job tasks.

45. Worksite. A general work location where one or more employees are performing work, such as a shipyard, pier, barge, vessel, or vessel section.

B. General Requirements:

1. All Naval Shipyards' strict LOTP Program policy requires that before any AE performs servicing when energization, startup, or release of hazardous energy may occur, all hazardous energy sources impacting the personnel safety for the work to be performed are identified, isolated, restrained, and dissipated, and the MES is rendered inoperative.

NOTE

No employee shall attempt to start, open, close, energize, or operate that MES, except to verify HEC isolation.

2. There are four different variations of LOTP.

- a. Individual Lockout;
- b. Individual Tags-Plus;
- c. Group Lockout; and
- d. Group Tags-Plus.

3. Only AEs shall perform LOTP applications on MES.
4. Lockout is the primary means of personnel protection for the AE while servicing operations are ongoing.
5. When using lockout systems, the AE shall affix each HEC lock in a manner that will hold the energy-isolating device in a safe or off position.
6. When using tags-plus systems, the AE shall affix HEC tags in accordance with the ECP in a manner that clearly indicates that the removal, movement, or changing of position of the device from a safe or off position is prohibited.
 - a. Tags-plus must be approved by identifying that tags-plus is to be used on the ECP Form, Appendix F, even when a system can be locked out.
 - b. Tags-plus must also be approved by the Department Head and Code 106 Occupational Safety, Health, and Environment (OSHE) Director, as will be required by the ECP.

NOTE:

Valves, drains, etc. used for venting and/or bleeding lines to provide for continued verification of isolation to ensure that hazardous energy does not re-accumulate can be locked or tagged in the open position (e.g., use of Double Isolation and Bleed or similar procedure). An ECP is required for this vent/bleed procedure.

7. When the HEC tag cannot be affixed directly to the energy-isolating device, the AE shall locate it as close as safely possible to the device, in a safe and immediately obvious position.
8. In the case of an out-of-position or missing LOTP system, NEVER reposition the energy-isolating device without following the proper steps to correct the out-of-position, damaged, or missing LOTP system in a safe manner. For damaged HEC tags, notify your supervisor and the LOTC for resolution. This is a **SERIOUS SAFETY PROBLEM** and requires that immediate actions be taken to ensure personnel safety. Corrective action steps are to **Warn – Isolate – Notify**:
 - a. **W** – Stop work, clear the work area, and warn affected employees there may be a potential safety hazard.
 - b. **I** – Guard the area (or have someone else guard the area) where the out-of-position, damaged, or missing energy isolating device is located. **DO NOT** reposition the energy-isolating device or let anyone else reposition it.
 - c. **N** – Notify (or have someone notify) your supervisor immediately of the problem. Notify the cognizant shop/code and have them determine the appropriate, immediate corrective actions to place the MES in a safe condition. After this action is accomplished, notify the Code 106 LOTP Program Manager of the unsafe condition.

9. Tags-Plus System.

a. Must provide a level of safety equivalent to that obtained by lockout. This is accomplished by identifying at least one energy-isolating device with an HEC tag affixed to it and at least one additional safety measure. These additional isolation points will be identified in ECPs. HEC tags shall be affixed at the location of the additional safety measure.

b. Requires Department Head and Code 106 OSHE Director approval.

10. Related Appendices.

a. Hazardous Energy Control Decision Matrix (Appendix B). The Hazardous Energy Control Decision Matrix provides guidance on LOTP, ECP, PAE, and LOTC requirements and provides examples of servicing activities corresponding to various energy isolation applications. Consult this Appendix in planning the LOTP requirements for a specific servicing activity.

b. Hazardous Energy Control Decision Flowchart for Energy Control Procedures (Appendix C). The Hazardous Energy Control Decision Flowcharts summarize decision logic embedded in the Appendix B matrix in two simplified flowcharts.

c. Hazardous Energy Control Tag (Appendix D). The HEC tag to be used by the AE in tags-plus applications is depicted in Appendix D.

d. Lockout/Tags-Plus Coordinator Log Form (Appendix E). The example log form to be used by the LOTC in coordinated LOTP applications is depicted in Appendix E.

e. Energy Control Procedure (ECP) Form, Appendix F. An example form for developing an ECP is depicted in Appendix F.

f. Primary Authorized Employee (PAE) Log (Appendix G). Primary Authorized Employees will use the PAE Sign-In/Sign-Out Log to account for all AEs under their cognizance during group tags-plus applications. An example log is depicted in Appendix G.

C. Procedures for Application of Hazardous Energy Control:

1. The following procedures shall be used when applying LOTP.

2. Preparing for shutdown and isolation.

a. The AE shall have knowledge of:

(1) The source, type, and magnitude of the hazards associated with the MES.

(2) The hazards associated with the release of hazardous energy.

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(3) The means to control these hazards.

b. The AE shall notify each affected employee that the MES will be shut down and de-energized prior to servicing, and that a LOTP system will be implemented.

3. Shutdown and isolation.

a. The AE shall ensure that the MES has been shut down.

b. The AE shall relieve, disconnect, restrain, or otherwise render safe all potentially hazardous energy that is connected to the MES. Stored, re-accumulating, or residual energy (e.g., capacitors, springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure) must be dissipated or restrained by methods such as repositioning, blocking, depressurizing, bleeding down, draining, etc.

4. Applying LOTP systems.

a. Apply LOTP, per any one of the following applications in its entirety.

(1) Applying Individual Lockout (per 250.4.H)

(2) Applying Individual Tags-Plus (per 250.4.I)

(3) Applying Group Lockout (per 250.4.J)

(4) Applying Group Tags-Plus (per 250.4.K)

b. The AE shall ensure that each energy-isolating device that controls energy to the MES is effective in isolating the MES from all potentially hazardous energy source(s). Stored, re-accumulating, or residual energy (e.g., springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure) must be dissipated or restrained by methods such as repositioning, blocking, depressurizing, bleeding down, draining, etc.

5. Verification of HEC isolation.

a. The AE, or the PAE in a group LOTPs application, shall verify HEC of the MES. Additionally, each AE in a group LOTP application who will be servicing the MES must be given the option to verify HEC of the MES even when verification is performed by the PAE.

b. Verification shall be conducted before servicing can begin on any MES under LOTP application.

c. Verification shall be accomplished using ECP and manufactures guidance, when applicable.

d. Verification shall validate that all energy sources are de-energized and properly isolated.

e. Verification shall be confirmed utilizing appropriate tools, test equipment, and safety measures.

f. Verification shall continue throughout the servicing operation. This may include attempts to start up or actuate MES.

NOTE

If de-energization verification by an AE poses a hazardous situation for other AEs, then the AE must ensure all personnel are clear of MES prior to verification of de-energization.

D. Procedure for Shift or Personnel Change:

1. The following requirements must be complied with for continuation of work during shift changes and PAE assignment changes.

2. When Individual Lockout is used, the following requirements apply:

a. AEs leaving the work area can keep their HEC lock(s) on the hazardous energy-isolating device(s).

b. At least one AE must keep his or her HEC lock(s) on the hazardous energy-isolating device(s) until the MES is in a safe condition.

c. AEs whose HEC lock(s) remain installed must have an understanding of the remaining work and status of the MES.

d. If LOTP coordination is required, then follow these steps:

(1) LOTC, or their designated AE, enters the individual lockout information into the LOTC Log.

(2) AE writes date and his or her name in the “Employee Applying” column before starting work.

(3) AE writes date and his or her name in the “Employee Removing” column when the MES is suitable for safe operation, work is completed, and individual lockout system is removed.

e. For landside individual lockout systems, LOTP coordination is NOT required for multiple servicing, if all of the following conditions are met:

(1) The isolation of a single hazardous energy source completely isolates the MES (or section of that MES).

(2) All individuals use their personal HEC lock.

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(3) AND where one employee's action of changing the status of the LOTP system would NOT endanger another employee.

3. When individual tags-plus is used, the following requirements apply:

a. Tags-plus must remain in place, including the additional safety measure(s), until the MES suitable for safe operation.

b. LOTP coordination is REQUIRED.

c. AE responsibilities:

(1) The departing AE writes current date in LOTC Log "Employee Removing" Date column.

(2) The departing AE writes "Transferred to (NAME OF ON-COMING AE)" in the "Employee Removing" Name column.

(3) The LOTC re-writes the tags-plus system information in the LOTC Log, as if it were a new entry, but using the same LOTC Log serial number.

(4) The on-coming AE writes the date and his or her name in the "Employee Applying" columns.

4. When group lockout is used, the following requirements apply:

a. LOTP coordination is REQUIRED.

b. PAE designation is REQUIRED.

(1) LOTC designates the PAEs for the work done during a shift, and ensures the LOTC Log is accurate.

(2) Only one PAE will serve on a group lockout at a time.

(3) The transition from one PAE to another is at the discretion of the LOTP Coordinator.

c. The current PAE must have his or her HEC lock on the Group Lockbox during all work, and until the MES is suitable for safe operation.

d. AEs leaving the work area can keep their HEC locks on the Group Lockbox, but have the option to remove them.

5. When group tags-plus is used, the following requirements apply:

a. LOTP coordination is REQUIRED.

b. PAE designation is REQUIRED.

(1) LOTC designates the PAE for the work done during a shift, and ensures the LOTC Log is accurate.

(2) Only one PAE will serve on a group tags-plus at a time.

(3) The transition from one PAE to another is at the discretion of the LOTP Coordinator.

c. A PAE must remain on the LOTC Log for the group tags-plus during work and until the MES is suitable for safe operation.

d. PAE responsibilities:

(1) The departing PAE writes current date in LOTC Log "Employee Removing" Date column.

(2) The departing PAE writes "Transferred to (NAME OF ON-COMING PAE)" in the "Employee Removing" Name column.

(3) The LOTC re-writes the tags-plus system information in the LOTC Log, as if it was a new entry, but using the same LOTC Log serial number.

(4) The on-coming PAE writes the date and his or her name in the "Employee Applying" columns.

e. AE responsibilities:

(1) All AEs must log out on the departing PAE's PAE Log.

(2) All AEs that will continue working must log in on the on-coming PAE's PAE Log.

E. Testing or Positioning:

1. In each situation in which a LOTP system must be removed temporarily and the MES restarted to test it or to position a component, the AE shall perform the following, in sequence:

a. When a LOTC is involved, the AE shall brief the LOTC of the testing / positioning procedures prior to the start of work.

b. Clear tools and materials from the work area.

c. Remove nonessential employees from the work area.

d. Remove each LOTP system.

e. Reenergize the MES in accordance with section 250.4.G and then proceed with testing or positioning.

f. If additional work is required before the MES can be considered repaired, de-energize the MES and reapply the LOTP devices.

F. Removal of Lockout and Tags-Plus Systems:

1. Before removing any LOTP system and restoring the MES to use, the AE shall perform the following:

a. Notify all other authorized and affected employees in the area that the LOTP system will be removed.

b. Ensure that all employees in the work area have been safely positioned or removed.

c. Inspect the work area to ensure that nonessential items have been removed and MES components are operationally intact.

2. Ensure that each LOTP system is removed by the AE who applied it.

3. When the AE who applied the LOTP system is not available to remove it, the supervisor can direct removal by another AE, provided the following additional requirements are met:

a. Verify that the AE who applied the LOTP system is not in the facility.

b. Make all reasonable efforts to contact the AE to inform him or her that the LOTP system will be removed.

c. Ensure that the AE who applied the LOTP system has knowledge of the removal before the worker resumes work on the affected MES.

d. Obtain concurrence of the LOTC, when involved.

4. When LOTP work is completed, AEs will coordinate with the LOTC to close out their portion in the LOTC Log.

G. Re-Energizing the Machinery, Equipment, or System:

1. The AE shall have knowledge of the source, type, and magnitude of the hazards associated with energizing or start-up and the means to control these hazards.

2. The AE shall ensure that the MES is re-energized and started in accordance with established procedures.

H. Applying Individual Lockout:

1. Each AE hangs his or her personal lockout system at all hazardous energy-isolating device(s).
2. For landside individual lockout systems, LOTP coordination is not required for multiple servicing, if the isolation of a single hazardous energy source completely isolates the MES (or section of that MES) AND all individuals use their personal HEC lock, AND where one employee's action of changing the status of the LOTP system would NOT endanger another employee.
3. On vessels and vessel sections, LOTP coordination is required when workers perform unrelated servicing at the same time, regardless if on separate or the same MES. On landside facilities, LOTP coordination is required when workers perform unrelated servicing at the same time when ship's force is not in control, on the same MES. If coordination is required, comply with the following:
 - a. LOTC enters the individual lockout information into the LOTC Log.
 - b. AE writes date and his or her name in the "Employee Applying" column before starting work.
 - c. AE writes date and his or her name in the "Employee Removing" column when the MES is suitable for safe operation, work is completed, and individual lockout system is removed.
4. An ECP is required unless the requirements of paragraph 240.4.M.5 are met.

I. Applying Individual Tags-Plus:

1. Department Head and Code 106 OSHE Director approval is required prior to utilizing tags-plus system(s).
2. Each AE coordinates the work with the LOTC.
 - a. LOTC enters the individual tags-plus information into the LOTC Log.
 - b. AE writes date and his or her name in the "Employee Applying" column before starting work.
 - c. AE writes date and his or her name in the "Employee Removing" column when the MES is suitable for safe operation, work is completed, and individual tags-plus system is removed.
3. Each AE hangs his or her personal tags-plus system at the hazardous energy-isolating device(s) that cannot be locked and at the additional safety measure, in accordance with the applicable ECP.

J. Applying Group Lockout:

1. When more than one AE services the same MES at the same time, group lockout may be used in lieu of individual lockout, per 250.4.H.
2. The LOTC must coordinate the group lockout. The LOTC responsibilities are:
 - a. Ensure the LOTC Log is filled out.
 - b. Assign the PAE for the work shift.
 - c. Ensure the PAE understands the requirements of the ECP to be used.
 - d. Assign and document HEC lock usage on the hazardous energy isolation devices.
3. The PAE must maintain control and knowledge of the LOTP system status. The PAE responsibilities are to:
 - a. Coordinate and communicate with the LOTC the status of the group lockout.
 - b. Communicate to all working and on-coming AEs the status of the group lockout.
 - c. Determine the safe exposure status for each AE in the group with regard to the Group LOTP system.
 - d. Maintain his or her HEC lock on the Group Lockbox during all work and until the equipment is suitable for safe operation.
 - e. Transfer PAE responsibilities to another PAE per the instructions of 250.4.D, if required.
4. The AE responsibilities are:
 - a. Communicate with the PAE:
 - (1) His or her intent to work under the protection of the group lockout.
 - (2) Understand his or her safe exposure status.
 - (3) The disposition of the MES that the AE was working on, when taking off his or her personal HEC lock from Group Lockbox.
 - b. Hang a personal HEC lock on the Group Lockbox while working.
 - (1) The AE's HEC lock may be left on the Group Lockbox when leaving the area.

(2) Remove the HEC lock when directed by the PAE, but only if it does not create a hazard for others.

K. Applying Group Tags-Plus:

1. When more than one AE services the same MES at the same time, group tags-plus can be used.

2. The LOTC must coordinate the group tags-plus. The LOTC responsibilities are:

a. Ensure the planned evolution has Department Head and Code 106 OSHE Director approval.

b. Ensure the LOTC Log is filled out.

c. Assign the PAE for the work shift.

d. Ensure the PAE understands the requirements of the ECP to be used.

3. The PAE must maintain control and knowledge of the LOTP system status. The PAE responsibilities are:

a. Coordinate and communicate with the LOTC the status of the group tags-plus.

b. Communicate the disposition of the group tags-plus system to all on-coming AEs, and have them log in on the PAE Log.

(1) Each PAE maintains his or her own PAE Log.

(2) The PAE Log may be disposed of once all AEs that have logged in have logged out.

c. Establish the tags-plus systems on all hazardous energy-isolating device(s) that cannot be locked and at the additional safety measure, per the applicable ECP.

d. Determine the safe exposure status for each AE in the group with regard to the Group LOTP system.

e. At least one PAE must be signed in on the LOTC Log until the MES is suitable for safe operation, work is completed, and group tags-plus system is removed.

f. The responsibility of the PAE may be transferred, per the instructions of 250.4.D.

4. The AE responsibilities are:

a. Communicate with the PAE:

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- (1) His or her intent to work under the protection of the PAE Log.
 - (2) Understanding of his or her hazardous energy exposure status.
 - (3) The disposition of the MES that the AE was working on, when signing out of the PAE Log.
- b. AEs log in on a PAE Log before starting work for the shift.
 - c. AEs log out on the PAE Log at the completion of work or end of shift.
5. An ECP is required.

L. Interface Work Requirements:

1. Interface work shall require an ECP, LOTP coordination, and authorization of the ship via a Work Authorization Form of reference 250.3.G.

M. Energy Control Procedures:

1. ECPs prevent energization or startup, or the release of hazardous energy, during the servicing of any MES. Energy control procedures are specific to MES; however, when similar MES are designed the same and have identical hazardous energy-isolating device(s), they can be covered with a single, generic, written ECP. The ECP shall identify the types of equipment to which the isolation of hazardous energy applies. Appendix F provides an example ECP form to be used when developing an ECP, if one has not been created for a specific MES.
2. Purpose: An ECP establishes the minimum requirements for the LOTP application of energy-isolating devices on vessels and vessel sections, and for landside facilities whenever servicing is done on MES in shipyards. ECPs shall be used to ensure that all potentially hazardous energy sources have been isolated and the MES to be serviced has been rendered inoperative through the use of LOTP procedures before employees perform any servicing when the energization or start-up of the MES or the release of hazardous energy could cause injury.
3. Compliance with ECPs. All employees are required to comply with the restrictions and limitations imposed on them during the use of LOTP applications. AEs are required to perform each LOTP application in accordance with this procedure.
4. Energy control procedure requirements are detailed in Appendix F. A sample ECP form is provided. An ECP must include the attributes listed in Appendix F.
5. An ECP is not required when all of the following conditions are met:
 - a. There is no potential for hazardous energy to be released (or to re-accumulate) after shutting down the MES.

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- b. The MES has a single energy source that can be readily identified and isolated.
- c. The isolation and lockout of that energy source will completely de-energize and deactivate the MES, and there is no potential for re-accumulation of energy.
- d. The energy source is isolated and secured from the MES during servicing.
- e. Only one HEC lock is necessary for isolating the energy source.
- f. The HEC lock and key are under the exclusive control of the AE performing the servicing.
- g. The servicing does not create a hazard for any other employee.
- h. The shop/code using this exception has not had any accidents or incidents involving the activation or re-energization of this type of MES during servicing.

N. Program Review:

1. Code 106 shall annually evaluate the effectiveness of the LOTP Program, including.
 - a. Compliance with the provisions of this chapter, references 250.3.A and H, and specific procedures developed as a result.
 - b. Written procedures developed under paragraph 250.4.M.
 - c. The list of MES that are not capable of being locked out. This list is maintained by Code 106, with the information and updates provided by the cognizant shops/codes.
 - d. A written report of the evaluation.
2. Shop/Code Program Reviews.
 - a. Shops and codes using LOTP systems shall conduct an annual review of the LOTP Program and procedures currently in use to ensure the procedures and the requirements of this instruction are being followed and to identify and correct any deficiencies in accordance with paragraph 250.5.A.3.1 of this chapter, including the following:
 - (1) A review of the written LOTP Program and procedures.
 - (2) A review of the current LOTC Log.
 - (3) Verification of the accuracy of the LOTC Log.
 - (4) A review of incident reports since the last review.

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(5) A review conducted regarding the AEs' responsibilities under the lockout systems being reviewed.

(6) A review conducted with AFEs and AEs regarding their responsibilities under the tags-plus systems being reviewed.

b. Within 15 days after completion of the review, shops and codes using LOTP systems shall develop and deliver a written review report to the Code 106 LOTP Program Manager that includes:

(1) The date of the review.

(2) The identity of the individual(s) who performed the review.

(3) The identity of the procedure and MES that were reviewed.

(4) The findings of the program review and recommendations for correcting deviations or deficiencies identified during the review.

(5) Any incident investigation reports since the previous review.

(6) Descriptions of corrective actions the shop/code has taken in response to the findings and recommendations of any incident investigation reports prepared since the previous review.

c. Shops and codes using LOTP systems shall communicate the findings and recommendations in the written review report to each employee having a job task that may be affected by such findings and recommendations.

d. Shops and codes using LOTP systems shall enter review findings into the Quality Performance System for tracking and trending. The shop/code must correct all review findings within 15 days after receiving the review report. If it is infeasible to implement all of the corrective actions within 15 days, the shop/code 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 shop/code is taking in the interim to protect AEs from hazardous energy while servicing MES.

O. Surveillance:

1. Surveillances of the LOTP Program will be conducted separate from the annual review. The shipyard HEC functional area group will determine the periodicity and attributes of the surveillances.

P. Incident Investigation:

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1. Each incident involving LOTP that resulted in, or could reasonably have resulted in, energization or startup, or the release of hazardous energy, while servicing MES shall be investigated.
2. Shops/codes shall take necessary precautions to protect employees from the hazard and preserve the incident site.
3. Promptly, but not later than 24 hours following the incident, shops/codes shall initiate an incident investigation and notify each employee who was, or could reasonably have been, affected by the incident.
4. Incident investigation shall be conducted in accordance with references 250.3.I and 250.3.J.
5. A written report of the investigation shall include:
 - a. The date and time of the incident.
 - b. The date and time the incident investigation began.
 - c. The location of the incident.
 - d. A description of the incident.
 - e. The factors that contributed to the incident.
 - f. A copy of the LOTC Log that was current at the time of the incident, if applicable.
 - g. Any corrective actions that need to be taken as a result of the incident.
6. The findings of the incident report shall be provided to each employee, whose job tasks are relevant to the incident investigation findings, including contract employees, when applicable.
7. The incident investigation and written report shall be completed, and all corrective actions implemented, within 30 days following the incident.
8. If it is infeasible to implement all of the corrective actions within 30 days, the shop/code 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 shipyard is taking in the interim to protect employees from hazardous energy while servicing MES.
9. A copy of the written incident report and abatement plan shall be forwarded to the Code 106 LOTP Program Manager. The written incident report/abatement plan shall be maintained in the LOTC Log until the next program review.

250.5 RESPONSIBILITIES:

A. Subject Matter and Program Requirements:

1. The Cognizant Lead Yard shall:

a. Initiate chapter revisions when changes or modifications to Federal, Department of Defense, Navy, or NAVSEA requirements (whether in actual content or interpretation of same) are received which would affect the content of any OSHE Control Manual (OSHECM) Chapter.

b. Specify NAVSEA or other Federal technical manuals, instructions, etc., with which revisions are in compliance.

c. Review OSHECM Chapters annually for accuracy and develop any required revisions for review by the other shipyards.

2. Naval Shipyards shall:

a. For multi-employer worksites:

(1) Inform each contract employer about the content of the shipyard's LOTP Program and procedures.

(2) Instruct each contract employer to follow the shipyard's LOTP Program and procedures. See paragraphs 8 and 9 of this section for specific responsibilities.

(3) Ensure that the LOTC 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. All Shops and Codes shall:

a. Comply with the requirements of this chapter.

b. Designate in writing, train, and maintain a sufficient number of LOTCs.

c. Provide a list of LOTCs to the Code 106 LOTP Program Manager.

d. Train and maintain a sufficient number of AEs.

e. Train all AFEs.

f. Obtain concurrence from cognizant technical code(s), LOTC, or subject matter experts, when necessary, to ensure that ECP actions fully isolate the MES to be worked.

g. Provide HEC locks and HEC tags for their authorized employees.

h. Designate authorized employees to LOTCs.

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- i. Notify the Code 106 Program Manager of any LOTP violations and of any tags-plus systems being used.
- j. Ensure an annual review is performed by an AE other than the one(s) currently using the ECP being reviewed, or individuals other than an AE, who are knowledgeable about the employer's LOTP program and procedures and the MES being reviewed.
- k. Ensure that, within 15 days after completion of the review, the individual(s) who conducted the review prepare and deliver to the Code 106 LOTP Program Manager a written review report that includes, at least:
 - (1) The date of the review.
 - (2) The identity of the individual(s) who performed the review.
 - (3) The identity of the procedure and MES that were reviewed.
 - (4) The findings of the program review and recommendations for correcting deviations or deficiencies identified during the review.
 - (5) Any incident investigation reports since the previous review.
 - (6) Descriptions of corrective actions the shop/code has taken in response to the findings and recommendations of any incident investigation reports prepared since the previous review.
- l. Correct identified deviations or inadequacies in the LOTP Program within 15 days after receiving the written review report.
- m. Take necessary precautions to protect employees from the hazard and preserve incident sites.
- n. Ensure that incident investigations are conducted in accordance with references 250.3.I and 250.3.J.
- o. Ensure the findings of incident reports are provided to each employee, whose job tasks are relevant to the incident investigation findings, including contract employees, when applicable.
- p. Ensure incident investigations and written reports are completed as required by paragraph 250.4.P.
- q. DELETED.
- r. Provide a list of MES that are not capable of being locked out to Code 106. Update this list annually.

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4. DELETED.
5. Lockout/Tags-Plus Coordinator shall:
 - a. Administer the LOTP Program for his/her respective areas.
 - b. Ensure compliance with this chapter for LOTP of appropriate shop/code MES.
 - c. Maintain the LOTC Log and the LOTC Log Forms (See Appendix E).
 - d. Authorize and coordinate the installation and removal of group lockout and ALL tags-plus systems.
 - e. Coordinate LOTP on MES when multiple organizations/contractors are working on MES and when group LOTP is invoked.
 - f. For landside individual lockout systems, LOTP coordination is not required for multiple servicing if the isolation of a single hazardous energy source completely isolates the MES (or section of that MES) AND all individuals use their personal HEC lock, AND where one employee's action of changing the status of the LOTP system would NOT endanger another employee.
 - g. All multiple servicing performed on vessels and vessel sections requires LOTP coordination.
 - h. All multiple employer servicing requires LOTP coordination.
 - i. Obtain Department Head and Code 106 OSHE Director approval when tags-plus is used.
6. Authorized employees shall:
 - a. Install or remove a LOTP system in accordance with this chapter on a MES when performing service.
 - b. Take action to ensure hazardous energy is controlled.
 - c. Maintain HEC lock and key control.
7. Primary Authorized Employees shall:
 - a. Know the safe exposure status of each AE in the group with regard to the LOTP system.
 - b. Verify HEC of the MES.
8. Organizations that procure contract services shall:

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- a. Ensure that all contracts for work performed on projects under the code's jurisdiction, which involve isolating an energy source or exposing shipyard employees to hazards which can be controlled through effective LOTP procedures, require adherence to this chapter.
- b. Provide engineering support, as necessary, to identify proper LOTP actions, including development and concurrence with ECPs, to support maintenance or servicing of shipyard-owned equipment and facility systems.
- c. All HEC tags shall be issued to contractors by the hiring organization, as needed.
- d. Contractors and other non-shipyard government organizations shall:
 - (1) Follow the shipyard's LOTP Program and procedures.

NOTE

Navy Regions may utilize a NAVFAC approved HEC Program for equipment under Region cognizance.

- (2) Ensure that the shipyard knows about the LOTP hazards associated with the contract employer's work and what the contract employer is doing to address these hazards.
 - (3) Inform the shipyard of any previously unidentified LOTP hazards that the contract employer identifies at the multi-employer worksite.
9. Affected employees shall work safely in accordance with Tier 1 training requirements.

B. Reports, Reporting Requirements, and Records:

1. The following section specifies the records that shops/codes must retain and how long they must retain them:
 - a. Current LOTP Program and procedures, until replaced by updated program and procedures.
 - b. LOTC Log Form(s), in the LOTC Log, while they are active and until the next annual program review is completed.
 - c. Training records, until replaced by updated records for each type of training.
 - d. Incident investigation reports, until the next program review is completed.
 - e. Program review report, 12 months after being replaced by the next review report.

C. Training:

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1. Purpose and Elements of Training. Training is provided to employees to ensure that the purpose and function of the LOTP Program are understood.
2. Employees are to receive up to a three-tiered level of training, based on the employees' level of exposure to hazardous energy and their duties and responsibilities under the shipyard's LOTP Program.
3. Affected Employee (Tier One): First tier training shall consist of a broad overview of the program. All employees who are in a HEC worksite shall receive the first tier of training. It shall cover such topics as (but not limited to):
 - a. The purpose and function of the shipyard's LOTP Program and procedures.
 - b. The unique identity of the HEC locks and HEC tags that will be used, as well as the standardized shape, size, or color of these devices.
 - c. That tags-plus systems are comprised of an energy-isolating device with a HEC tag affixed, and an additional safety measure.
 - d. That LOTP applications are not to be tampered with or removed.
 - e. That MES are not to be restarted or reenergized while being serviced.
 - f. That only AEs, not employees working in or passing through the HEC work area, are authorized to activate MES that are under LOTP.
 - g. The affected employees need to know the essential components of the shipyard's LOTP Program and how they work so they know that MES are not to be operated while under a LOTP application. Affected employees also need to understand which activities are servicing operations, which of these servicing operations must be left to AEs, and which servicing operations they can perform.
 - h. Affected employees shall be trained to understand that they may not apply or remove LOTP systems, and that LOTP systems are not to be bypassed, ignored, or otherwise defeated.
 - i. Affected employees shall be retrained within every three years.
4. Authorized Employee (Tier Two): Tier Two training is additional training for AEs. In addition to being trained in the requirements in section 250.5.C.3, AEs shall be trained:
 - a. In the steps that are necessary for the safe application, use, and removal of LOTP systems. Since AEs apply and remove LOTP systems, it is crucial that they fully understand the procedures and steps they must follow to safely accomplish those tasks.

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- b. In the type of energy sources and the magnitude of the energy available in the workplace and to be able to successfully execute the necessary steps to prevent inadvertent energization, startup, or the release of hazardous energy.
- c. In the means and methods necessary for effective isolation and control of hazardous energy.
- d. To know that HEC tags must be written so as to be legible and understandable to all employees.
- e. To know that HEC tags must be made of materials which will withstand the environmental conditions encountered in the workplace. HEC tags must be constructed so that they do not deteriorate or become illegible in wet or damp environments, or when used in environments where corrosives are used or stored.
- f. To know that they must securely attach HEC tags to energy-isolating devices to prevent them from becoming detached during servicing.
- g. To know that HEC tags are warning devices and do not provide the same physical barrier against the energization, startup, or release of hazardous energy that HEC locks or additional safety measures provide, and because of this, HEC tags might evoke a false sense of security, and must be used in conjunction with energy-isolating devices.
- h. To know that HEC tags must be used in conjunction with energy-isolating devices to prevent energization, startup, or release of hazardous energy.
- i. Additionally AEs that might be designated by the shipyard as PAEs shall be trained to know the means for determining the exposure status of other employees in the group and how to determine whether, how, and to what extent employees in the servicing group are exposed to hazardous energy.
- j. Tier Two retraining. The shipyard shall retrain each employee, as applicable, whenever:
 - (1) There is a change in his/her job assignment that presents new hazards or requires a greater degree of knowledge about the shipyard's LOTP Program or procedures.
 - (2) There is a change in MES to be serviced that presents a new energy-control hazard.
 - (3) There is a change in the shipyard's LOTP Program or procedures.
 - (4) It is necessary to maintain the employee's proficiency.
- k. The shipyard also shall retrain each employee, as applicable, whenever an incident investigation or program review indicates that there are:
 - (1) Deviations from, or deficiencies in, the shipyard's LOTP Program or procedures.

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(2) Inadequacies in an employee's knowledge or use of the LOTP Program or procedures.

l. The shipyard shall ensure that retraining establishes the required employee knowledge and proficiency in the shipyard's LOTP Program and procedures and in any new or revised energy-control procedures.

m. Authorized employees shall be retrained within every three years.

5. Lockout Tags-plus Coordinator (Tier Three): Tier three training is additional training for LOTCs and in addition to being trained in the requirements in section 250.5.C.3 through 250.5.C.4.

a. The LOTC must have a thorough working knowledge of the shipyard's LOTP Program and procedures, as well as the hazardous energy sources.

b. The LOTC shall have a full understanding of the MES that employees are servicing, including the energy-isolating devices and additional safety measures that will need LOTP applications.

c. Tier Three Retraining. The shipyard shall retrain each employee, as applicable, whenever:

(1) There is a change in his/her job assignment that presents new hazards or requires a greater degree of knowledge about the shipyard's LOTP Program or procedures.

(2) There is a change in MES to be serviced that presents a new energy-control hazard.

(3) There is a change in the shipyard's LOTP Program or procedures.

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

(5) LOTCs shall be retrained within every three years.

d. The shipyard also shall retrain each employee, as applicable, whenever an incident investigation or program review indicates that there are:

(1) Deviations from, or deficiencies in, the shipyard's LOTP Program or procedures.

(2) Inadequacies in an employee's knowledge or use of the LOTP Program or procedures.

Table of Acronyms

AE	Authorized Employee
AFE	Affected Employee
CFR	Code of Federal Regulation
ECP	Energy Control Procedure
HEC	Hazardous Energy Control
IPI	Industrial Process Instruction
JHA	Job Hazards Analysis (or Analyses)
LOTP	Lockout/Tags-Plus
LOTC	Lockout/Tags-Plus Coordinator
MES	Machinery, Equipment, and Systems
NAVFAC	Naval Facilities Engineering Command
NAVSEA	Naval Sea Systems Command
OSHA	Occupational Safety & Health Administration
OSHE	Occupational Safety, Health and Environment
OSHECM	OSHE Control Manual
PAE	Primary Authorized Employee
SOP	Standard Operating Procedure
TGI	Task Group Instruction
TUM	Tag-Out Users Manual
TWD	Technical Work Document
UIPI	Uniform Industrial Process Instruction

Hazardous Energy Control Decision Matrix

Hazardous Energy Control Decision Matrix	Single Source (No stored energy)	Multiple Energy Sources	Single Employee	Multiple Employees	Multiple Servicing Landside	Multiple Servicing on a Vessel	Multiple Employer Work	ECP Required?	LOTP Coordinator Required?	Example	
	X		X					N - Single Source	NO		AE isolating single hazardous energy source on machine, equipment, or system.
	X			X				N - Single Source	NO		Two or more electricians each hang their own lock using multi-hasps on the same disconnect switch to work on the same machine, equipment, or system.
	X			X	X			N - Single Source	NO		Pipefitters working in separate parts of building to repair damaged pipe lines each hang their personal lock on different valves to isolate hazardous energy for the specific line they are working on. NOTE: Changing the status of either isolation point will not affect the other HEC isolation status.
	X			X		X		N - Single Source	YES		Pipefitters working in separate vessel compartments to repair damaged pipe lines each hang their own personal lock different valves to isolate hazardous energy for the specific line they are working on. NOTE: Multiple servicing on Vessels always requires Coordination. The term, vessel, in this example refers to a vessel not covered by the Tag-out Users Manual.
	X			X			X	N - Single Source	YES		Pipefitter(s) and contractor(s) each apply own their own personal lock(s) on same valve for isolation to work on damaged pipe line. NOTE: Coordination always required for Multiple Employer work.
		X	X					Y - Multi Source	NO		One AE uses ECP to identify all hazardous energy sources and hangs a personal lock on each energy source to provide isolation.
		X		X				Y - Multi Source	NO		Two or more AEs use an ECP to identify all hazardous energy sources and hang their own personal locks using multi-hasps on each energy isolation device to work on the same machine, equipment, or system.
		X		X	X			Y - Multi Source	YES		Pipefitters use ECPs to determine isolation points and each hang their own personal locks on multiple valves for isolation of damaged pipe lines. Pipefitters are working on separate pipe lines while servicing different equipment in separate locations in a building. NOTE: Changing the status of any isolation point will not affect another HEC isolation point's status.
		X		X		X		Y - Multi Source	YES		Pipefitters use ECPs to determine isolation points and one hangs their own personal locks on multiple valves for isolation of damaged pipe lines. Pipefitters are working in separate vessel compartments to repair the damaged pipe lines. NOTE: Multiple servicing on Vessels always requires Coordination.
	X		X			X	Y - Multi Source	YES	Shipyards worker(s) and contractor(s) use ECPs to determine isolation points and each person hangs their own personal locks on multi-hasps located on each energy isolation device. NOTE: Coordination always required for Multiple Employer work.		

APPLYING INDIVIDUAL LOCKOUT PER 250.4, SECTION H
 EACH AE HANGS PERSONAL LOCKOUT SYSTEM AT ALL ISOLATION POINTS
 (PAE NOT USED FOR INDIVIDUAL LOCKOUT)

Hazardous Energy Control Decision Matrix

Hazardous Energy Control Decision Matrix	Single Source (No stored energy)	ECP Required?	Primary AE Required?	LOTP Coordinator Required?	Example
	Multiple Energy Sources				
	X	N - Single Source	YES	YES	
	X	Y - Multi Source	YES	YES	PAE locks all HEC isolation points as specified in the ECP. PAE maintains exposure status of other AEs on the PAE log.

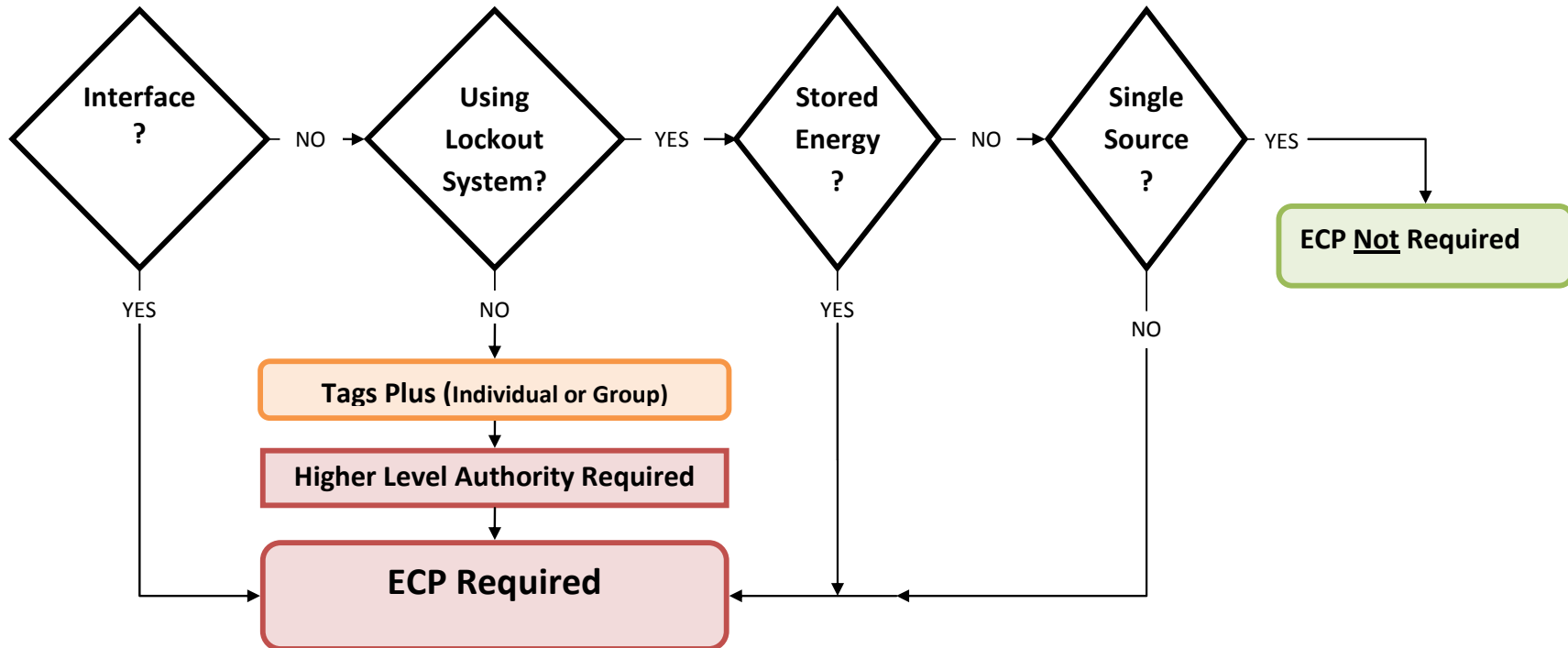
APPLYING GROUP LOCKOUT PER 250.4, SECTION J
 PAE HANGS LOCKOUT SYSTEM AT ALL ISOLATION POINTS
 PAE MAINTAINS SAFE EXPOSURE STATUS OF ALL AEs

Hazardous Energy Control Decision Matrix

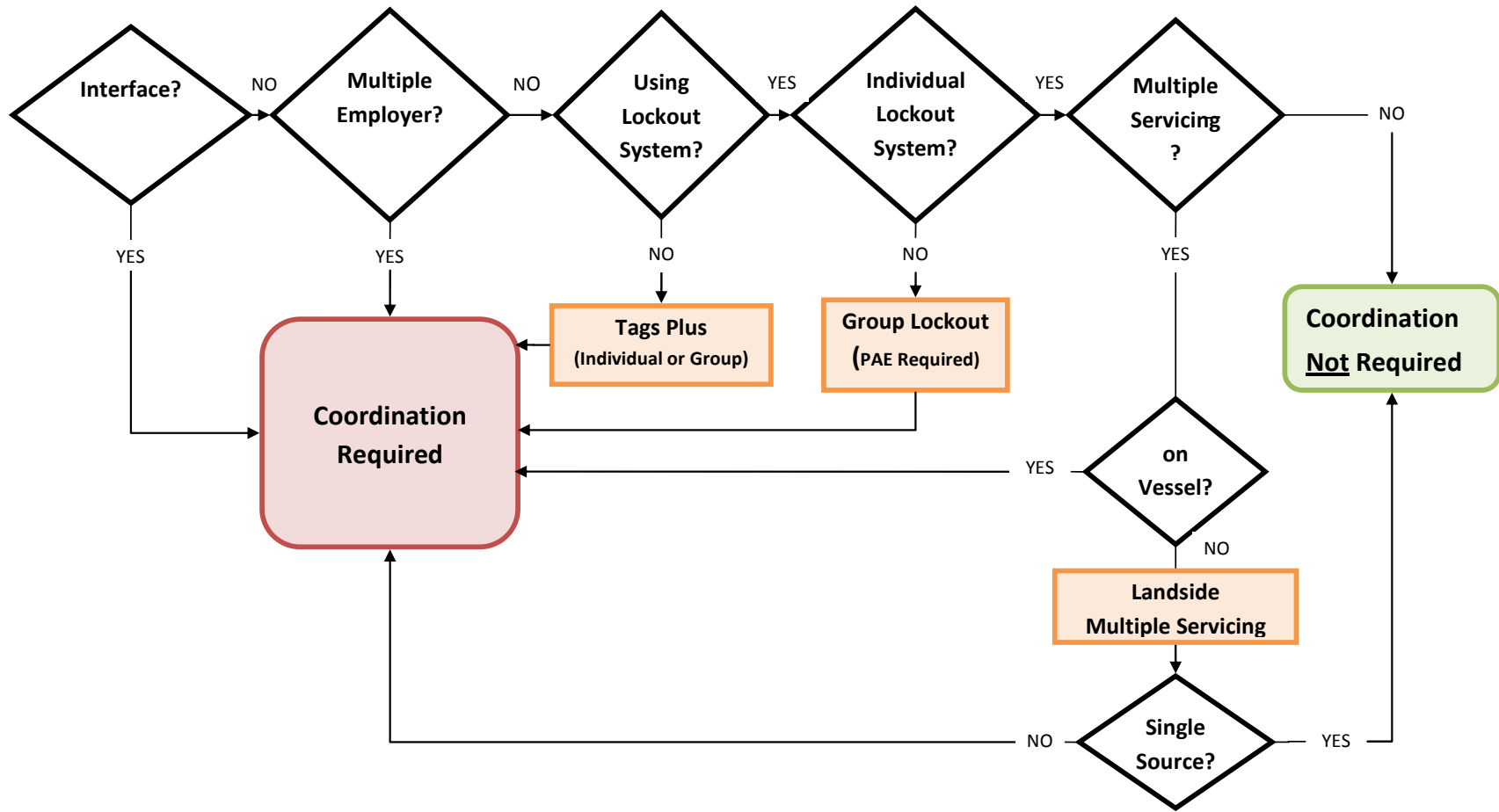
Hazardous Energy Control Decision Matrix	Individual TAGS PLUS per Section I	Group TAGS-PLUS per Section K	ECP Required?	Primary AE Required?	LOTP Coordinator Required?	Example	
	X		Y-Tags-Plus	NO - no Group	YES		Each AE hangs HEC tag(s) on all hazardous energy isolation points as identified in the ECP and each AE takes an additional safety measure(s) to provide protection equivalent to that of a HEC tagged isolation point. The additional safety measure will be specified on the ECP. AE exposure status is maintained by each person's HEC tag.
		X	Y-Tags-Plus	YES-Group	YES		PAE hangs a HEC tag(s) on all identified hazardous energy isolation points and takes an additional safety measure(s) to provide protection equivalent to a HEC tagged isolation point. The additional safety measure(s) will be specified on the ECP. PAE maintains the exposure status of other AEs on the PAE log.

APPLYING TAGS PLUS PER 250.4, SECTION I (Individual Tags-Plus) or 250.4, SECTION K (Group Tags-Plus)
 TAGS PLUS SYSTEM USED AT ANY ISOLATION POINT
 SHOP/CODE/DEPT. HEAD and C106 OSHE DIRECTOR APPROVAL REQUIRED FOR TAGS-PLUS APPLICATION

Hazardous Energy Control Decision Flowchart for Energy Control Procedures



Hazardous Energy Control Decision Flowchart for Lockout/Tags-Plus (LOTP) Coordination



Hazardous Energy Control Tag

FRONT

HAZARDOUS ENERGY CONTROL

TAG NUMBER _____

LOTP COORDINATOR NAME AND CONTACT NUMBER _____

MACHINE/EQUIPMENT/SYSTEM _____

ISOLATION POINT AND DATE TAG ATTACHED _____

POSITION/CONDITION OF COMPONENT TAGGED _____

CLEARLY PRINT NAME/BADGE OF AE HANGING TAG _____

SHOP/CONTACT NUMBER OF AE HANGING TAG _____

LOCATION AND MANNER OF ADDITIONAL SAFETY MEASURE _____

DO NOT OPERATE

BACK

HAZARDOUS ENERGY DO NOT OPERATE

OPERATION OF THIS TAGGED COMPONENT WILL ENDANGER PERSONNEL

HAZARDOUS ENERGY DO NOT OPERATE

Lockout/Tags-Plus Coordinator Log Form

LOTP Coordinator (LOTC)							Employee Applying		Employee Removing	
Log S/N	Type of Machinery, Equipment, or System	Location	Group	Tags-P	ECP #	LOTC Printed Name & Signature	Date Applied	AE Printed Name & Signature	Date Removed	AE Printed Name & Signature

Lockout/Tags-Plus Coordinator Log Form**Instructions:**

1. All entries made in the LOTC Log shall be legible.
2. Assign a unique serial number to the servicing activity(ies).
3. Identify the type of machinery, equipment or system to be serviced.
4. Identify the location of the servicing. Give the building, dry-dock or other location information and the area within that location such as floor, column number, wall or corner (e.g. northwest corner, south wall) to specifically identify the location.
5. If the servicing requires group lockout, check the "Group" column.
6. If the servicing requires tags-plus, check the "Tags-P" column.
7. Enter the number of the Energy Control Procedure used to provide the process steps for servicing the machinery, equipment, or system.
8. The Lockout/Tags-Plus Coordinator (LOTC) must print and sign their name on the log to indicate he or she understands the type of machinery, equipment or system to be serviced, its location, and the requirements of the Energy Control Procedure.
9. The Authorized Employee (AE) applying the Lockout/Tags-Plus system must enter his or her name and the date the system was applied to the machinery, equipment or system. By printing and signing their name on this block, the AE indicates he or she understands the type of machinery, equipment or system to be serviced, its location, and the requirements of the Energy Control Procedure.
10. When the Authorized Employee removes his or her Lockout/Tags-Plus system from the machinery, equipment or system, he or she must print and sign their name and the date it was removed.
11. Steps to follow for shift or personnel changes for Individual Tags-Plus applications:
 - a. The departing AE writes current date in LOTC Log "Employee Removing" Date column.
 - b. The departing AE writes "Transferred to (NAME OF ON-COMING AE)" in the "Employee Removing" Name column.
 - c. The LOTC re-writes the Tags-Plus System information in the LOTC Log, as if it were a new entry, but using the same LOTC Log serial number.
 - d. The on-coming AE writes the date and his or her name in the "Employee Applying" columns.
12. Steps to follow for shift or personnel changes for Group Tags-Plus applications:
 - a. The departing PAE writes current date in LOTC Log "Employee Removing" Date column.
 - b. The departing PAE writes "Transferred to (NAME OF ON-COMING PAE)" in the "Employee Removing" Name column.
 - c. The LOTC re-writes the Tags-Plus System information in the LOTC Log, as if it were a new entry, but using the same LOTC Log serial number.
 - d. The on-coming PAE writes the date and his or her name in the "Employee Applying" columns.
13. The LOTC Log Form(s) must be retained in the LOTC Log while the Form(s) is active and until the next annual program review is completed.

ENERGY CONTROL PROCEDURE (ECP) # _____			
SHOP/CODE:		APPLICABLE WORK DOCUMENT #	
THE ENERGY CONTROL PROCEDURE (ECP) ESTABLISHES THE REQUIREMENTS FOR ENERGY CONTROL DURING THE MAINTENANCE IDENTIFIED BELOW. AUTHORIZED EMPLOYEES SHALL FOLLOW THE REQUIREMENTS OF THIS PROCEDURE AND IAW OSHE MANUAL 250.			
A. MACHINERY/EQUIPMENT/COMPONENT TO BE SERVICED OR REPAIRED:			
B. LOCATION OF MACHINERY/EQUIPMENT/COMPONENT:			
C. SERVICE, MAINTENANCE, OR WORK TO BE PERFORMED:			
ENSURE ALL AFFECTED EMPLOYEES IN THE WORK AREA HAVE BEEN BRIEFED			
D. HAZARDOUS ENERGY SOURCES: <i>(Line numbers below correspond to all subsequent block lines (E1, F1,G1, H1))</i>			
TYPE <i>(Electric, heat, hydraulic, gas, steam, gravity)</i>	MAGNITUDE <i>(Volts, pressure, temperature, weight)</i>	ON-SITE ASSISTANT NAME	APPLIES TO BLOCK C
1.			YES / NO
2.			YES / NO
3.			YES / NO
4.			YES / NO
E. LIST STEPS TO SHUT DOWN EQUIPMENT OR SYSTEMS:			
1.			
2.			
3.			
4.			
F. LOTP TO BE INSTALLED:			
COMPONENT	POSITION	LOCKED	
1.		YES / NO	
2.		YES / NO	
3.		YES / NO	
4.		YES / NO	
G. ADDITIONAL SAFETY MEASURES APPLIED:			
1.			
2.			
3.			
4.			
H. SPECIFY HOW HAZARDOUS ENERGY SOURCES WERE REMOVED OR CONTROLLED: <i>(Specify tests and methods used to verify)</i>			
1.			
2.			
3.			
4.			
I. ADDITIONAL REMARKS:			

J. AUTHORIZATION BLOCK:			
REQUIRED <input type="checkbox"/> YES <input type="checkbox"/> NO	BADGE #	DATE	SHOP/CODE
TECHNICAL GUIDANCE SIGNATURE			
AUTHORIZING SIGNATURE	BADGE #.	DATE	SHOP/CODE
DEPARTMENT HEAD	BADGE #	DATE	SHOP/CODE
CODE 106 OSHE DIRECTOR	BADGE #	DATE	

ENERGY CONTROL PROCEDURE INSTRUCTIONS: NOTE: Shop/Code can develop ECPs as long as they contain the attributes of A-J above

OVERVIEW OF ECP BLOCKS:

BLOCK NO.	BLOCK NAME	OVERVIEW – The PAE Log is only used for Group Tags-Plus applications. See basic text for process explanation.
Top	ECP #	Number of the Energy Control Procedure used to provide the process steps for servicing the machinery, equipment, or system.
	SHOP/CODE	Shop or Code using ECP
	DOCUMENT #	Working document #. N/A if none used
A	EQUIPMENT TO BE SERVICED OR REPAIRED	Preparer describes machinery, equipment, or system component using wording similar to that used in technical/manufacture manuals.
B	LOCATION OF EQUIPMENT	Specify location of machinery, equipment, or system
C	SERVICE PERFORMED	Work to be performed and completed to clear lockout/tag-plus (LOTP)
D	HAZARDOUS ENERGY SOURCES	Type, Magnitude, of source of energy and list name of Technical assistant, if used
E	STEPS TO SHUT DOWN EQUIPMENT	Specific steps to secure equipment
F	LOCKOUTS TAGS PLUS TO BE INSTALLED	Component locked out, what position, is it locked
G	ADDITIONAL SAFETY MEASURES TAKEN FOR TAGS PLUS	What extra isolation is used when lockout can not be applied
H	SPECIFY HOW HAZARDOUS ENERGY SOURCES REMOVED OR CONTROLLED	Methods of verifying isolation
I	ADDITIONAL REMARKS	Any additional remarks
J	AUTHORIZATION	Authorizing Official, Technical code if required, Authorizing official "Tags-Plus application requires Department Head and Code 106 OSHE Director approval, "N/A" blocks if Tags-Plus is not used. If technical help is required yes block must be checked and a signature is required.
K	RECORD RETENTION	The Energy Control Procedures must be retained until replaced by updated procedures.

PAE Log Instructions:

1. The PAE Log is only used for Group Tags-Plus applications.
2. Prior to starting work, the Primary Authorized Employee (PAE) will discuss with all Authorized Employees (AEs) who will be working under their LOTP controls that he/she is responsible for the safe exposure status of all AEs on that job. The PAE will also discuss the sign-in/sign-out requirements with each AE prior to that AE starting work and will emphasize that it is never acceptable for someone to initial in or out for another employee.
3. The PAE shall print & sign their name and write in the Log serial number for the job being worked. For decommissioned ships utilizing reference (c), Appendix C instructions, the PAE shall be the organization (e.g., NNSY Code 246) and the Log Serial Number shall be the TWD (e.g., 38ABC12345 A01).
4. A separate PAE Log will be generated for each job that has a unique Log Serial Number assigned. If additional sign-in/sign-out lines are required, another PAE Log can be used but it must be identified to the unique Log Serial Number assigned and it shall be numbered consecutively, e.g., sheet 1 of 3, sheet 2 of 3, sheet 3 of 3, and all copies will be kept together on file.
5. Provide the ECP number.
6. Authorized Employees servicing the machinery, equipment or system under the PAE's control shall print and sign their name in the first column. By signing this block, AEs acknowledge they understand their responsibility to sign-in and sign-out IAW Chapter 250 requirements and to report any identified problems to the PAE.
7. The Authorized Employee's badge identification number goes in column 2.
8. Enter the date the Authorized Employee is working on the machinery, equipment or system under the PAE's control.
9. The Authorized Employee identified in the first column will enter the time that he or she began work and initial the entry.
10. Upon completion of the servicing or the shift, the Authorized Employee identified in the first column will enter the time that he or she ended the servicing or the shift and initial the entry.
11. The PAE Log may be disposed of once all AEs that have logged in have logged out.