



OSHA INSTRUCTION

U.S. DEPARTMENT OF LABOR

Occupational Safety and Health Administration

DIRECTIVE NUMBER: CPL 02-00-156 **EFFECTIVE DATE: 02/06/2014**
SUBJECT: Shipyard Employment "Tool Bag" Directive

ABSTRACT

Purpose: To provide OSHA offices, interested industry representatives, State Plan programs and federal agencies with guidance concerning the application of occupational safety and health standards in shipyard employment. Also, this instruction provides current information and ensures the consistent enforcement of OSHA's shipyard employment standards (29 CFR Part 1915).

Scope: OSHA-wide.

References: See paragraph V.

Cancellations: CPL 02-00-142, *Shipyard Employment "Tool Bag" Directive*, August 3, 2006. (Superseded by this directive)
STD 03-10-001, *General Industry and Maritime Industry Standards as Related to Construction Standard, 1926.451(a)(10)*, August 14, 1979. (Cancelled)
CSP 01-03-001, *Maritime Jurisdiction in State Plan States*, October 30, 1978. (Cancelled)

State Impact: Notice of Intent and Equivalency Required.

Action Offices: National, Regional, Area, and State Plan Offices.

Originating Office: Directorate of Enforcement Programs.

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By and Under the Authority of

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Assistant Secretary

Executive Summary

This instruction provides guidance to the Occupational Safety and Health Administration (OSHA) national, regional, and area offices; employers and employees; State Plan programs; and federal agencies concerning OSHA's policy and procedures for implementing intervention and inspection programs to reduce or eliminate workplace hazards related to shipyard employment. OSHA is committed to conducting focused interventions in the shipyard industry (29 CFR Part 1915) to reduce workplace injuries, illnesses and fatalities.

This instruction provides information and enforcement guidance to support OSHA's inspection efforts in shipyard employment and:

- Provides OSHA compliance officers and consultants, and other interested government and industry parties, with information to support shipyard employment intervention efforts and to minimize employee exposure to hazards.
- Supports the National Emphasis Program (NEP) on Shipbreaking, and the Site-Specific Targeting (SST) program for the shipbuilding and ship repairing industries.
- Provides new guidance regarding 29 CFR Part 1915, Subpart F – *General Working Conditions in Shipyard Employment*.
- Supports the reduction of occupational exposure to hazards through direct intervention; the promotion of a safety and health culture through compliance assistance, cooperative programs, and strong leadership; and maximizes OSHA's effectiveness and efficiency by strengthening its capabilities and infrastructure.

Significant Changes

This instruction has been revised and updated to include the following significant changes:

- Updates references and directives to include new documents and the current versions of documents previously listed.
- Updates guidance regarding the applicability of 29 CFR Part 1910, general industry standards, to shipyard employment worksites (Appendix A).
- Updates answers to commonly asked shipyard employment questions and incorporates recently issued interpretations and final regulations (Appendix B).
- Provides guidance regarding 29 CFR 1915.89 – *Control of hazardous energy (lockout/tags-plus)*, including answers to common questions (Appendix D).
- Provides guidance regarding 29 CFR Part 1915, Subpart F – *General Working Conditions in Shipyard Employment*, including answers to common questions (Appendix E).
- Updates and adds electronic links to enhance web-based usability.

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- I. Purpose. This instruction provides guidance to the Occupational Safety and Health Administration (OSHA) national, regional, and area offices; employers and employees; State Plan programs; and federal agencies concerning OSHA's policies and procedures for implementing intervention and inspection programs to reduce or eliminate workplace hazards in shipyard employment (i.e., ship repair, shipbuilding, and shipbreaking). Further, this instruction provides current information and ensures the consistent enforcement of OSHA's shipyard employment standards (29 CFR Part 1915).
- II. Scope. This instruction applies OSHA-wide.
- III. Cancellation. This instruction cancels or supersedes the following:
- A. CPL 02-00-142, *Shipyard Employment "Tool Bag" Directive*, August 3, 2006. (Superseded by this directive)
 - B. STD 03-10-001, *General Industry and Maritime Industry Standards as Related to Construction Standard, 1926.451(a)(10)*, August 14, 1979. (Cancelled)
 - C. CSP 01-03-001, *Maritime Jurisdiction in State Plan States*, October 30, 1978. (Cancelled)
- IV. Significant Changes. This instruction has been revised and updated to include significant changes as follows:
- Updates references and directives to include new documents and the current versions of documents previously listed.
 - Updates guidance regarding the applicability of 29 CFR Part 1910, general industry standards, to shipyard employment worksites (Appendix A).
 - Updates answers to commonly asked shipyard employment questions and incorporates recently issued interpretations and final regulations (Appendix B).
 - Provides guidance regarding 29 CFR 1915.89 – *Control of hazardous energy (lockout/tags-plus)*, including answers to common questions (Appendix D).
 - Provides guidance regarding 29 CFR Part 1915, Subpart F – *General Working Conditions in Shipyard Employment*, including answers to common questions (Appendix E).
 - Updates and adds electronic links to enhance web-based usability.
- V. References.
- A. Standards.
1. [29 CFR Part 1903](#), Inspections, Citations and Proposed Penalties.
 2. [29 CFR Part 1904](#), Recordkeeping and Reporting Occupational Injuries and Illnesses.
 3. [29 CFR Part 1910](#), General Industry Standards.
 4. [29 CFR Part 1915](#), Shipyard Employment Standards.
 5. [29 CFR Part 1919](#), Gear Certification Standards.
 6. [29 CFR Part 1926](#), Construction Standards.
 7. [29 CFR Part 1960](#), Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters.
 8. [47 F.R. 16984-17013](#), Occupational Safety and Health Standards for Shipyard Employment; Final Rule, April 20, 1982.
 9. [67 F.R. 44533-44546](#), Occupational Safety and Health Standards for Shipyard Employment; Final Rule, July 3, 2002.
 10. [69 F.R. 55667-55708](#), Fire Protection for Shipyard Employment; Final Rule, September 15, 2004.
 11. [71 F.R. 60843-60847](#), Updating National Consensus Standards in OSHA's Standard for Fire Protection in Shipyard Employment; Final Rule, October 17, 2006.

12. [76 F.R. 24575-24711](#), General Working Conditions in Shipyard Employment; Final Rule, May 2, 2011.
 13. [76 F.R. 33590-33612](#), Standards Improvement Project-III (SIP-III); Final Rule, June 8, 2011.
 14. [76 F.R. 44265](#), General Working Conditions in Shipyard Employment; Correction, July 25, 2011.
 15. Occupational Safety and Health Act of 1970 ([29 U.S.C. 654\(a\)\(1-2\)](#)).
- B. OSHA Directives.
1. [CPL 02-00-025](#), Scheduling Systems for Programmed Inspections, January 4, 1995.
 2. [CPL 02-00-051](#), Enforcement Exemptions and Limitations Under the Appropriations Act, May 28, 1998.
 3. [CPL 02-00-124](#), Multi-Employer Citation Policy, December 10, 1999.
 4. [CPL 02-00-135](#), Recordkeeping Policies and Procedures Manual, December 30, 2004.
 5. [CPL 02-00-149](#), Severe Violator Enforcement Program (SVEP), June 18, 2010.
 6. [CPL 02-00-150](#), OSHA Field Operations Manual (FOM), April 22, 2011.
 7. [CPL 02-00-151](#), 29 CFR Part 1910, Subpart T – Commercial Diving Operations, June 13, 2011.
 8. [CPL 02-01-028](#), Compliance Assistance for the Powered Industrial Truck Operators Training Standards, November 30, 2000.
 9. [CPL 02-01-055](#), Maritime Cargo Gear Standards and 29 CFR 1919 Certification, September 30, 2013.
 10. [CPL 02-01-047](#), OSHA Authority Over Vessels and Facilities on or Adjacent to U.S. Navigable Waters and the Outer Continental Shelf (OCS), February 22, 2010.
 11. [CPL 02-01-049](#), 29 CFR Part 1915, Subpart I, Enforcement Guidance for Personal Protective Equipment (PPE) in Shipyard Employment, November 4, 2010.
 12. [CPL 02-01-051](#), 29 CFR Part 1915, Subpart B, Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment, May 20, 2011.
 13. [CPL 02-02-063](#), Inspection Procedures for Occupational Exposure to Asbestos Final Rule, 29 CFR Parts 1910.1001, 1926.1101, and 1915.1001, November 3, 1995.
 14. [CPL 02-02-074](#), Inspection Procedures for the Chromium (VI) Standards, January 24, 2008.
 15. [CPL 02-02-076](#), National Emphasis Program – Hexavalent Chromium, February 23, 2010.
 16. [CPL 03-00-007](#), National Emphasis Program – Crystalline Silica, January 24, 2008.
 17. [CPL 03-00-008](#), Combustible Dust National Emphasis Program (Reissued), March 11, 2008.
 18. [CPL 03-00-009](#), National Emphasis Program – Lead, August 14, 2008.
 19. [CPL 03-00-012](#), OSHA’s National Emphasis Program (NEP) on Shipbreaking, November 4, 2010.
 20. [CPL 04-00-001](#), Procedures for Approval of Local Emphasis Programs (LEPs), November 10, 1999.
 21. [CPL 13-01 \(CPL 02\)](#), Site-Specific Targeting 2012 (SST-12), January 4, 2013.
 22. [CSP 03-01-003](#), Voluntary Protection Programs (VPP): Policies and Procedures Manual, April 18, 2008.

23. [CSP 03-02-002](#), OSHA Strategic Partnership Program for Worker Safety and Health, December 9, 2004.
24. [CSP 02-00-002](#), Consultation Policies and Procedures Manual, January 18, 2008.

C. Other references.

OSHA has developed numerous products, both electronic and paper copy, to assist national, regional, and area offices; employers and employees; State Plan programs; and federal agencies to reduce or eliminate workplace hazards in shipyard employment (i.e., ship repair, shipbuilding, and shipbreaking). Electronic products include websites, eTools, and videos. Traditional products including guidance documents, fact sheets, flyers, etc., are available electronically, as well as in hard copy. [Section XIII. Outreach Products](#) of this instruction has more detailed information regarding these products, including hyperlinks where appropriate.

VI. Expiration Date. This instruction will remain in effect until canceled or superseded by another instruction or notice.

VII. Federal Program Change – Notice of Intent and Equivalency Required. This instruction describes a federal program change which provides guidance concerning OSHA’s policy and procedures on the enforcement of shipyard employment. States with OSHA-approved State Plans that cover private-sector maritime employment (i.e., activities addressed in 29 CFR Part 1915 – Shipyard Employment and 29 CFR Part 1917 – Marine Terminals), as well as those with public-sector employees engaged in these activities, are expected to have enforcement policies and procedures in place for their maritime operations which are at least as effective as those in this instruction. All States with OSHA-approved State Plans cover State and local government employees, including any public-sector employees that may be engaged in maritime activities; only [California](#), [Minnesota](#), [Vermont](#) and [Washington](#) cover private-sector shore-side operations for shipyard employment (See [29 CFR 1952](#), *Approved State Plans for Enforcement of State Standards*).

States with private- or public-sector maritime employees within their jurisdiction are required to notify OSHA within 60 days whether they intend to adopt policies and procedures identical to those in this instruction or adopt or maintain different policies and procedures. States without any private- or public-sector maritime employment should so indicate in their response.

If a State adopts or maintains policies and procedures that differ from federal policies and procedures, the State must identify the differences and may either post its policy on its website and provide the link to OSHA or submit an electronic copy to OSHA with information on how the public may obtain a copy. If the State adopts policies and procedures that are identical to federal policies and procedures, the State must provide the date of adoption to OSHA. State adoption must be accomplished within 6 months, with posting or submission of documentation within 60 days of adoption. OSHA will provide summary information on the State responses to this instruction on its website at: www.osha.gov/dcsp/osp/index.html.

VIII. Action Information.

A. Responsible Office. Directorate of Enforcement Programs (DEP), Office of Maritime Enforcement (OME).

B. Action Offices. OSHA Regional Administrators, Area Directors, State Plan Designees, and National Office Directors must ensure that the policies and procedures set forth in this instruction are followed.

Regional Administrators also must ensure that Consultation Program Managers in their regions are informed of the requirements of this instruction and encourage the involvement of On-site Consultation Projects in shipyard employment activities.

- IX. Federal Agencies. This instruction describes a change that may affect federal agencies. It is the responsibility of the head of each federal agency to establish and maintain an effective and comprehensive safety and health program. [Executive Order 12196](#), Section 1-201, and [29 CFR 1960.16](#), requires federal agencies to adopt policies and procedures necessary to provide a level of protection equivalent to that provided by OSHA standards and regulations.
- X. Definitions. ([29 CFR 1915.4](#), [1915.11](#), [1915.80](#), [1915.151](#), and [1915.509](#))
- A. Data Initiative (Data Survey): The Data Initiative is a nationwide collection of establishment-specific injury and illness data from approximately 80,000 employers. The Data Initiative is compiled using OSHA's Annual Survey Form referenced in [29 CFR 1904.41](#).
- B. Days Away, Restricted, or Transferred (DART) Rate: This includes cases involving days away from work, restricted work activity, and transfers to another job. The DART rate is calculated based on $(N/EH) \times (200,000)$ where N is the number of cases involving days away and/or job transfer or restriction, EH is the total number of hours worked by all employees during the calendar year, and 200,000 is the base for 100 full-time equivalent employees (2,000 hours per employee x 100 employees). The DART rate replaced the Lost Workday Injury and Illness (LWDII) rate as of January 1, 2002.
- C. Shipyard-Related Employment: Any employment performed as an incident to or in conjunction with ship repairing, shipbuilding or shipbreaking work, including but not restricted to, inspection, testing, and employment as a watchman.
- D. Ship Repair (ship repairing): Any repair of a vessel including, but not restricted to, alterations, conversions, installations, cleaning, painting, and maintenance work.
- E. Shipbreaking: Any breaking down of a vessel's structure for the purpose of scrapping the vessel, including the removal of gear, equipment or any component of the vessel. This term is commonly referred to as "ship scrapping" or "ship disposal."
- F. Shipbuilding: The construction of a vessel including the installation of machinery and equipment.
- G. Shipyard Employment: This includes ship repairing, shipbuilding, shipbreaking and related employments.
- H. Vessel: Every description of watercraft or other artificial contrivance used, or capable of being used, as a means of transportation on water, including special purpose floating structures not primarily designed for or used as a means of transportation on water.
- XI. Application. This instruction applies OSHA-wide to all interventions, inspections, and violation abatement assistance in shipyard employment. This instruction also applies to OSHA outreach efforts that include compliance assistance, cooperative programs, training, and education.

Further, this instruction applies to all On-site Consultation Projects. Regardless of whether the worksite is under federal or State jurisdiction, 21(d) and 23(g) funded State Consultation Projects are required to prioritize and schedule On-site Consultation Services to private-sector employers. On-site Consultation personnel are expected to provide safety and health program assistance, training, education, hazard identification and abatement assistance to employers upon their request for assistance in States where Federal OSHA has jurisdiction over shipyard employment.

When a new OSHA general industry standard (29 CFR Part 1910) that applies to shipyard employment is promulgated after the effective date of this "Tool Bag" directive, that standard may be applied in applicable maritime environments even though the standard is not listed in Appendix A of this instruction.

XII. Background. The current shipyard employment standards (29 CFR Part 1915) were consolidated on April 20, 1982, to eliminate duplication of regulations contained in 29 CFR Parts 1915 (Ship Repairing), 1916 (Shipbuilding), and 1917 (Shipbreaking) (47 F.R. 16986).

Since that time, several final rules have been promulgated that have modified the shipyard employment standards. Some of the more significant rulemakings include changes to 29 CFR Part 1915, Subparts B, F, I, and P.

29 CFR Part 1915, Subpart B – Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment. This subpart began its regulatory review in 1988 with a notice of proposed rulemaking and concluded with a final rule published in 1994. The regulatory background is detailed in [CPL 02-01-051](#) with links to the proposed and final rules.

29 CFR Part 1915, Subpart F – General Working Conditions in Shipyard Employment. Beginning in 1988, the Shipyard Employment Standards Advisory Committee (SESAC) was established to provide technical expertise and guidance to OSHA with revisions to the shipyard employment standards. SESAC finalized its recommendations for revisions to 29 CFR Part 1915, Subpart F in 1993. Those revisions were submitted and approved by the Maritime Advisory Committee on Occupational Safety and Health (MACOSH) in 1995. OSHA published the proposed rule in December 2007, and held public hearings in September and October 2008, with the public comment period closing February 2009. The final rule, including the preamble discussion and the regulatory text, was published on May 2, 2011, in the Federal Register ([76 F.R. 24576](#)). The rule became effective and enforceable on August 1, 2011, except for the provisions in 29 CFR 1915.89 – *Lockout/tags-plus*, which became effective and enforceable on October 31, 2011. On June 29, 2011, the Shipbuilders Council of America (SCA) filed a petition for review with the U.S. Court of Appeals of the Fourth Circuit challenging the final rule. On July 27, 2011, the Court of Appeals directed SCA and OSHA to pursue a settlement agreement. In the interim, OSHA issued several temporary enforcement policies for specific provisions in [29 CFR 1915.82](#), [1915.89](#), and [1915.93](#). All requirements of the final rule are enforceable, including [29 CFR 1915.89\(k\)\(2\)\(ii\)](#), as of May 19, 2013.

29 CFR Part 1915, Subpart I – Personal Protective Equipment (PPE). This subpart began its regulatory review in 1988 with a notice of proposed rulemaking and concluded with a final rule published in 2009. The regulatory background is detailed in [CPL 02-01-049](#) with links to the proposed and final rules.

29 CFR Part 1915, Subpart P – Fire Protection in Shipyard Employment. Initially drafted by SESAC, this shipyard employment fire protection standard was presented to OSHA by MACOSH in 1995. In 1996, the Fire Protection in Shipyard Employment Negotiated Rulemaking Advisory Committee was formed. The committee presented their recommendations to OSHA in 2002. Based on those recommendations, the Agency published a proposed standard on December 11, 2002. The final rule was published on September 15, 2004 ([69 F.R. 55667](#)) and incorporated by reference 19 National Fire Protection Association (NFPA) standards. On October 17, 2006, a direct final rule was published to add and update the most recent versions of the NFPA standards ([71 F.R. 60843](#)).

XIII. Outreach Products. OSHA's website provides up-to-date assistance to employers and employees in all industries, including the maritime industry (i.e., shipyard employment, marine terminals, and longshoring). The website can be accessed at:

- Internet – Accessible to the general public at www.osha.gov.
- Intranet – Accessible to OSHA personnel only.

In addition to general industry and construction topics, specific maritime employment and related information can be found within the OSHA website at: <http://www.osha.gov/dts/maritime/index.html>.

- A. [OSHA Assistance for the Maritime Industry](#). These pages are part of OSHA’s commitment to provide maritime employers and employees with information and assistance for complying with OSHA standards to ensure safe and healthful workplaces. The OSHA website contains pages on the following:
1. [Maritime Standards and Policy Information](#). This page provides direct links to OSHA maritime standards and policy documents for obtaining information and guidance regarding these standards.
 2. [Maritime Topics](#). This page provides safety, health, and compliance information pertinent to a specific topic. This page also contains links to related agencies and organizations that also can provide information or assistance to maritime employers and employees.
 3. [Shipyard Hazard Information Prevention Sheets \(SHIPS\)](#). Shipyards often do not have the benefit of full-time, on-board safety and health specialists. To address this situation and help prevent injuries and illnesses, the shipyard community and OSHA have jointly developed Safety and Health Injury Prevention Sheets (SHIPS). SHIPS provide the end-user with specific guidance and “Do’s and Don’ts” with accompanying photographs for various shipyard processes. The following topics have been developed:
 - [Hotwork – Welding, Cutting and Brazing](#);
 - [Shipfitting](#); and
 - [Rigging](#).
 4. [Inspection Data](#). Inspection data is accessible through OSHA’s website. This link will take the user directly to the “Statistics and Data” page which allows the user to conduct searches by establishment, Standard Identification Classification (SIC) code, North American Industry Classification System (NAICS) code, OSHA inspection number, accident information, and frequently cited standards. The page also contains links to the Bureau of Labor Statistics (BLS) for injury and illness statistics. The NAICS code that corresponds to the shipyard employment industry is primarily 336611 (SIC 3731) (See the maritime chapter of the Field Operations Manual (FOM), [CPL 02-00-150](#), April 22, 2011, for other [NAICS](#) and SIC codes).
- B. [Publications](#). OSHA has developed numerous safety and health publications covering a variety of maritime topics.
1. [Maritime Safety and Health Topics: OSHA Publications](#). The publications on this page, selected from OSHA’s general publication list, provide information related specifically to shipyard employment.
 - [Abrasive Blasting Hazards in Shipyard Employment](#). OSHA Guidance Document (December 2006).
 - [Aerial Lift Fall Protection Over Water in Shipyards](#). OSHA QuickCard™,
 - OSHA Publication 3452 (September 2011) (English: [PDF](#))
 - OSHA Publication 3475 (February 2012) (Spanish: [PDF](#))
 - [Confined Space Safety on Commercial Fishing Vessels](#). OSHA Fact Sheet (June 2011).
 - [Deck Barge Safety](#). OSHA Publication 3358 (January 2009).
 - [Ergonomics for the Prevention of Musculoskeletal Disorders: Guidelines for Shipyards](#). OSHA Guidance Document, Publication 3341 (March 2008).
 - [Eye Protection against Radiant Energy during Welding and Cutting in Shipyard Employment](#). OSHA Fact Sheet,
 - OSHA Publication DSG FS-3499 (January 2012) (English: [PDF](#))
 - OSHA Publication DSG FS-3588 (December 2012) (Spanish: [PDF](#))

- [Fall Protection Safety for Commercial Fishing](#). OSHA Fact Sheet, DSG (June 2011).
 - [Fire Protection in Shipyard Employment](#). OSHA Slide Presentation (March 2005).
 - [Fire Watch Safety During Hot Work in Shipyards](#). OSHA QuickCard™, OSHA Publication 3494 (February 2012).
 - [General Working Conditions in Shipyard Employment Frequently Asked Questions \(FAQs\)](#). 29 CFR Part 1915, Subpart F FAQs (April 2011).
 - General Working Conditions in Shipyard Employment – OSHA Fact Sheets (May 2011).
 - [General Working Conditions in Shipyard Employment Final Rule;](#)
 - [Lockout/tags-plus Coordination;](#)
 - [Medical Services and First Aid;](#)
 - [Motor-Vehicle Safety Equipment, Operation and Maintenance;](#)
 - [Sanitation;](#) and
 - [Working Alone.](#)
 - [Hydrogen Sulfide \(H₂S\)](#). OSHA QuickCard™, Publication 3300 (October 2005).
 - [Safe Work Practices for Marine Hanging Staging](#). OSHA Guidance Document (April 2005), also available as a [PDF](#).
 - [Safe Work Practices for Shipbreaking](#). OSHA Publication 3375 (March 2010).
 - [Small Entity Compliance Guide for the Hexavalent Chromium Standards](#). OSHA Guidance Document, Publication 3320 (October 2006).
 - [Shipbreaking Fact Sheet](#). OSHA Fact Sheet (2001), also available in [Spanish](#) (2012).
 - [Shipyard Fire Protection Frequently Asked Questions \(FAQs\)](#). OSHA (March 2006); also available as a [PDF](#).
 - [Spud Barge Safety](#). OSHA Fact Sheet (January 2009).
 - [Shipyard Industry Standards](#), OSHA Publication Number 2268, Revised 2009 (also known as the “[Brown Book](#)”). A pocket-size booklet containing the shipyard employment standards (29 CFR Part 1915). It also addresses the importance of training in establishing and reinforcing employee awareness of job safety and health, the elements of an effective safety and health program, and OSHA’s on-site consultation program.
2. For other publications not specific to shipyard employment (i.e., general industry, construction, and marine cargo handling) or to order publications, refer to [OSHA’s publications page](#). Hard copies are also available, along with other publications by dialing (202) 693-1888; Text Telephone (TTY) number is (877) 889-5627.
 3. [Department of Labor 2011-2016 Strategic Plan](#) outlines DOL’s current strategic mission plan, goals, and objectives.
- C. [OSHA eTools and Electronic Products for Compliance Assistance](#). eTools are “stand-alone,” interactive, web-based training tools on occupational safety and health topics. They are highly illustrated and utilize graphic menus. Some also use expert system modules, which enable users to answer questions and receive reliable advice on how OSHA regulations apply to their worksite.
1. [Shipyard Employment eTools](#). The shipyard employment eTools address the entire group of 29 CFR Part 1915 regulations as they pertain to ship repair, shipbuilding and shipbreaking.

2. [Examining Fatal Shipyard Accidents: Hazards and Solutions \(Videos\)](#). In conjunction with the shipyard employment industry, OSHA developed 16 videos based on actual case files, depicting shipyard employment fatal accidents. Each video can be viewed separately on OSHA's website and contains accidents that have been recreated using computer-generated animation. Each scenario includes a review of the factors that contributed to the accident and how to avoid them. Information on and the availability of these videos can be obtained by contacting:

Directorate of Technical Support and Emergency Management
Office of Science and Technology Assessment
200 Constitution Ave., NW, Room N-3655
Washington, DC 20210
 3. [Training and Outreach](#). Significant portions of OSHA's resources are directed to training OSHA and industry personnel in safety, health, and compliance procedures. Links are provided to State On-site Consultation Projects that provide on-site assistance.
- D. [Office of Maritime Enforcement \(OME\)](#). This office provides support for the maritime industries (i.e., shipyard employment, marine terminals, and longshoring) including: comprehensive program guidelines, policies, procedures, technical assistance, and information dissemination. This involves, but is not limited to, the development of standards interpretations; management and administration of the 29 CFR Part 1919 maritime gear certification program; coordination of the activities of the Agency's Maritime Steering Committee; development and coordination of maritime enforcement programs; and technical maritime expertise in support of DOL's Office of the Solicitor. OME can be reached at (202) 693-2399, and the OME page on the OSHA website provides contact information and links to related OSHA compliance, outreach, and maritime sites.
- E. [Inspection Data](#). OSHA inspection data is accessible through OSHA's website. This link will take the user directly to the "Statistics and Data" page, which allows the user to conduct searches by establishment, Standard Identification Classification (SIC) code, North American Industry Classification System (NAICS) code, OSHA inspection number, accident information, and frequently cited standards. The page also contains links to the Bureau of Labor Statistics (BLS) for inspection data and statistics. The NAICS code that corresponds to the shipyard employment industry is primarily 336611 (SIC 3731) (See the maritime chapter of the Field Operations Manual (FOM), [CPL 02-00-150](#), April 22, 2011, for other [NAICS](#) and SIC codes).
- NOTE: A complete list of NAICS codes is available on the [U.S. Census Bureau](#) website.
- F. [On-site Consultation Program](#). OSHA's On-site Consultation Program offers free and confidential advice to small and medium-sized businesses in all States across the country, with priority given to high-hazard worksites. On-site Consultation Program services are separate from enforcement and do not result in penalties or citations. Consultants from State agencies or universities work with employers to identify workplace hazards, provide advice on compliance with OSHA standards, and assist in establishing safety and health management programs.
- G. [Cooperative Programs](#). OSHA offers the following cooperative programs under which businesses, labor groups, and other organizations can work cooperatively with the Agency to help prevent fatalities, injuries, and illnesses in the workplace:
1. [Alliance Program](#). Through the Alliance Program, OSHA works with groups committed to worker safety and health to prevent workplace fatalities, injuries, and illnesses. These groups include unions, consulates, trade or professional organizations, businesses, faith- and community-based organizations, and educational institutions. OSHA and the groups work together to develop compliance assistance tools and resources, share information

with workers and employers, and educate workers and employers about their rights and responsibilities. Alliance Program participants do not receive exemptions from OSHA programmed inspections. OSHA currently has an Alliance with the [Shipbuilding Group](#). The Alliance Program partners coordinate activities and events, have created numerous safety alerts, and provide outreach and communication for the shipyard industry. See the OSHA Alliance page for further information at: <http://www.osha.gov/dcsp/alliances/sbg/sbg.html>.

2. [OSHA Strategic Partnership Program \(OSPP\)](#). The OSPP provides the opportunity for OSHA to partner with employers, workers, professional or trade associations, labor organizations, and/or other interested stakeholders. OSHA Strategic Partnerships (OSP) are formalized through unique agreements designed to encourage, assist, and recognize partner efforts to eliminate serious hazards and achieve model workplace safety and health practices. Each OSHA Strategic Partnership establishes specific goals, strategies, and performance measures to improve worker safety and health. OSP models include those focused on improving safety and health in major corporations, government agencies, at large construction projects, and for entire industries. The OSPP is available to private-sector industries and government agencies in locations where OSHA has jurisdiction.
 3. [Voluntary Protection Programs \(VPP\)](#). The VPP recognizes employers and workers in private industry and federal agencies who have implemented effective safety and health management systems and maintain injury and illness rates below the national average for their respective industries. Through this program, management, labor, and OSHA work cooperatively and proactively to prevent fatalities, injuries, and illnesses through a system focused on: hazard prevention and control, worksite analysis, training, and management commitment and worker involvement. To participate, employers must submit an application to OSHA and undergo a rigorous on-site evaluation by a team of safety and health professionals. Union support is required for applicants represented by a bargaining unit. VPP participants are re-evaluated every three to five years to remain in the program. VPP participants are exempt from OSHA programmed inspections while they maintain their VPP status. (See [CSP 03-01-003](#), Voluntary Protection Programs (VPP): Policies and Procedures Manual, April 18, 2008.)
 4. [OSHA Challenge](#). OSHA Challenge provides interested employers and workers the opportunity to gain assistance in improving their safety and health management systems. Through this program, Challenge Administrators experienced in safety and health guide Challenge Participants through a three-stage process towards implementing an effective system for preventing fatalities, injuries, and illnesses. An on-line tool is provided which breaks down the actions, documentation, and results desired. Graduates of OSHA Challenge receive recognition from OSHA as they incrementally improve their safety and health management systems. OSHA Challenge is available to employers in the private- and public-sectors under OSHA's federal jurisdiction.
 5. [Safety and Health Achievement Recognition Program \(SHARP\)](#). Employers that have a full On-site Consultation visit and meet other requirements are recognized under SHARP for their exemplary safety and health management systems. Worksites that receive SHARP recognition are exempt from programmed inspections during the period that the SHARP certification is valid.
- H. [Shipyard Industry Resources External to OSHA](#). While OSHA considers the entities below to be valuable resources for information concerning safe and healthful workplace practices in the shipyard industry, employers accessing such information are not excused from obligations to comply with the *Occupational Safety and Health (OSH) Act* and standards promulgated

pursuant to the *OSH Act*. Applying the recommendations or practices offered by these entities does not necessarily constitute compliance with the *OSH Act* and OSHA standards. In addition, OSHA does not control the publication of information on the websites listed in this paragraph and cannot vouch for the accuracy, reliability, or timeliness of every piece of information contained in these websites.

1. [Maritime Advisory Committee for Occupational Safety and Health \(MACOSH\)](#). MACOSH is a discretionary committee established on February 8, 1995 and is authorized by Section 7(b) of the OSH Act to advise, consult with, and make recommendations to the Secretary of Labor through the Assistant Secretary for Occupational Safety and Health (Assistant Secretary) on matters relating to the maritime industry. MACOSH is comprised of 15 representative members appointed by the Secretary, that is diverse and balanced, both in terms of segments of the maritime industry represented (e.g., shipyard and longshoring industries), and in the views or interests represented by its 15 members (management, labor, safety and health professional organizations, government organizations and the public), one of whom the Secretary appoints to serve as committee chair. All MACOSH meetings are open to the Public and are announced in the Federal Register. The Committee's objective is to advise the Secretary and address the concerns of the entire maritime community on matters relevant to the safety and health of workers in the maritime industry, primarily focusing on the shipbuilding, shipbreaking, ship repair, and in the longshoring and marine terminal industries in the United States. The Assistant Secretary may seek the advice of the Committee on activities in the maritime industry related to the priorities set by the Agency, including: worker training, education, and assistance; setting and enforcing of standards; and assurance of safe and healthful working conditions for workers. Additional information regarding MACOSH including information regarding background, history, charter, current membership, meeting minutes, and Federal Register Notices is available at: <http://www.osha.gov/dts/maritime/macosh/index.html>.
2. [Shipbuilders Council of America \(SCA\)](#). The SCA is the trade association that represents the U.S. shipyard industry. SCA members constitute the shipyard industrial base that builds, repairs, maintains and modernizes U.S. Navy ships and craft, U.S. Coast Guard vessels of all sizes, as well as vessels for other U.S. government agencies. In addition, SCA members build, repair and service America's fleet of commercial vessels.
SCA's active Safety & Health Committee meets biannually to discuss issues facing the industry and share best established industry practices. SCA also provides training materials for the shipyard industry such as crane safety, shipyard ergonomics, and shipyard safety orientation videos. Further, SCA provides shipbuilding and ship repair best management practices such as dry abrasive blasting, removal of hull bio-foulants, metal grinding, metal arc welding, thermal metal cutting, and abrasive materials management. More information can be obtained at the SCA's website at: <https://shipbuilders.org/>.
3. [National Shipbuilding Research Program \(NSRP\)](#). The National Shipbuilding Research Program is led by a collaboration of 11 major U.S. shipyards, working as a team with government, industry and academia. The NSRP's mission is to manage and focus national shipbuilding research and development funding on technologies that will reduce the cost of warships to the U.S. Navy and will establish U.S. international competitiveness. Areas of focus by the NSRP include industry analysis and planning, common parts catalog, standards coordination, technology transfer, research and development programs, eBusiness solutions, and the *Lean shipbuilding* initiative. The NSRP also provides a collaborative forum to improve business acquisition processes. More information can be obtained at the NSRP website at: <http://www.nsrp.org/>.

4. [American Waterways Operators \(AWO\)](#). The American Waterways Operators (AWO) association represents the owners and operators of inland/coastal tugboats, towboats and barges. The AWO's mission is to promote the economic soundness of the industry, and to promote safe, efficient, and environmentally responsible transportation of goods and freight through advocacy, public information, and the establishment of safety standards. The AWO has developed lesson plans on a number of safety topics (such as slips, trips and fall prevention on vessels), and several vessel best practices (such as vessel boarding/departure protocol, and falling overboard prevention). More information can be obtained at the AWO website at: <http://www.americanwaterways.com/>.
 5. [Crane Certification Association of America \(CCAA\)](#). The purpose of the CCAA is to promote crane safety, improve the crane inspection and certification profession, and address the subject of crane safety in governmental forums. The CCAA has developed numerous publications (such as crane testing and inspection procedures, and crane component technical guidance), and has compiled a comprehensive list of electronic links for the crane industry (includes crane safety, educational, below the hook components, overhead cranes, mobile cranes, tower cranes, barge mounted cranes, and industry publications). More information can be obtained at the CCAA website at: <http://www.ccaaweb.net/#!HOME/mainPage>.
- XIV. **Training**. Training consists of both internal training for OSHA consultation and enforcement staff, and external training for shipyard industry employers and employees.
- A. **OSHA Directorate of Training and Education (DTE)**. The directorate develops, directs, oversees, manages and ensures implementation of OSHA's national training and education policies and procedures.
1. [OSHA Training Institute \(OTI\)](#). OTI provides training and education in occupational safety and health for federal and State compliance officers, State consultants, other federal agency personnel, and the private-sector.
 2. [OSHA Training Institute Education Centers](#). OTI Education Centers offer the most frequently requested OSHA Training Institute courses for the private-sector and federal agency personnel at locations throughout the United States.
 3. [Resource Center Loan Program](#). The Resource Center offers occupational safety and health training videos for loan to OSHA employees, OSHA grantees, Consultation Programs, State Plan States, Voluntary Protection Program Sites, OTI Education Centers, Federal Agency Occupational Safety and Health Trainers, and OSHA Outreach Trainers.
 4. [Susan Harwood Training Grant Program](#). Under this program, OSHA awards grants to nonprofit organizations for developing training and educational programs to workers and employers.
 5. [Safety and Health Training Resources](#). The DTE Library contains training and reference materials developed by DTE as well as links to other related sites.
 6. [OSHA Outreach Training Program](#). The OSHA Outreach Training Program for the maritime industry provides training for workers and employers on the recognition, avoidance, abatement, and prevention of safety and health hazards in maritime industry workplaces. The program also provides information regarding workers' rights, employer responsibilities, and how to file a complaint. This is a voluntary program and does not meet training requirements for any OSHA standards.

NOTE: Through this program, OTI provides three courses relating to shipyard employment: (1) a one-week course #2090, "Shipyard Employment", (2) a 10-hour course #7615 for entry-level workers in shipyard employment, and (3) a 30-hour course #7635 for workers tasked with safety responsibilities in shipyard employment. The

course descriptions, schedules and locations can be accessed via http://www.osha.gov/dte/edcenters/current_list.html or (click “[A to Z Index](#),” click “[Maritime Safety](#),” click “[OSHA Maritime Outreach Training Program](#),” then click “[Find an OTI Education Center](#)”).

XV. Enforcement Programs. OSHA compliance officers may enter places of shipyard employment to conduct programmed inspections or to investigate complaints, referrals, catastrophes (i.e., incidents resulting in the hospitalization of three or more employees), and fatal incidents. General inspection criteria and contact information can be found in OSHA Instruction [CPL 02-00-150](#), *OSHA Field Operations Manual (FOM)*, April 22, 2011.

A. Shipyard Employment. The shipyard employment industry is made up of several industrial activities, and due to the unique differences among these activities, several scheduling methods are necessary. Consequently, shipyard employment inspections as outlined in the FOM and may be scheduled as:

- National Emphasis Programs (NEPs)
- Special Emphasis Programs (SEPs)
- Local Emphasis Programs (LEPs)
- Severe Violator Enforcement Program (SVEP)
- Site-Specific Targeting (SST)
- Lists generated by the local OSHA area offices by either port areas or employers

NOTE: See FOM, [Chapter 10](#) for specific enforcement guidance and procedures for shipyard employment inspections.

B. Maritime Standard Alleged Violation Elements (SAVEs). In a joint effort by the Directorate of Enforcement Programs (DEP)/Office of Maritime Enforcement (OME) and selected OSHA field offices, Maritime SAVEs have been developed to provide 100 percent coverage of all enforceable standards for the maritime industries: shipyard employment, marine terminals, and longshoring. The Maritime SAVEs include their respective Alleged Violation Descriptions (AVDs) which have been specifically tailored for maritime applications. OME is responsible for maintaining the Maritime SAVEs. Maritime SAVEs are available for CSHOs by accessing the OSHA Intranet website.

C. Application of Shipyard Employment Standards (29 CFR Part 1915) and General Industry Safety and Health Standards (29 CFR Part 1910) to Ship and Boat Building, Repair and Breaking. This section offers guidance regarding the application of the shipyard employment standards (29 CFR Part 1915) and the general industry standards (29 CFR Part 1910) to ship and boat building, repair and breaking.

1. General guidance for shipyard employment. Employees performing ship or boat building, repairing, or breaking operations and related activities are covered by the shipyard employment standards and applicable provisions of the general industry standards. This includes, but is not limited to, dry docks, graving docks, marine railways, shiplifts, marinas, and other facilities located on the water, or in close proximity to the water. The application of the 29 CFR Part 1910 general industry standards is addressed in Appendix A of this instruction.

When a shipyard standard is specifically applicable to a condition, practice, means, method, operation, or process, it takes precedence over any general industry standard provision that might otherwise be applicable. However, provisions of the Part 1910 general industry standard are applicable to hazards where coverage of a Part 1915 shipyard employment standard is absent (See [Appendix A](#) of this instruction). Nevertheless, the application of certain general industry standard provisions can be limited by their *scope and application* statements. In these cases, the *general duty clause*

([Section 5\(a\)\(1\)](#)) of the *OSH Act* can be used, where appropriate, to cite serious recognized hazards not covered by a specific standard.

Where a Part 1915 shipyard employment standard is applicable but the employer has complied with a Part 1910 general industry provision that provides equivalent protection for the same workplace condition or hazard, OSHA will consider the employer to be in *de minimis* violation of OSHA regulations. With *de minimis* violations, no citations are issued, and no monetary penalties are proposed. It is emphasized that this would not apply to a situation where the Part 1915 shipyard employment standard provides greater or additional employee protection. For example, 29 CFR 1915.132(c) requires the switch for a portable electric tool to be of a type that must be manually held in the closed position, while 29 CFR 1910.243(a)(2) allows a different type of switch with less stringent requirements. For shipyard employment, the employer must comply with the more protective provisions of 29 CFR 1915.132(c).

2. Shipyard employment coverage issues. Shipyard employment (not including inland boat operations) is covered by Subparts B, F, I and P of 29 CFR Part 1915 without regard to geographical location. The other subparts of Part 1915 also apply to shipyard employment without regard to geographical locations (See [29 CFR 1910.11\(b\)](#)) except as provided by the following.

Because some U.S. Courts of Appeals have applied exemptions based on an earlier version of the *Longshore and Harbor Workers' Compensation Act (LHWCA)*, 33 U.S.C. 901 *et seq.*, to OSHA maritime enforcement, it is necessary to rely on 29 CFR Part 1910 general industry standards, or if none cover the hazard, the *general duty clause*, where appropriate. Therefore, OSHA area offices must use these alternative provisions in cases arising in the Third and Ninth Circuits¹ when citing violations involving shipyard employment not on U.S. navigable waters. In the other circuits, OSHA area offices may cite for violations of Part 1915 in these circumstances, but also must cite applicable Part 1910 standards in the alternative (or the *general duty clause* where there is no general industry standard).

In addition, where the only exposure is to crew members, OSHA area offices may not cite any provision of Part 1915 unless (1) the crew member is on an uninspected vessel, as defined by the Coast Guard, and no Coast Guard regulation applies to the hazard² and (2) either the employer has violated 29 CFR 1915.89 (LOTO) or the case arises outside the Third or Ninth Circuit. In the Third Circuit or the Ninth Circuit only Part 1910 or the *general duty clause* ([Section 5\(a\)\(1\)](#)) of the *OSH Act* may be cited, as appropriate. In the other circuits, OSHA area offices may cite for non-LOTO violations of Part 1915 in these circumstances, but also must cite applicable Part 1910 standards in the alternative (or the *general duty clause* where there is no general industry standard).

3. Inland boat building, repair and breaking. These are facilities not on U.S. navigable waters or in close proximity to them. As a matter of policy, OSHA does not use the shipyard employment standards to cite such employers. OSHA area offices must cite

¹ The Third Circuit includes Delaware, New Jersey, Pennsylvania and the Virgin Islands. The Ninth Circuit includes Alaska, Arizona, California, Idaho, Montana, Nevada, Oregon, Washington, Guam, Hawaii, and the Northern Marianas.

² This exemption is required by Section 4(b)(1) of the *OSH Act*. For Coast Guard regulations applying to uninspected vessels see Appendices B and C of CPL 02-01-047, *OSHA Authority Over Vessels and Facilities on or Adjacent to U.S. Navigable Waters and the Outer Continental Shelf*. For a list of conditions on commercial fishing industry vessels not covered by Coast Guard regulations see Appendix A of that instruction.

hazards at inland boat operations based upon 29 CFR Part 1910 or the *general duty clause*, as appropriate.

- D. Violation Abatement Assistance Program. Shipyard industry employers are encouraged to seek advice and consultation. The employer should make these requests by writing, calling, or visiting the nearest OSHA area office (See www.osha.gov for [OSHA offices](#) contact information).
- XVI. Coordination. This instruction will be coordinated by the Directorate of Enforcement Programs (DEP). Questions and comments should be directed to the Office of Maritime Enforcement (OME). OME can be reached at (202) 693-2399; the [OME web page](#) provides additional contact information and links to related OSHA compliance, outreach, and maritime sites.
- XVII. Program Evaluation. During interventions and inspections, OSHA area offices will continue to collect data and information such as OSHA 300 Log entries and calculate reductions in Days Away, Restricted, or Transferred (DART) rates to measure the effectiveness of OSHA's initiatives to improve shipyard employment safety and health. OSHA area offices will forward this information to their respective regional offices. At the end of each fiscal year, after summarizing the data and information, the regional offices will forward the summary to the National Office, Directorate of Enforcement Programs (DEP). DEP will serve in a coordinating role, collecting information from regional offices on best practices in the shipyard employment industry and, after review and evaluation, disseminate the information to regional offices and the OSHA Directorate of Training and Education (DTE).

Appendix A: Application of 29 CFR Part 1910 Standards When 29 CFR Part 1915 Standards Do Not Address a Recognized Hazard in Shipyard Employment

This appendix has been developed specifically to assist OSHA area office personnel during inspections of workplaces covered by 29 CFR Part 1915. The appendix identifies provisions of general industry safety and health standards (29 CFR Part 1910) that are applicable to shipyard employment; it also provides guidance regarding 29 CFR Part 1910 provisions that generally are preempted by corresponding 29 CFR Part 1915 provisions. As such, this appendix should clarify, under most circumstances, the specific occupational safety and health requirements for shipyard employment. However, this appendix cannot, and is not intended to, enlarge or diminish employer obligations under the *OSH Act*.

The 29 CFR Part 1915 standards apply to all ship repair, shipbuilding, shipbreaking, and related employments on the navigable waters of the United States (includes dry docks, graving docks, shiplifts, and marine railways) or at facilities located adjacent to navigable waters. 29 CFR Part 1915, Subpart B – *Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment*; 29 CFR Part 1915, Subpart F – *General Working Conditions in Shipyard Employment*; 29 CFR Part 1915, Subpart I – *Personal Protective Equipment*; and 29 CFR Part 1915, Subpart P – *Fire Protection in Shipyard Employment*, apply to shipyard employment work on vessels and vessel sections, and on shore-side operations, regardless of geographic location. In addition, employers covered by the *OSH Act* generally are required to adhere to OSHA’s standards of general applicability (29 CFR Part 1910). Where coverage of a shipyard employment hazard by a 29 CFR Part 1915 standard is absent, 29 CFR Part 1910 standard provisions should be cited when applicable.

The relationship between the two existing sets of regulations is addressed by the Agency’s rule 29 CFR 1910.5(c), which states:

- (c)(1) If a particular standard is specifically applicable to a condition, practice, means, method, operation, or process, it shall prevail over any different general standard which might otherwise be applicable to the same condition, practice, means, method, operation, or process...
- (c)(2) On the other hand, any standard shall apply according to its terms to any employment and place of employment in any industry, even though particular standards are also prescribed for the industry...to the extent that none of such particular standards applies.

The process for developing the table in this appendix included a side by side comparison of the 29 CFR Part 1915 shipyard employment standard provisions and the 29 CFR Part 1910 general industry standard provisions. The 29 CFR Part 1915 standard provisions are included in the “Remarks/Comments” column of the table, along with the 29 CFR Part 1910 standard provision(s) that they preempt. 29 CFR Part 1910 standard provisions were reviewed to determine whether their associated scope and applicability excluded their use in shipyard employment. For example, 1910.146 – *Permit-required confined spaces* is prohibited from use in shipyard employment as stated in 1910.146(a). Also, 1910.147 – *The control of hazardous energy (lockout/tagout)* is prohibited from use in maritime employment as stated in 1910.147(a).

The remaining 29 CFR Part 1910 standard provisions (those not preempted by Part 1915, or excluded from application to shipyard or maritime employment) were reviewed to determine whether they would apply when employees were exposed to the associated hazard(s) during shipyard employment. For example, stacked objects on the third tier of a scaffold present a hazard of being knocked over or tipping over and falling between the scaffold toeboard and guardrail. The 29 CFR Part 1915 standard does not have a requirement for a screen to be provided between the toeboard and the guardrail, so the general industry standard provisions that invoke the 1910.28(a)(17) requirement for such screens are applicable when employees are exposed to this recognized hazard.

All 29 CFR Part 1915 and Part 1910 standard provisions that were determined to be applicable to shipyard employment were reviewed to determine their applicability to work on vessels and to work on shore. Additionally, all standard provisions were reviewed to determine if additional clarification was

needed to fully understand the use and intent of the provisions, and as required, explanatory language was included in the “Remarks/Comments” column as a “NOTE.”

Every effort has been made to identify those 29 CFR Part 1910 provisions that are applicable to shipyard employment. However, it is not possible to anticipate every occupational hazard. There likely will be limited circumstances when 29 CFR Part 1910 standard provisions, that are not identified in Appendix A, properly apply to shipyard employment. Consequently, in order to assure consistent and deliberate enforcement of the *OSH Act*, no 29 CFR Part 1910 standard other than those designated in this appendix as applicable to shipyard employment will be cited without the approval of both the regional office and the OSHA National Office (Director, Directorate of Enforcement Programs).

Alleged violations for hazardous conditions involving any identified 29 CFR Part 1910 standard provision will continue to be cited with the 29 CFR Part 1910 designations. The OSHA area director shall cite alleged violations involving externally referenced standards (e.g., ANSI, NEC, NFPA) to include the specification of the referenced standard in addition to the applicable provision of 29 CFR Part 1910 or 29 CFR Part 1915. The area director shall issue citations under the *general duty clause* in appropriate circumstances where employees are exposed to recognized hazards that are covered neither by shipyard employment (29 CFR Part 1915) nor general industry safety and health regulations (29 CFR Part 1910).

When a new OSHA general industry standard (29 CFR Part 1910) that applies to shipyard employment is promulgated after the effective date of this instruction, provisions from such standard may be cited without approval from the regional and OSHA National Office, even though they are not listed in this appendix. The appendix will be revised to reflect changes as revisions of 29 CFR Part 1910 and 29 CFR Part 1915 are promulgated. As required, the Director, Directorate of Enforcement Programs, will provide interim guidance regarding the applicability of standards issued after the “Tool Bag” directive’s effective date.

As unforeseen or unconsidered workplace hazards are identified during inspections or through other reliable information available to the Agency, this appendix will be revised to correct any errors concerning the application of 29 CFR Part 1910 and 29 CFR Part 1915 standards to shipyard employment. Comments regarding this appendix should be forwarded via the respective OSHA regional office to the Directorate of Enforcement Programs. The office responsible for maintaining this appendix is the Office of Maritime Enforcement.

In this appendix, the applicability of each 29 CFR Part 1910 standard as it pertains to shipyard employment on vessels (including vessel sections) and shore-side operations (land-side operations, excluding vessels and vessel sections) is indicated with a “Yes”, “Yes*” (partial coverage), or “No.” Additionally, “Remarks/Comments” are provided to further clarify the applicability of the 29 CFR Part 1910 standards, including a reference to any 29 CFR Part 1915 standards that generally take precedence pursuant to 29 CFR 1910.5 – *Applicability of Standards*.

29 CFR Part 1910, Subpart D: Walking-Working Surfaces

Part 1910 Standard	Applicability: Vessel Shore		Remarks/Comments
.22	Yes*	Yes*	1910.22(b)(2) applies on vessels and on shore for walking and working surfaces general requirements. 1910.22(c) and (d) apply on shore only. Generally preempted are: 1910.22(a) & (b)(1) by 1915.81 {aisles and passageways on vessels that are not in good repair and that pose a hazard to employees may be cited using 1910.22(b)(1)}. 1910.22(c) by 1915.73 on vessels only.
.23	Yes*	Yes	1910.23 applies on shore for guarding of deck openings and edges; 1915.73 applies on vessels for guarding of deck openings and edges; 1910.23 applies to working conditions on vessels not addressed by 1915.73. Generally preempted are: 1910.23(a)(8) & (a)(9) by 1915.73(b) on vessels only. 1910.23(c)(1) by 1915.73(d) on vessels only. NOTE: For 1915.73(d) situations that prohibit the use or installation of guardrails (e.g., not feasible), fall protection in accordance with 1915.158, 1915.159 and 1915.160, as appropriate, is required. NOTE: For shipbreaking operations, 1915.73 does not apply to the guarding of deck openings and edges. Employee exposure to guarding hazards for shipbreaking operations shall be addressed by applying 1915.152(b) <i>Hazard assessment and equipment</i> . Fall protection in accordance with 1915.158, 1915.159 and 1915.160, as appropriate, also may be required.
.24	Yes*	Yes	1910.24 applies on shore and on vessels to fixed industrial stairs that <u>are not</u> a permanent part of the vessel (e.g., stairs brought in and installed for use during vessel construction, repair or overhaul to support employee access to the vessel or within the vessel). Also, 1910.24(a), (b), (f) and (h) apply to the conditions and use of fixed stairs that <u>are</u> a permanent part of the vessel. The 1910.24(c), (d), (e), (g) and (i) design specifications do not apply to fixed stairs that <u>are</u> a permanent part of the vessel. NOTE: Design specifications for vessels (including fixed stairs) are addressed on U.S. "Inspected" vessels by U.S. Coast Guard regulations (46 CFR), on foreign flag vessels by foreign standards and various international vessel classification society rules (e.g., Bureau Veritas – France, Det Norske Veritas – Norway, Nippon Kaiji Kyokai – Japan, Lloyd’s Register of Shipping – England), and on "Uninspected" vessels by a variety of standards, recommended guidelines, and established industry practice. Any hazardous conditions that employees are exposed to related to design will be cited using the standard, guidance, or practice under which the vessel fixed stairs were designed (verify by vessel drawings, documentation, publications, etc.) using the <i>general duty clause</i> .

Part 1910 Standard	Applicability: Vessel Shore		Remarks/Comments
.25	Yes*	Yes*	1915.72 applies on vessels and on shore for portable wood ladders; 1910.25 applies to working conditions on vessels and on shore not addressed by 1915.72 as follows: 1910.25(a), (b)(1)(i), (c)(2), (c)(3)(ii)-(iv), (c)(4), (c)(5), (d)(1)(ii)-(iv), (d)(1)(x), (d)(1)(xi), (d)(2)(i)-(v), (d)(2)(ix)-(xv), (d)(2)(xvii), (d)(2)(xix), and (d)(2)(xx). Generally preempted are: 1910.25(c)(3)(v) by 1915.71(e)(1). 1910.25(d)(1)(i) by 1915.72(a)(1). 1910.25(d)(2)(viii) by 1915.72(a)(1). 1910.25(d)(2)(xv) by 1915.72(a)(3).
.26	Yes*	Yes*	1915.72 applies on vessels and on shore for portable metal ladders; 1910.26 applies to the working conditions of portable metal ladders on vessels and on shore not addressed by 1915.72 as follows: 1910.26(a)(1)-(c)(1), (c)(2)(vi), and (c)(3). Generally preempted are: 1910.26(c)(2)(iv) by 1915.72(a)(1). 1910.26(c)(2)(vii) by 1915.72(a)(1).
.27	Yes*	Yes	1910.27 applies on shore for fixed ladders; 1915.76 applies on vessels for fixed ladders in cargo holds and confined spaces, and 1910.27(f) applies to the conditions and use of all other fixed ladders on vessels. NOTE: Design specifications for vessels (including fixed ladders) are addressed on U.S. "Inspected" vessels by U.S. Coast Guard regulations (46 CFR), on foreign flag vessels by foreign standards and various International Vessel Classification Society rules (e.g., Bureau Veritas – France, Det Norske Veritas – Norway, Nippon Kaiji Kyokai – Japan, Lloyd’s Register of Shipping – England), and on "Uninspected" vessels by a variety of standards, recommended guidelines, and established industry practice. Any hazardous conditions that employees are exposed to related to design will be cited using the standard under which the vessel fixed ladders were designed (verify by vessel drawings, documentation, publications, etc.) using the <i>general duty clause</i> .
.28	Yes*	Yes*	1915.71 applies on vessels and on shore for scaffolding or staging; 1910.28 applies to working conditions on vessels and on shore not addressed by 1915.71 as follows: 1910.28(a)(1), and (a)(2){for footings and anchorages carrying maximum intended load}, 1910.28(a)(5){for preventing the altering or moving of scaffolds horizontally while in use or occupied}, 1910.28(a)(7), (a)(9), (a)(10), (a)(11), (a)(14)-(24), (a)(26), (b)(3), (b)(4), (b)(6), (b)(10), (b)(11), and (b)(12){for plank butt joints to be at centerline of a pole, and separate bearers for abutted ends}, 1910.28(b)(13)-(15)*, 1910.28(b)(16){for use of a registered professional engineer when scaffold is over 60 feet in height, and drawings and specifications availability}, 1910.28(b)(17), (c)(1)-(5), and (c)(7)-(14)*, 1910.28(d)(1)-(14)*, 1910.28(e)(1)-(6)*, 1910.28(f)(1)-(17)*, 1910.28(g)(1)-(12)*, 1910.28(h)(1)-(10)*, 1910.28(i)(1)-(4) and (i)(6)-(10)*, 1910.28(j)(1)-(6)*, 1910.28(k)(1)-(5)*, 1910.28(l)(1)-(7)*, 1910.28(m)(3)-(5) and (m)(7)*, 1910.28(n)(1)-(8)*, 1910.28(o)(1)-(4)*, 1910.28(p)(2)-(7)*, 1910.28(q)(1)-(6), 1910.28(r)(1)-(3), 1910.28(s)(1)-(3), 1910.28(t)(1)-(3), and 1910.28(u)(1)-(6). NOTE: *{for use of wire mesh between toeboard and guardrail}

Part 1910 Standard	Applicability: Vessel Shore		Remarks/Comments
.28 cont.	Yes*	Yes*	Generally preempted are: 1910.28(a)(2) by 1915.71(b)(6) {for the use of unstable objects to support scaffolds or planks}. 1910.28(a)(4) by 1915.71(b)(1). 1910.28(a)(5) by 1915.71(b)(5) {for maintaining scaffolds and other devices in safe condition}. 1910.28(a)(6) by 1915.71(b)(5). 1910.28(a)(8) by 1915.71(b)(4) and 1915.71(i). 1910.28(a)(12) by 1915.71(k). 1910.28(a)(13) by 1915.71(i)(3). 1910.28(a)(25) by 1915.71(b)(3). 1910.28(a)(27) by 1915.71(b)(8). 1910.28(b)(1) by 1915.71(c)(1). 1910.28(b)(2) by 1915.71(c)(3). 1910.28(b)(5) by 1915.71(c)(4) & (c)(5). 1910.28(b)(7) by 1915.71(c)(4). 1910.28(b)(8) & (b)(9) by 1915.71(c)(6). 1910.28(b)(12) by 1915.71(i)(3){for plank lapping of end supports}. 1910.28(b)(15) by 1915.71(j)(1) {for guardrails}. 1910.28(b)(15) by 1915.71(j)(5) {for toeboards}. 1910.28(b)(16) by 1915.71(c)(7) {for scaffolds 60 feet or less in height}. 1910.28(c)(6) by 1915.71(b)(7). 1910.28(c)(14) by 1915.71(j)(1) {for guardrails}. 1910.28(c)(14) by 1915.71(j)(5) {for toeboards}. 1910.28(d)(7) by 1915.71(j)(1) {for guardrails}. 1910.28(d)(7) by 1915.71(j)(5) {for toeboards}. 1910.28(f)(15) by 1915.71(j)(1) {for guardrails}. 1910.28(f)(15) by 1915.71(j)(5) {for toeboards}. 1910.28(g)(5) by 1915.71(j)(1) {for guardrails}. 1910.28(g)(5) by 1915.71(j)(5) {for toeboards}. 1910.28(h)(8) by 1915.71(j)(1) {for guardrails}. 1910.28(h)(8) by 1915.71(j)(5) {for toeboards}. 1910.28(i)(5) by 1915.71(j)(1) & (j)(5). 1910.28(k)(5) by 1915.71(j)(1) {for guardrails}. 1910.28(k)(5) by 1915.71(j)(5) {for toeboards}. 1910.28(m)(1) & (m)(2) by 1915.71(g)(1). 1910.28(m)(6) by 1915.71(g)(4). 1910.28(m)(7) by 1915.71(g)(6) {for guardrails and toeboards}. 1910.28(o)(2) by 1915.71(j)(1) {for guardrails}. 1910.28(o)(2) by 1915.71(j)(5) {for toeboards}.
.29	Yes	Yes	1910.29 applies on vessels and on shore for manually propelled mobile ladder stands and scaffolds (towers); no applicable Part 1915 standard.
.30	No	Yes	1910.30 applies on shore for other working surfaces; 1915.74 & 1915.75 apply on vessels.

29 CFR Part 1910, Subpart E: Means of Egress

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.36	No	Yes	1910.36 applies on shore for design and construction requirements for exit/egress routes; 1910.34(a) prohibits the use of 29 CFR Part 1910, Subpart E, standards to vessels. 29 CFR Part 1915 standards related to access/egress include but are not limited to: 1915.51(c)(2) { <i>Confined space access & ventilation</i> }, 1915.71(k) { <i>Access to staging</i> }, 1915.74 { <i>Access to vessels</i> }, 1915.75 { <i>Access to and guarding of dry docks & marine railways</i> }, 1915.76 { <i>Access to cargo spaces & confined spaces</i> }, 1915.81 { <i>Access to aisles, passageways, walkways, fire-alarm boxes, fire-fighting equipment, and exits</i> (including ladders, staircases, scaffolds, and gangways)}, 1915.502 { <i>Fire safety plan</i> }, and 1915.505 { <i>Fire response</i> }.
.37	No	Yes	1910.37 applies on shore for maintenance, safeguards, and operational features for exit/egress routes; 1910.34(a) prohibits the use of 29 CFR Part 1910, Subpart E standards to vessels.
.38 & .39	No	Yes*	1910.38 applies on shore for emergency action plans other than fire prevention plans (covered by 29 CFR 1915, Subpart P); 1910.39(c) is the only 1910.39 provision that applies on shore for fire prevention; 1910.34(a) prohibits the use of 29 CFR Part 1910, Subpart E standards to vessels. Fire Protection in shipyard employment is covered by 29 CFR Part 1915, Subpart P, on shore and on vessels; 1915.502 addresses fire safety plans, and 1915.505 addresses fire response. 1915.12(e) addresses shipyard rescue teams for confined and enclosed spaces and other dangerous atmospheres. NOTE: 1910.39(c) contains provisions requiring employers to identify and control certain fire hazards. These provisions are not adequately addressed by 1915.502, so shipyard employers will continue to be required to comply with the 1910.39(c) provisions on shore (See preamble to 29 CFR Part 1915, Subpart P). NOTE: Shipyard employers complying with 1910.38 and 1910.39 also are required to comply with the additional requirements of 1915.502. However, there is no need to produce three separate emergency plans. OSHA will accept one unified plan that meets all of the requirements of 1910.38, 1910.39 and 1915.502.

29 CFR Part 1910, Subpart F: Powered Platforms, Manlifts, and Vehicle-Mounted Work Platforms

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.66	No	Yes	1910.66 applies on shore; 1910.66(a) limits the application of this standard to building maintenance; no applicable Part 1915 standard.
.67	Yes	Yes	1910.67 applies on vessels and on shore for vehicle-mounted elevating & rotating work platforms. Also see 1915.93 – <i>Motor vehicle safety equipment operation and maintenance</i> .
.68	No	No	1910.68 covered operations for manlifts are not known to occur in shipyard employment; no applicable Part 1915 standard.

29 CFR Part 1910, Subpart G: Occupational Health and Environmental Control

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.94	Yes*	Yes*	1910.94 applies on vessels and on shore for ventilation; however, 1910.94(a)(2) and (a)(5) are generally preempted on vessels and on shore by 1915.34(c) and 29 CFR Part 1915, Subpart I – <i>Personal Protective Equipment</i> .
.95	Yes	Yes	1910.95 applies on vessels and on shore for occupational noise exposure; no applicable Part 1915 standard.
.97	Yes	Yes	1910.97 applies on vessels and on shore for non-ionizing radiation; this standard is not preempted by 1915.85, which addresses working aloft on ship radars.

29 CFR Part 1910, Subpart H: Hazardous Materials

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.101	Yes*	Yes	1910.101 applies on vessels and on shore for compressed gases general requirements; except that on vessels 1915.55 applies to oxygen, acetylene and other fuel gas cylinders used for welding & cutting. Reference should also be made to applicable Compressed Gas Association (CGA) pamphlets.
.102	No	Yes	1910.102 applies on shore for the in-plant transfer, handling, storage, and utilization of acetylene; on vessels 1915.55 applies to acetylene cylinders used for welding & cutting. Reference should also be made to applicable Compressed Gas Association (CGA) pamphlets.
.103	Yes	Yes	1910.103 applies on vessels and on shore for liquefied & gaseous hydrogen systems; no applicable Part 1915 standard.
.104	No	Yes	1910.104 applies on shore for bulk oxygen systems; 1915.55 applies on vessels to oxygen cylinders used for cutting and welding.
.105	No	Yes	1910.105 applies on shore; no applicable Part 1915 standard. NOTE: 1910.105 is limited to in-plant use of nitrous oxide, which is only known to apply shore-side.
.106	Yes*	Yes	1910.106 applies on vessels and on shore for covered flammable and combustible liquids operations. NOTE: Not applied to fuel tanks and bulk cargo tanks that are part of the vessel. NOTE: Also see 1915.13 <i>Cleaning and other cold work</i> for spaces containing or having last contained bulk quantities of combustible or flammable liquids or gases, or bulk quantities of liquids, gases or solids that are toxic, corrosive or irritating.
.107(b)	Yes	Yes	1910.107(b) applies on vessels and on shore for spray booths; no applicable Part 1915 standard. NOTE: Spray booths are usually located on shore in shipyards.
.107(c)	Yes	Yes	1910.107(c) applies on vessels and on shore for electrical and other sources of ignition (such as electrostatic painting); no applicable Part 1915 standard.
.107(d)	No	Yes	1910.107(d) applies on shore; 1915.35 & 1915.36 apply on vessels for ventilation and exhaust systems.

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.107(e)	Yes	Yes	1910.107(e) applies on vessels and on shore for flammable and combustible liquids { storage and handling }; the requirements of 1915.36 also apply but do not preempt any portion of 1910.107(e).
.107(f)	No	Yes	1910.107(f) applies on shore for the protection of sprinklered buildings; no applicable Part 1915 standard.
.107(g)	Yes*	Yes	1910.107(g) applies on vessels and on shore for spray booth operations and maintenance; except for 1910.107(g)(2), which is generally preempted by 1915.35(b)(6) for non-sparking tools used in painting spaces; and 1910.107(g)(5), which is generally preempted by 1915.32 & 1915.33 for cleaning solvents and chemical removers.
.107(h)	Yes	Yes	1910.107(h) applies on vessels and on shore for fixed electrostatic spraying equipment; no applicable Part 1915 standard.
.107(i)	Yes	Yes	1910.107(i) applies on vessels and on shore for electrostatic hand spraying equipment; no applicable Part 1915 standard.
.107(j)	Yes	Yes	1910.107(j) applies on vessels and on shore for drying, curing or fusion apparatus associated with spraying; no applicable Part 1915 standard.
.107(k)	No	Yes	1910.107(k) applies on shore for the undercoating of vehicles in garages; is not known to occur in shipyards.
.107(l)	Yes	Yes	1910.107(l) applies on vessels and on shore for powder coating; no applicable Part 1915 standard.
.107(m)	Yes	Yes	1910.107(m) applies on vessels and on shore for organic peroxides and dual component coatings; no applicable Part 1915 standard.
.109	Yes	Yes	1910.109 covered operations for explosives and blasting agents could be applied, but these operations are not known to occur on shore in shipyard employment. On vessels, the only known use of explosives occurs when divers use detonating cord to remove propellers during ship repair.
.110	Yes	Yes	1910.110 applies on vessels and on shore for the storage and handling of liquefied petroleum gases; no applicable Part 1915 standard. NOTE: 1910.110 cannot be applied to vessel systems and equipment that are a permanent part of the vessel; however, it can be applied to interchangeable portable tanks that supply gas to vessel systems.
.111	Yes	Yes	1910.111 applies on vessels and on shore for the storage and handling of anhydrous ammonia; per 1910.111(a)(1)(ii)(a), this standard does not apply to ammonia manufacturing plants or to refrigeration plants where ammonia is used solely as a refrigerant; no applicable Part 1915 standard.
.119	Yes	Yes	1910.119 applies on vessels and on shore for process safety management of highly hazardous chemicals; no applicable Part 1915 standard.
.120	Yes	Yes	1910.120 applies on vessels and on shore for hazardous waste operations; no applicable Part 1915 standard.

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.122 to .126	Yes	Yes	1910.122-.126 applies on vessels and on shore for hazards associated with dip tanks; these standards are not preempted by 1915.32 & 1915.33. NOTE: Dip tanks located in confined or enclosed spaces must meet the requirements of 29 CFR Part 1915, Subpart B.

29 CFR Part 1910, Subpart I: Personal Protective Equipment

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.132	No	No	1915.151(a) and 1915.152 apply on vessels and on shore, preempting this PPE general requirements standard in its entirety.
.133	No	No	1915.151(a) and 1915.153 apply on vessels and on shore, preempting this eye and face protection standard in its entirety.
.134	Yes	Yes	1910.134 applies on vessels and on shore for respiratory protection; 1910.134 is incorporated into 29 CFR Part 1915 by 1915.154.
.135	No	No	1915.151(a) and 1915.155 apply on vessels and on shore, preempting this head protection standard in its entirety.
.136	No	No	1915.151(a) and 1915.156 apply on vessels and on shore, preempting this foot protection standard in its entirety.
.137(a)	Yes	Yes	1910.137(a) applies on vessels and on shore for electrical protective equipment design requirements; no applicable Part 1915 standard.
.137(b)	Yes	Yes	1910.137(b) applies on vessels and on shore. This standard provides requirements to maintain electrical PPE in a safe, reliable condition, and is not preempted by 1915.157(c) since this standard only requires employees to wear electrical PPE if exposed to electrical hazards, and does not address the condition/maintenance of such equipment.
.138	No	No	1915.151(a) and 1915.157(a) apply on vessels and on shore, preempting this hand protection standard in its entirety.

29 CFR Part 1910, Subpart J: General Environmental Controls

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.141	No	No	1915.88 applies on vessels and on shore for sanitation, preempting this standard. NOTE: 1910.141(a)(3) <i>Housekeeping</i> is preempted on vessels and on shore by 1915.81.
.142	No	Yes	1910.142 could apply on shore; however, temporary labor camps are not known to occur as part of shipyard employment.
.144	No	No	1915.90 applies on vessels and on shore for safety color code for marking physical hazards, preempting this standard in its entirety.

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.145	No	No	1915.91 applies on vessels and on shore for accident prevention signs and tags. 1915.16 applies on vessels and on shore for warning signs and labels posted to comply with 29 CFR Part 1915, Subpart B, requirements. NOTE: These 1915.91 specifications for accident prevention signs and tags are not intended to cover safety signs for marine regulations such as U.S. Coast Guard required placards (e.g., oil pollution, garbage, and life jackets).
.146	No	No	1910.146(a) prohibits the use of this permit-required confined space standard in shipyard employment. 29 CFR Part 1915, Subpart B, applies on vessels and on shore.
.147	No	No	1910.147(a) prohibits the use of this control of hazardous energy standard (lockout/tagout) in maritime employment. 1915.89 <i>Control of hazardous energy (lockout/tags-plus)</i> is applicable on land, on vessels, and on vessel sections for shipyard employment. Additional lockout/tagout requirements for vessels include 1915.162 <i>Ship's boilers</i> , 1915.163 <i>Ship's piping systems</i> , 1915.164 <i>Ship's propulsion machinery</i> , 1915.165 <i>Ship's deck machinery</i> , and 1915.181 <i>Electrical circuits and distribution boards</i> . NOTE: Also see 29 CFR Part 1910, Subpart S, Electrical.

29 CFR Part 1910, Subpart K: Medical and First Aid

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.151	No	No	1915.87 applies on vessels and on shore for medical and first aid, preempting this standard in its entirety.

29 CFR Part 1910, Subpart L: Fire Protection

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.155 to .165	No	No	29 CFR Part 1915, Subpart P – <i>Fire Protection in Shipyard Employment</i> applies on vessels and on shore. NOTE: 1910.155(b) prohibits the application of 29 CFR Part 1910, Subpart L – <i>Fire Protection</i> to maritime employment (e.g., shipyard employment, marine terminals, and longshoring).

29 CFR Part 1910, Subpart M: Compressed Gas and Compressed Air Equipment

Part 1910 Standard	Applicability: Vessel Shore		Remarks/Comments
.169(a)	Yes*	Yes*	1910.169(a) applies on vessels and on shore for <u>fixed</u> air receivers; 1910.169(a) applies on vessels or on shore for the installation and maintenance of pressure relief valves on <u>portable</u> air receivers; the remainder of 1910.169(a) is preempted by 1915.172(a) & 1915.172(b).
.169(b)	Yes	Yes	1910.169(b) applies on vessels and on shore for air receivers; no applicable Part 1915 standard.

29 CFR Part 1910, Subpart N: Materials Handling and Storage

Part 1910 Standard	Applicability: Vessel Shore		Remarks/Comments
.176(a)	Yes*	Yes*	1910.176(a) generally applies on vessels and on shore for the use of mechanical equipment; 1910.176(a) is preempted by 1915.81 on vessels and on shore for keeping aisles and passageways clear and in good repair, with no obstruction across or in aisles that could create a hazard.
.176(b)	Yes	Yes	1910.176(b) applies on vessels and on shore for material handling secure storage; no applicable Part 1915 standard.
.176(c)	No	No	1915.81 applies on vessels and on shore for material handling storage area housekeeping except for pest control; 1915.88 may be applied for sanitation, including pest control.
.176(e)	Yes	Yes	1910.176(e) applies on vessels and on shore for material handling clearance limit signs; no applicable Part 1915 standard.
.176(f)	No	Yes	1910.176(f) applies on shore for material handling rolling railroad cars; no applicable Part 1915 standard.
.176(g)	No	No	1915.73(d) applies on vessels and on shore for material handling guarding, preempting this standard in its entirety.
.177	No	No	1915.94 applies on vessels and on shore for servicing multi-piece and single piece rim wheels.
.178	Yes*	Yes*	1910.178 applies on vessels and on shore for powered industrial trucks; 1915.120 incorporates 1910.178(l). NOTE: 1915.136(b) states, "All exhaust line joints and connections shall be checked for tightness immediately upon starting the engine, and any leaks shall be corrected at once."; 1915.136(b) applies to exhaust leaks but does not otherwise preempt 1910.178(p)(1) and 1910.178(q).
.179	Yes*	Yes	1910.179 applies on vessels and on shore; the certification requirements of 1915.115 also may be applicable (See CPL 02-01-055). NOTE: On vessels, 1910.179 cannot be applied to design specifications for overhead and gantry cranes that are a permanent part of the vessel. Any hazardous conditions that employees are exposed to related to design will be cited using the standard under which the vessel crane(s) was designed (verify by vessel drawings, documentation, publications, etc.) using the <i>general duty clause</i> .

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.180	Yes	Yes	1910.180 applies on vessels and on shore for mobile cranes. NOTE: For mobile cranes (e.g., crawler cranes, truck cranes) placed on vessels and used for shipyard employment, the certification requirements of 1915.115 also may be applicable (See CPL 02-01-055).
.181	Yes*	Yes	1910.181 applies on vessels and on shore for derricks. NOTE: For derricks on vessels, the certification requirements of 1915.115 also may be applicable (See CPL 02-01-055). NOTE: On vessels, 1910.181 cannot be applied to design specifications for derricks that are a permanent part of the vessel. Any hazardous conditions that employees are exposed to related to design will be cited using the standard under which the vessel derrick(s) was designed (verify by vessel drawings, documentation, publications, etc.) using the <i>general duty clause</i> .
.183	Yes	Yes	1910.183 could apply on vessels and on shore if helicopter operations occur in shipyards; no applicable Part 1915 standard.
.184	Yes*	Yes*	1915.111, 1915.112, 1915.115 and 1915.116 apply on vessels and on shore for slings; 1910.184 applies to working conditions on vessels and on shore not addressed by 29 CFR Part 1915 as follows: 1910.184(a), (b), (c)(2)&(3) {for all slings except chain slings}, (c)(3), (c)(5), (c)(6), (c)(8), (c)(10)-(12), (e)(2)(i), (e)(3)(i)&(ii), (e)(6), (e)(9)(ii), (f)(2)-(5), (g), (h)(1){for synthetic fiber slings only}, (h)(2)-(6) and (i). Generally preempted are: 1910.184(c)(1) by 1915.111(a). 1910.184(c)(2) by 1915.112(c)(7) {for chain slings}. 1910.184(c)(3) by 1915.112(c)(7) {for chain slings}. 1910.184(c)(4) by 1915.111(b). 1910.184(c)(7) by 1915.116(f). 1910.184(c)(9) by 1915.116(j). 1910.184(c)(13) by 1915.112(b)(1)(ii) 1910.184(c)(14) by 1915.112(b)(1)(iii) 1910.184(d) by 1915.111(a). 1910.184(e)(1) by 1915.112(c)(1)(i) 1910.184(e)(2)(ii) by 1915.112(c)(7). 1910.184(e)(3)(iii) by 1915.112(c)(2) & (c)(4). 1910.184(e)(4) by 1915.112(c)(5). 1910.184(e)(5) by 1915.112(c)(1)(ii) 1910.184(e)(7) by 1915.112(c)(4) & (c)(5). 1910.184(e)(8) by 1915.112(c)(3). 1910.184(e)(9)(i) by 1915.112(c)(4). 1910.184(f)(1) by 1915.112(b)(1). 1910.184(h)(1)(i) by 1915.112(a){for natural fiber slings only}.

29 CFR Part 1910, Subpart O: Machinery and Machine Guarding

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.212	Yes*	Yes*	1910.212 applies on vessels and on shore for general requirements for machines; 1915.131(d) and 1915.131(f), however, apply to the guarding of machinery on drydocks.
.213	Yes	Yes*	1910.213 applies on vessels and on shore for woodworking machinery; 1915.131(d), however, applies if the machinery is moved onto a drydock.
.215	Yes*	Yes*	1915.134 applies on vessels and on shore for abrasive wheel machinery; 1910.215 applies to hazards on vessels and on shore not addressed by 1915.134 as follows: 1910.215(b)(2), (b)(4)-(11), (c)(1)-(9), & (d)(3)-(6). Generally preempted are: 1910.215(a)(1) by 1915.134(a) & 1915.134(c). 1910.215(a)(2) by 1915.134(e) & 1915.134(f). 1910.215(a)(3) by 1915.134(c)(1) and 1915.134(f). 1910.215(a)(4) by 1915.134(b). 1910.215(b)(1) by 1915.134(c). 1910.215(b)(3) by 1915.134(a). 1910.215(b)(12) by 1915.134(c). 1910.215(d)(1) by 1915.134(g) & 1915.134(i). 1910.215(d)(2) by 1915.134(h).
.216	No	No	1910.216 is limited in application to the rubber and plastics industries; no applicable Part 1915 standard.
.217	Yes	Yes	1910.217 applies on vessels and on shore for mechanical power presses; no applicable Part 1915 standard.
.218	No	Yes	1910.218 applies on shore for forging machines; 1910.218(a) limits application of the standard to forge and die shops, which are generally not located on vessels; no applicable Part 1915 standard.
.219	Yes	Yes	1910.219 applies on vessels and on shore for mechanical power-transmission apparatus; no applicable Part 1915 standard.

29 CFR Part 1910, Subpart P: Hand and Portable Powered Tools and Other Hand-Held Equipment

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.242(a)	No	No	1915.133(a) applies on vessels and on shore for general requirements for hand and portable powered tools and equipment, preempting this standard in its entirety.
.242(b)	Yes	Yes	1910.242(b) applies on vessels and on shore to compressed air used for cleaning; no applicable Part 1915 standard.

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.243(a)-(d)	Yes*	Yes*	1915.34(a)(2), 1915.131, 1915.132, 1915.134 and 1915.135 apply on vessels and on shore for portable powered tool guarding requirements; 1910.243 applies to working conditions on vessels and on shore not addressed by 29 CFR Part 1915 as follows: 1910.243(a)(2)(i)-(iii)(a){for portable non-electric tools}, (a)(2)(iii)(b)-(2)(v), (a)(3), (a)(4), (b), (c)(1), (c)(1)(i)(a), (c)(1)(i)(c), (c)(1)(ii)(a)-(c), (c)(3)&(4), (c)(5)(iii)-(v), (c)(6), (d)(1)(i), (d)(2) & (d)(3). Generally preempted are: 1910.243(a)(1)(i) by 1915.131(c). 1910.243(a)(2)(i)-(iii)(a) by 1915.132(c){portable electric tools}. 1910.243(a)(5) by 1915.132(a)&(b). 1910.243(c)(1)(i)(b) by 1915.134(c)(2). 1910.243(c)(2) by 1915.134(c). 1910.243(c)(5)(i) by 1915.134(g)&(i). 1910.243(c)(5)(ii) by 1915.134(h). 1910.243(d)(1)(ii) by 1915.135(b)(9). 1910.243(d)(4)(i) by 1915.135(c)(1). 1910.243(d)(4)(ii) by 1915.134(c)(2). 1910.243(d)(4)(iii) by 1915.135(c)(3) & (c)(4). 1910.243(d)(4)(iv) by 1915.135(c)(3). 1910.243(d)(4)(v) by 1915.135(c)(5). 1910.243(d)(4)(vi) by 1915.135(c)(6). 1910.243(d)(4)(vii) by 1915.135(b)(4). 1910.243(d)(4)(viii) by 1915.135(b)(5). 1910.243(d)(4)(ix) by 1915.135(b)(6). 1910.243(d)(4)(x) by 1915.135(b)(7). 1910.243(d)(4)(xi) by 1915.135(b)(8). 1910.243(d)(4)(xii) by 1915.135(b)(2). 1910.243(d)(4)(xiii) by 1915.135(b)(3). 1910.243(d)(4)(xiv) by 1915.135(b)(1).
.243(e)	No	Yes	1910.243(e) applies on shore to lawn mowers; no applicable Part 1915 standard.
.244(a)	Yes	Yes	1910.244(a) applies on vessels and on shore to jacks; no applicable Part 1915 standard.
.244(b)	No	No	1915.34(c) preempts this abrasive blast cleaning nozzle standard in its entirety.

29 CFR Part 1910, Subpart Q: Welding, Cutting and Brazing

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.252	Yes*	Yes*	29 CFR Part 1915, Subpart P, applies for all shipyard employment fire protection. 1915.51 applies on vessels and on shore for welding, cutting & brazing general requirements. The following 1910.252 standards also apply since there are no applicable Part 1915 standards addressing the specific hazards: 1910.252(a)(3), (a)(4)(i),

Part 1910 Standard	Applicability: Vessel Shore		Remarks/Comments
.252 cont.	Yes*	Yes*	<p>(b)(1), (b)(2)(ii), (b)(2)(iii) {for protecting welders from arc welding rays by an enclosed booth or noncombustible screens, and that booths and screens permit the circulation of air at floor level}, (c)(1)(i)-(ii), (c)(1)(iv), (c)(2)(ii), (c)(3)(i){for freely movable hoods intended to be placed by the welder near the work that have a rate of air-flow of 100 linear feet per minute}, (c)(3)(ii), (c)(4)(iii), (c)(4)(iv), (c)(5), (c)(6)-(10){on shore only}, (c)(11)-(13) and (d).</p> <p>Generally preempted are: 1910.252(a)(1)(i) by 1915.503(a). 1910.252(a)(1)(ii) by 1915.503(a)(2)(ii). 1910.252(a)(2)(ii) by 1915.505(f)(2)(i). 1910.252(a)(2)(vi)(C) by 1915.14(a)(1). 1910.252(a)(2)(vii) by 1915.503(a)(2)(ii). 1910.252(a)(2)(viii) by 1915.503(a)(2) and 1915.14. 1910.252(a)(2)(x) by 1915.503(a)(2) & (b)(1), and 1915.14. 1910.252(a)(4)(ii) by 1915.503(b)(2). 1910.252(b)(2)(i) by 1915.51(f)(2). 1910.252(b)(2)(iii) by 1915.56(e) & .51(a) & (c) {for protecting employees or other persons from rays by noncombustible or flameproof screens or shields or the wearing of goggles}. 1910.252(b)(3) by 1915.51(e)(1) & (f), 1915.152, and 1915.157. 1910.252(b)(4) by 1915.51(c). 1910.252(c)(1)(iii) by 1915.51(b)(1)(ii) & (iii). 1910.252(c)(2)(i)(A)-(C) by 1915.51(f)(1). 1910.252(c)(3)(i) by 1915.51(b)(1)(ii) {for mechanical local exhaust ventilation}. 1910.252(c)(4)(i) by 1915.51(b)(1)(v) & (c)(1). 1910.252(c)(4)(ii) by 1915.51(c)(3). 1910.252(c)(4)(v) by 1915.51(b)(1)(vi). 1910.252(c)(6)(i) by 1915.51(d)(1)(i) {vessels only}. 1910.252(c)(6)(ii) by 1915.51(d)(1) {vessels only}. 1910.252(c)(7)(i) by 1915.51(d)(1)(ii) {vessels only}. 1910.252(c)(7)(ii) by 1915.51(d)(1) {vessels only}. 1910.252(c)(7)(iii) by 1915.51(d)(2) {vessels only}. 1910.252(c)(8) by 1915.51(d)(2)(iv), (d)(3) & (d)(4) {vessels only}. 1910.252(c)(9) by 1915.51(d)(1)(ii), (d)(2)(ii), (d)(3) & (d)(4) {vessels only}. 1910.252(c)(10) by 1915.51(d)(2), (d)(3) & (d)(4) {vessels only}.</p>
.253	Yes*	Yes*	<p>1915.55 applies on vessels and on shore for gas welding and cutting. The following 1910.253 standards also apply since there are no applicable Part 1915 standards addressing the specific hazards: 1910.253(a)(1)-(4), (b)(1)(i)-(iv), (b)(2)(ii), (b)(3), (b)(4), (b)(5)(i), (b)(5)(ii)(L), (b)(5)(ii)(N), (b)(5)(ii)(Q)-(R)(2), (b)(5)(iii)(G)&(H), (c), (d), (e)(1)-(4)(vi), (e)(4)(viii), (e)(5)(i), (e)(5)(iii)-(6)(iv), (f) and (g).</p> <p>Generally preempted are: 1910.253(b)(2)(i) by 1915.55(b)(3). 1910.253(b)(2)(iii) by 1915.55(a)(8). 1910.253(b)(2)(iv) by 1915.55(a)(1).</p>

<u>.253</u> cont.	Yes*	Yes*	<p>Generally preempted are:</p> <p>1910.253(b)(5)(ii)(A) by 1915.55(a)(1) & (a)(2). 1910.253(b)(5)(ii)(B) by 1915.55(a)(3). 1910.253(b)(5)(ii)(C) by 1915.55(a)(5). 1910.253(b)(5)(ii)(D) by 1915.55(a)(6). 1910.253(b)(5)(ii)(E) by 1915.55(d)(2). 1910.253(b)(5)(ii)(F)-(H) by 1915.55(a)(8). 1910.253(b)(5)(ii)(I) by 1915.55(b)(1). 1910.253(b)(5)(ii)(J) by 1915.55(b)(2). 1910.253(b)(5)(ii)(K) by 1915.55(c)(1). 1910.253(b)(5)(ii)(M) by 1915.55(c)(2). 1910.253(b)(5)(ii)(O) by 1915.55(a)(3). 1910.253(b)(5)(ii)(P) by 1915.55(d)(1). 1910.253(b)(5)(iii)(A) by 1915.55(b)(3). 1910.253(b)(5)(iii)(B) by 1915.55(a)(3). 1910.253(b)(5)(iii)(C) by 1915.55(d)(1). 1910.253(b)(5)(iii)(D) by 1915.55(d)(4). 1910.253(b)(5)(iii)(E) by 1915.55(e)(5). 1910.253(b)(5)(iii)(F) by 1915.55(d)(5). 1910.253(b)(5)(iii)(I) by 1915.55(d)(3). 1910.253(b)(5)(iii)(J)-(L) by 1915.55(d)(2). 1910.253(e)(4)(iii) by 1915.55(e)(4). 1910.253(e)(5)(ii) by 1915.55(f)(2).</p>
<u>.254</u>	Yes*	Yes*	<p>1915.56 applies on vessels and on shore for arc welding and cutting. The following 1910.254 standards also apply since there are no applicable Part 1915 standards addressing the specific hazards: 1910.254(a)(1)&(2), (b), (c)(1), (c)(3)(i), (c)(3)(iv), (d)(1)&(2), (d)(4)-(6), and (d)(9)(ii). Generally preempted are: 1910.254(a)(3) by 1915.56(d). 1910.254(c)(2) by 1915.56(c). 1910.254(c)(3)(ii) & (iii) by 1915.56(c)(1). 1910.254(d)(3) by 1915.56(c)(6). 1910.254(d)(7) by 1915.56(d)(1). 1910.254(d)(8) by 1915.56(b)(2) {for coiling or looping welding electrode cable around parts of an employee's body}. 1910.254(d)(9)(i) by 1915.56(d)(4). 1910.254(d)(9)(iii) by 1915.56(b)(3).</p>
<u>.255</u>	Yes	Yes	1910.255 applies on vessels and on shore for resistance welding; no applicable Part 1915 standard.

29 CFR Part 1910, Subpart R: Special Industries

Part 1910 Standard	Applicability: Vessel Shore		Remarks/Comments
<u>.261</u>	No	No	1910.261(a)(1) limits the applicability of this standard to pulp, paper and paperboard mills; no applicable Part 1915 standard.
<u>.262</u>	No	No	1910.262(a)(1) limits the applicability of this standard to textile machinery; no applicable Part 1915 standard.
<u>.263</u>	No	Yes	1910.263(a)(1) limits the applicability of this standard to equipment in bakeries. The standard is applicable to any bakery located within a shipyard cafeteria.

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.264	No	Yes	1910.264(b) limits the applicability of this standard to laundry facilities. The standard is applicable to laundry facilities located within a shipyard; no applicable Part 1915 standard.
.265	No	Yes	1910.265(a) limits the applicability of this standard to saw mills. The standard is applicable to saw mill facilities located within a shipyard (usually found at wooden vessel boatyards); no applicable Part 1915 standard.
.266	No	No	1910.266(b)(1) & (b)(2) limits the applicability of this standard to logging operations; no applicable Part 1915 standard.
.268	No	No	1910.268(a) limits the applicability of this standard to telecommunications centers and the installation of telecommunications equipment; no applicable Part 1915 standard.
.269	Yes	Yes	1910.269(a) limits the applicability of this standard to power generation, transmission and distribution; no applicable Part 1915 standard.
.272	No	No	1910.272(a) & (b) limit the <i>scope and application</i> of this standard to grain handling facilities; no applicable Part 1915 standard.

29 CFR Part 1910, Subpart S: Electrical

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.301 to .308	Yes*	Yes	<p>1910.301-.308 applies on shore. On vessels, 29 CFR Part 1910, Subpart S, is applicable when shore-based electrical installations provide power for use aboard vessels (e.g., the power for the electrical system comes from shore or from portable electrical generators that are either ashore or placed on a vessel); commonly accepted industry practice may deviate from standard requirements without exposing employees to hazards; for example, it is established industry practice to use methods such as overhead “trees” to route electrical cables, pneumatic hoses, etc., in a manner that poses no hazards to employees, yet these practices may not fully comply with 29 CFR Part 1910, Subpart S, requirements. Thorough evaluation and analysis must be conducted regarding the application and feasibility of the 29 CFR Part 1910, Subpart S, standard to vessels. OSHA regional offices and the OSHA National Office can provide assistance in making such determinations.</p> <p>NOTE: 29 CFR Part 1910, Subpart S, cannot be applied to a vessel’s permanently installed electrical system. Design specifications for vessels (including electrical systems) are addressed on U.S. “Inspected” vessels by U.S. Coast Guard regulations (46 CFR Parts 110 to 113), on foreign flag vessels by foreign standards and various International Vessel Classification Society rules (e.g., Bureau Veritas – France, Det Norske Veritas – Norway, Nippon Kaiji Kyokai – Japan, Lloyd’s Register of Shipping – England), and on “Uninspected” vessels by a variety of standards, recommended guidelines, and established industry practices. Any hazardous conditions that employees are exposed to related to <i>design</i> must be cited using the standards/rules (such as:</p>

.301 to .308 cont.	Yes*	Yes	U.S. Coast Guard, American Bureau of Shipping, Bureau Veritas, Nippon Kaiji Kyokai, American Yacht & Boat Council) under which the vessel's permanently installed electrical system was designed (verify by vessel drawings, documentation, publications, etc.) and applying the <i>general duty clause</i> .
.331 to .335	Yes*	Yes	1910.331-.335 apply on shore for both <u>qualified</u> persons (those who have training in avoiding the electrical hazards of working on or near exposed energized parts) and <u>unqualified</u> persons (those with little or no such training). On vessels, these provisions cover all electrical safety-related work practices for <u>unqualified</u> persons, including temporary electrical systems and the vessel's permanently installed electrical systems. On vessels, these provisions apply to electrical safety-related work practices for <u>qualified</u> persons when shore-based electrical installations provide power for use aboard vessels; these provisions do not apply to <u>qualified</u> persons working on the vessel's permanently installed electrical system. NOTE: There are additional electrical requirements in 1915.132 <i>Portable electric tools</i> ; 1915.152 <i>General requirements (PPE)</i> ; 1915.155(a)(2) <i>Head protection</i> ; 1915.157(c) <i>Hand and body protection</i> ; and 1915.181 <i>Electrical circuits and distribution boards</i> .

29 CFR Part 1910, Subpart T: Commercial Diving Operations

Part 1910 Standard	Applicability: Vessel Shore		Remarks/Comments
.401 to .441	Yes	Yes	29 CFR Part 1910, Subpart T – <i>Commercial Diving Operations</i> is incorporated into 29 CFR Part 1915 by 1915.6. NOTE: Diving conducted <u>from</u> inspected vessels (e.g., vessels with a U.S. Coast Guard “Certificate of Inspection”) including mobile offshore drilling units, at a deepwater port or within its safety zone, or from any artificial island, or installation or other device on the Outer Continental Shelf is covered by the U.S. Coast Guard (46 CFR Chapter I, Part 197, Subpart B – <i>Commercial Diving Operations</i>).

29 CFR Part 1910, Subpart Z: Toxic and Hazardous Substances

Part 1910 Standard	Applicability: Vessel Shore		Remarks/Comments
.1000	No	No	1915.1000 applies on vessels and on shore for air contaminants, preempting this standard in its entirety.
.1001	No	No	1915.1001 applies on vessels and on shore for asbestos, preempting this standard in its entirety.
.1002	Yes	Yes	1910.1002 applies on vessels and on shore for coal tar pitch volatiles; is incorporated into Part 1915 by 1915.1002.
.1003	Yes	Yes	1910.1003 applies on vessels and on shore for 13 carcinogens; is incorporated into Part 1915 by 1915.1003.
.1004	Yes	Yes	1910.1004 applies on vessels and on shore for alpha-Naphthylamine; is incorporated into Part 1915 by 1915.1004.

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.1006	Yes	Yes	1910.1006 applies on vessels and on shore for Methyl chloromethyl ether; is incorporated into Part 1915 by 1915.1006.
.1007	Yes	Yes	1910.1007 applies on vessels and on shore for 3, 3'-Dichlorobenzidine; is incorporated into Part 1915 by 1915.1007.
.1008	Yes	Yes	1910.1008 applies on vessels and on shore for bis-Chloromethyl ether; is incorporated into Part 1915 by 1915.1008.
.1009	Yes	Yes	1910.1009 applies on vessels and on shore for beta-Naphthylamine; is incorporated into Part 1915 by 1915.1009.
.1010	Yes	Yes	1910.1010 applies on vessels and on shore for Benzidine; is incorporated into Part 1915 by 1915.1010.
.1011	Yes	Yes	1910.1011 applies on vessels and on shore for 4-Aminodiphenyl; is incorporated into Part 1915 by 1915.1011.
.1012	Yes	Yes	1910.1012 applies on vessels and on shore for Etyleneimine; is incorporated into Part 1915 by 1915.1012.
.1013	Yes	Yes	1910.1013 applies on vessels and on shore for beta-Propiolactone; is incorporated into Part 1915 by 1915.1013.
.1014	Yes	Yes	1910.1014 applies on vessels and on shore for 2-Acetylaminofluorene; is incorporated into Part 1915 by 1915.1014.
.1015	Yes	Yes	1910.1015 applies on vessels and on shore for 4-Dimethylaminoazobenzene; is incorporated into Part 1915 by 1915.1015.
.1016	Yes	Yes	1910.1016 applies on vessels and on shore for N-Nitrosodimethylamine; is incorporated into Part 1915 by 1915.1016.
.1017	Yes	Yes	1910.1017 applies on vessels and on shore for vinyl chloride; is incorporated into Part 1915 by 1915.1017.
.1018	Yes	Yes	1910.1018 applies on vessels and on shore for inorganic arsenic; is incorporated into Part 1915 by 1915.1018.
.1020	Yes	Yes	1910.1020 applies on vessels and on shore for access to employee exposure and medical records; is incorporated into Part 1915 by 1915.1020.
.1025	Yes	Yes	1910.1025 applies on vessels and on shore for lead; is incorporated into Part 1915 by 1915.1025.
.1026	No	No	1915.1026 preempts this standard in its entirety.
.1027	Yes	Yes	1910.1027 applies on vessels and on shore for cadmium; is incorporated into Part 1915 by 1915.1027.
.1028	Yes	Yes	1910.1028 applies on vessels and on shore for benzene; is incorporated into Part 1915 by 1915.1028.
.1029	Yes	Yes	1910.1029 applies on vessels and on shore for coke oven emissions; no applicable Part 1915 standard.
.1030	Yes	Yes	1910.1030 applies on vessels and on shore for bloodborne pathogens; is incorporated into Part 1915 by 1915.1030.
.1043	No	No	1910.1043(a) limits the applicability of this standard to employee exposure to cotton dust in manufacturing; no applicable Part 1915 standard.

Part 1910 Standard	Applicability:		Remarks/Comments
	Vessel	Shore	
.1044	Yes	Yes	1910.1044 applies on vessels and on shore for 1, 2-dibromo-3-chloropropane; is incorporated into Part 1915 by 1915.1044.
.1045	Yes	Yes	1910.1045 applies on vessels and on shore for acrylonitrile; is incorporated into Part 1915 by 1915.1045.
.1047	Yes	Yes	1910.1047 applies on vessels and on shore for ethylene oxide; is incorporated into Part 1915 by 1915.1047.
.1048	Yes	Yes	1910.1048 applies on vessels and on shore for formaldehyde; is incorporated into Part 1915 by 1915.1048.
.1050	Yes	Yes	1910.1050 applies on vessels and on shore for methylenedianiline; is incorporated into Part 1915 by 1915.1050.
.1051	Yes	Yes	1910.1051 applies on vessels and on shore for 1,3-Butadiene; no applicable Part 1915 standard.
.1052	Yes	Yes	1910.1052 applies on vessels and on shore for methylene chloride; is incorporated into Part 1915 by 1915.1052.
.1096	Yes*	Yes	1910.1096 applies on vessels and on shore for ionizing radiation, except for work in the vicinity of vessel radars, for which 1915.85 preempts this standard.
.1200	Yes	Yes	1910.1200 applies on vessels and on shore for hazard communication; is incorporated into Part 1915 by 1915.1200.
.1450	Yes	Yes	1910.1450 applies on vessels and on shore for occupational exposure to hazardous chemicals in laboratories; is incorporated into Part 1915 by 1915.1450.

Appendix B: Answers to Common Questions Regarding Shipyard Employment

This appendix consolidates OSHA interpretations related to shipyard employment that have been issued and remain valid as of the date of this instruction. Interpretations previously issued by OSHA were reviewed to determine their current validity and accuracy. Interpretations for which standard references have changed were updated to reflect the current standard reference.

OSHA requirements are set by statute, standards, and regulations. Our interpretations explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. These responses constitute OSHA's interpretations of the requirements discussed. Note that enforcement guidance may be affected by changes to OSHA rules. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult OSHA's website at <http://www.osha.gov>.

Question 1: Do OSHA regulations, specifically 29 CFR 1910.24, apply to vessels?

Answer: Although all of the provisions of 29 CFR 1910.24 apply to fixed industrial stairs on vessels, OSHA exercises its enforcement discretion with respect to the design specification provisions when inspecting permanent fixed stairs on vessels. Thus, OSHA will enforce all of the provisions of 29 CFR 1910.24 with respect to fixed industrial stairs that *are not* a permanent part of the vessel (i.e., stairs brought in and installed for use during vessel construction, repair or overhaul to support employee access to the vessel or within the vessel). In addition, OSHA will enforce 29 CFR 1910.24(a), (b), (f) and (h) with respect to fixed stairs that *are* a permanent part of the vessel, since these provisions address the condition and use of fixed stairs. However, if fixed stairs that *are* a permanent part of the vessel comply with the design specifications discussed below, OSHA will not issue citations regarding design specification provisions in 29 CFR 1910.24(c), (d), (e), (g) and (i).

Design specifications for vessels (including fixed stairs) are addressed on U.S. "Inspected" vessels by U.S. Coast Guard regulations (46 CFR), on foreign flag vessels by foreign standards and various international vessel classification society rules (e.g., Bureau Veritas – France, Nippon Kaiji Kyokai – Japan, Lloyd's Register of Shipping – England), and on "Uninspected" vessels by a variety of standards, recommended guidelines, and established industry practice. Any hazardous conditions that employees are exposed to related to design will be evaluated using the standard, guidance or practice under which the vessel's fixed stairs were designed.

Question 2: As a result of the April 6, 1994 revisions to the general industry *Personal Protective Equipment (PPE)* standards, are 29 CFR 1910.132 through .138 applicable to shipyards?

Answer: The general industry standards for PPE, 29 CFR 1910.132 through .138, cannot be applied in shipyard employment, with the exception of 29 CFR 1910.134, *Respiratory protection* and 29 CFR 1910.137(a) and (b) {*Electrical Protective Devices*}. The applicable PPE requirements for shipyard employment are:

- 29 CFR 1915.152 *General requirements.*
- 29 CFR 1915.153 *Eye and face protection.*
- 29 CFR 1915.154 *Respiratory protection* (covered by 29 CFR 1910.134).
- 29 CFR 1915.155 *Head protection.*
- 29 CFR 1915.156 *Foot protection.*
- 29 CFR 1915.157 *Hand and body protection.*

NOTE: See [CPL 02-01-049](#), 29 CFR Part 1915, Subpart I, *Personal Protective Equipment (PPE) in Shipyard Employment*, November 4, 2010.

Question 3: Can individual employees engaged in shipyard employment be exempt from the requirement to wear head protection in areas where there is a hazard from falling objects for religious reasons?

Answer: OSHA will grant an exemption from citations to employers of employees in all industries who, for reasons of personal religious convictions, object to wearing hardhats in the workplace. However, there could be circumstances that would involve a hazard sufficiently grave to raise a compelling government interest for requiring the wearing of hardhats, notwithstanding an individual employee's personal religious convictions. Specific guidance is provided by [STD 01-06-005](#), *Exemption for Religious Reason from Wearing Hard Hats*, June 20, 1994.

Question 4: Can boatyards follow OSHA's general industry *Permit-Required Confined Spaces* standard, 29 CFR 1910.146, for employee entry into confined or enclosed spaces on vessels that previously contained diesel fuel, to do hot work?

Answer: No. The *scope and application* section of OSHA's general industry *Permit-required confined spaces* standard, 29 CFR 1910.146(a), prohibits the application of this standard to shipyard (and boatyard) employment. The requirements for entry into a confined or enclosed space on a vessel for the purpose of doing hot work are found in 29 CFR Part 1915, Subpart B. This standard requires, in part, testing and certification of the confined or enclosed spaces by a Marine Chemist or U.S. Coast Guard authorized person as "Safe for Hot Work."

Question 5: An "uninspected" tugboat employer is required to follow 29 CFR Part 1915, Subpart B, *Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment*, when performing ship repair functions. Does this same employer need to implement 29 CFR 1910.146, *Permit-required confined spaces*, when employees enter confined spaces on the same vessel for non-repair reasons (such as for retrieving ropes)?

Answer: An employer operating an "uninspected" tugboat (i.e. a tugboat which is not a seagoing motor vessel 300 gross tons or more and is not a steam vessel) is required to follow and comply with 29 CFR Part 1915, Subpart B, *Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment*, when performing ship repair functions (such as alterations, conversions, installations, cleaning, painting, and maintenance). This same tugboat employer is required to follow and comply with the 29 CFR 1910.146, *Permit-required confined space* standards, when employees are performing various routine tasks (such as retrieving ropes from confined spaces). Moreover, situations regularly occur on tugboats that require compliance with both standards at the same time. Requiring a single employer to implement two confined space entry procedures at the same site simultaneously can lead to confusion, inadvertent errors, and possibly reduced employee safety. Therefore, an "uninspected" tugboat employer may be allowed to comply with 29 CFR Part 1915 requirements for all confined space work aboard the tugboat. Any violation of an applicable 29 CFR 1910.146 requirement would be treated as a *de minimis* violation and not cited.

NOTE 1: Under U.S. Coast Guard regulations in effect prior to August 9, 2004, the only towing vessels classified by the U.S. Coast Guard as "inspected vessels" were seagoing motor vessels that were 300 or more gross tons or were steam vessels (See 46 CFR 90.05-1(a), Table 90.05-1(a)). The U.S. Coast Guard continues to have the authority to regulate these towing vessels because they are seagoing motor vessels or steam vessels. Thus, pursuant to Section 4(b)(1) of the *OSH Act*, OSHA has no authority to protect seamen on these vessels because they are "inspected vessels," as defined by U.S. Coast Guard regulations. Effective August 9, 2004, "towing vessels" were added to the list of vessels for which the U.S. Coast Guard has the authority to prescribe and enforce regulations (See 46 U.S.C. 3301(15)). At the time of the publication of this instruction the U.S. Coast Guard was conducting rulemaking to determine which additional towing vessels should be covered by its inspected vessels regulations and which of these regulations should apply (See Notice of Proposed Rulemaking published on Thursday, August 11, 2011, [76 F.R. 49976](#)). However, until any new U.S. Coast Guard regulations on towing vessels are in effect all working conditions, including confined space hazards, of seamen on a towing vessel which are not an

“inspected vessel” (i.e., “uninspected” vessel) are covered by OSHA, except for the few conditions covered by the U.S. Coast Guard’s uninspected vessel regulations (See 46 CFR Part 24 and [CPL 02-01-047](#), *OSHA Authority over Vessels and Facilities on or Adjacent to U.S. Navigable Waters and the Outer Continental Shelf (OCS)*, February 22, 2010).

NOTE 2: See Enforcement Programs, paragraph [XV.C.2](#) for limitations on citing when crew members are exposed to these violative conditions.

Question 6: 29 CFR 1915.11 *Scope, application, and definitions applicable to this subpart states, “This subpart applies to work in confined and enclosed spaces and other dangerous atmospheres in shipyard employment, including vessels, vessel sections, and on land-side operations regardless of geographic location.” Does 29 CFR Part 1915, Subpart B, apply to grain facility employees who enter wing, bow, and/or stern tanks to perform repairs or other maintenance work, even if those employees were originally engaged in loading the barge?*

Answer: 29 CFR Part 1915, Subpart B, applies to any employee who enters enclosed or confined spaces aboard a vessel to perform repairs or other maintenance work.

A grain facility employer must follow and comply with the 29 CFR Part 1915, Subpart B, *Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment*, when performing ship repair functions (such as altering, converting, installing, cleaning, painting, and maintenance work). This same grain facility employer must follow and comply with the 29 CFR 1910.146, *Permit-required confined space*, when employees are performing various routine tasks (such as retrieving ropes from confined spaces). Moreover, situations regularly occur on vessels that require compliance with both standards at the same time. Requiring a single site employer to implement two confined space entry procedures simultaneously can lead to confusion, inadvertent errors and possibly reduced employee safety. Therefore, a grain facility employer may be allowed to follow 29 CFR Part 1915, Subpart B, for all confined space work aboard a vessel, provided that there is also full compliance with the 29 CFR Part 1915 requirements. Any violation of an arguably applicable 29 CFR 1910.146 requirement would be treated as a *de minimis* violation and not cited.

Question 7: *Would OSHA cite an employer who chooses to follow the procedures contained in 29 CFR 1910.146, Permit-required confined spaces, when facility employees enter wing, bow, and/or stern tanks?*

Answer: OSHA would not issue citations to an employer that considers wing, bow, and/or stern tanks to be permit-required confined spaces, provided that the entry is in compliance with 29 CFR 1910.146 and does not involve hot work.

Question 8: *Are there any circumstances where 29 CFR 1910.147, Control of hazardous energy (lockout/tagout), would apply and be enforceable in shipyard operations? My question pertains to shore-side shipbuilding, ship repairing, or shipbreaking, as well as work done on the water.*

Answer: No. On May 2, 2011, the Final Rule for 29 CFR Part 1915, Subpart F, *General Working Conditions in Shipyard Employment* was published (See [76 F.R. 24575-24711](#)). As part of the final rule, 29 CFR 1915.89(a)(2)(i)(A) and (B) state that the *control of hazardous energy (lockout/tags-plus)* applies to “any land-side facility” and “on any vessel or vessel section.” Explanation of the standard is discussed in the preamble on page 24624 of the Federal Register, as well as outlined in [Appendix D](#) of this directive.

Question 9: *Is the application of OSHA’s shipyard standards limited by the definition of employer and employee?*

Answer: See Enforcement Programs, paragraph [XV.C.2](#).

Question 10: 29 CFR 1915.2(b) *Scope and application* states, “This part does not apply to matters under the control of the United States Coast Guard, ... including, but not restricted to, the master, ship’s officers, crew members, design, construction and maintenance of the vessel, its gear and

equipment.” Does the *scope and application* of 29 CFR 1915.2(b) limit OSHA’s authority in shipyard employment?

Answer: See Enforcement Programs, paragraph [XV.C.2](#) on the limitations under 29 CFR Part 1915 on issuing citations when the exposed employees are crew members. Also, in addition to these limitations, OSHA’s authority is limited by Section 4(b)(1) of the *Occupational Safety and Health Act*, which states, “Nothing in this Act shall apply to working conditions of employees with respect to which other Federal agencies..., exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety or health.” Therefore, OSHA may not issue citations for hazards to which crew members of inspected vessels are exposed. OSHA citations are not barred under Section 4(b)(1) by Coast Guard regulations with respect to crew members on uninspected vessels, except with respect to those hazards addressed by Coast Guard regulations. See also [CPL 02-01-047](#), *OSHA Authority over Vessels and Facilities on or Adjacent to U.S. Navigable Waters and the Outer Continental Shelf (OCS)*, February 22, 2010).

Question 11: What are the 29 CFR Part 1915 shipyard employment requirements for a shipyard competent person to perform confined space entry and monitoring?

Answer: Confined space entry requirements are addressed by OSHA Instruction [CPL 02-01-051](#), *29 CFR Part 1915, Subpart B, Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment*, May 20, 2011. In addition to providing current policy, inspection procedures, information, and guidance to ensure uniform enforcement, this instruction includes six flow charts that delineate 29 CFR Part 1915, Subpart B procedures for: Documentation and Training, Precautions Before Entering, Combustible/Flammable Checks, Cold Work Checks, Hot Work Checks, and Maintenance of Safe Conditions.

The OSHA Confined Space standard for shipyard employment became effective on October 24, 1994. This revised standard extended the *scope and applicability* of the confined space shipyard employment standard (29 CFR 1915.11) to cover all shipyard employment both on vessels and land-side operations regardless of geographic location. The only exception to the applicability of 29 CFR Part 1915, Subpart B, within a shipyard, is that construction activities covered by 29 CFR Part 1926 are not subject to the provisions of 29 CFR Part 1915, Subpart B.

The revised standard deleted the requirement for employers to specifically use and maintain the Form OSHA 73, *Designation of Competent Person*. Employers now have the option of using the Form OSHA 73, maintaining a written roster of designated employees, or issuing a written statement that a Marine Chemist will always be used for the required inspections and tests (29 CFR 1915.7(b)(2)(i)). When the roster is used, it must contain the following information as a minimum: employers’ name, the designated competent person’s name, and the date the employee was trained as a competent person (29 CFR 1915.7(b)(2)(iii)).

The revised standard also deleted the requirement for employers to specifically use and maintain the Form OSHA 74, *Log of Inspections and Tests by Competent Person*. Employers must still maintain a record of inspections and tests, but they now have the option of choosing the form or format. Such records must be posted in the immediate vicinity of the affected operations while work is in progress and be maintained for a period of at least three months from the completion date of the specific job for which they were generated (29 CFR 1915.7(d)(2)).

The revised standard continued the previous requirement that the employer designate at least one competent person for the purpose of testing work space atmospheres in shipyard employment, unless all of the employer’s testing under 29 CFR Part 1915, Subpart B is performed by a Marine Chemist (29 CFR 1915.7(b)(1)). A U.S. Coast Guard authorized person cannot be substituted for the competent person required by 29 CFR 1915.7(b)(1), because the U.S. Coast Guard authorized person may not have been trained to have all the skills and knowledge of a competent person.

The criterion of 29 CFR 1915.7(c) requires the shipyard competent person to have the skill and knowledge necessary to perform atmospheric testing. 29 CFR 1915.7(c)(1) requires that the competent

person be able to understand and carry out the written or oral instructions left by a Marine Chemist, U.S. Coast Guard authorized person, or Certified Industrial Hygienist. 29 CFR 1915.7(c)(2) requires competent persons to have a knowledge of 29 CFR Part 1915, Subparts B, C, D, and H. 29 CFR 1915.7(c)(3) requires that competent persons have a familiarity with the structure, location, and designation of spaces where work is done. 29 CFR 1915.7(c)(4) continues to require competent persons to have the ability to use and interpret the readings of oxygen, combustible gas, and carbon dioxide indicators. Competent persons also must be able to calibrate all the testing equipment they use. 29 CFR 1915.7(c)(5) continues the requirement for a competent person to have the ability to perform all required tests and inspections as set forth in 29 CFR Part 1915, Subparts B, C, D and H. 29 CFR 1915.7(c)(6) requires competent persons to have the ability to evaluate spaces after a test to determine the need for further testing by a Marine Chemist, Certified Industrial Hygienist, or U.S. Coast Guard authorized person. 29 CFR 1915.7(c)(7) requires that a competent person have the capability to maintain the records required by the standard.

Question 12: Which standard, 29 CFR 1915.12(b)(1) or 29 CFR 1910.1028(e), is applicable if benzene monitoring on a ship is not conducted by a qualified person?

Answer: When benzene monitoring is conducted on a ship, both 29 CFR 1915.12(b) and 29 CFR 1910.1028(e) apply. Test and inspection requirements are delineated under 29 CFR 1915.12(b) for inspector qualifications, situations requiring testing of spaces, and recording of results. Exposure monitoring requirements for benzene are addressed under 29 CFR 1910.1028(e) and are applicable as per 29 CFR 1910.1028(a) for all occupational exposures to benzene except as noted under 29 CFR 1910.1028(a)(2). Specific attention is called to 29 CFR 1910.1028(a)(3), which excludes the cleaning and repair of barges and tankers that have contained benzene from 29 CFR 1910.1028(e)(1), 1910.1028(e)(6), and 1910.1028(f), and requires establishing engineering and work practice controls that keep exposures below 10 parts per million (ppm).

Question 13: 29 CFR 1915.14(a)(1)(iv) *Hot work requiring testing by a Marine Chemist or Coast Guard authorized person* states, “The employer shall ensure that hot work is not performed in or on any of the following confined and enclosed spaces and other dangerous atmospheres, boundaries or spaces or pipelines until the work area has been tested and certified by a Marine Chemist or a U.S. Coast Guard authorized person as “safe for hot work.” Is there ever a circumstance where the shipyard competent person can certify a space as “safe for hot work?”

Answer: The exemption in 29 CFR 1915.14(a)(1)(iv) means that a Marine Chemist certificate is not required to perform hot work within spaces adjacent to spaces in which the flammable gases or liquids have a flash point above 150 degrees Fahrenheit, and the distance between such spaces and the work is greater than 25 feet. The competent person also can certify dry cargo holds, bilges, engine rooms, boiler spaces, other vessel sections, and land-side operations as “safe for hot work” as long as the space, and the immediately adjacent spaces, have not contained combustible or flammable liquids or gases. Additional guidance can be found in [CPL 02-01-051](#), *29 CFR Part 1915, Subpart B, Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment*, May 20, 2011.

Question 14: Is abrasive blasting on the hull of a vessel for paint preparation considered to be “hot work?”

Answer: Abrasive blasting of a vessel hull for paint preparation is not always regarded as hot work and therefore may not require pumping and cleaning the tanks of the vessel. However, OSHA regards abrasive blasting on an internal space or void of a vessel to be hot work. Additionally, physical isolation from any atmosphere containing more than 10 percent of the LEL of a flammable or combustible substance does not include bulkheads that are part of the space that contains the flammable or combustible substance.

Question 15: Is grinding on aluminum considered “hot work” which would require a fire watch?

Answer: OSHA does not define hot work based on specific types of materials or processes due to the endless possible combinations thereof. Hot work is defined in [29 CFR 1915.4\(r\)](#) as “riveting, welding,

burning, or other fire or spark producing operations.” Thus, regardless of the type of material being ground, if fire or sparks are produced under any of the conditions specified in [1915.504\(b\)](#), then a fire watch is required to be posted. Conversely, if no fire or sparks are produced, then the operation is not considered hot work, and a fire watch is not required.

Question 16: 29 CFR 1915.15(a) *Maintenance of safe conditions* states, “Pipelines that carry hazardous materials into spaces that have been certified “Safe for Workers” or “Safe for Hot Work” shall be disconnected, blanked off, or otherwise blocked by a positive method to prevent hazardous materials from being discharged into the space.” Can carbon dioxide (CO₂) fixed fire extinguishing systems on vessels and in spaces where employees are working be left activated while the vessel is in the shipyard for repair?

Answer: Carbon dioxide (CO₂) is considered a hazardous substance as defined in 29 CFR 1915.4(n); pipelines that convey the gas must be disconnected, blanked off, or otherwise secured to prevent accidental discharge while repairs are undertaken in spaces where the CO₂ fixed fire extinguishing system is designed to discharge. Specific guidance is provided in 29 CFR 1915.506 *Hazards of fixed extinguishing systems on board vessels and vessel sections*.

Question 17: What are the appropriate OSHA standards related to painting activities in the shipyard environment?

Answer: For applications involving surface preparation and preservation of vessels (ships) and vessel sections, whether the vessel is located in a large enclosed area or a dry dock facility, the requirements of 29 CFR Part 1915, Subpart C, *Surface Preparation and Preservation* (i.e., 29 CFR 1915.31/.32/.33/.34/.35/.36) are applicable. Additionally, 29 CFR Part 1915, Subpart B, *Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment* may be applicable depending on the location of the work.

For applications involving the surface preparation and preservation of small removable/portable vessel components, appendages, assemblies, equipment, etc., when using spray booths, the requirements of 29 CFR 1910.94 and 29 CFR 1910.107 would be applicable.

Question 18: If a building of several hundred thousand cubic feet is constructed exclusively for vessel spray painting operations, would the operation be considered a “spray area,” a “spray room” or a “spray booth?” Could this operation be classified as a “spray room” under NFPA 33? If the vessel spray painting operation complies with the requirements for a “spray room” that are set forth in NFPA 33, will OSHA consider that to be in compliance with 29 CFR 1910.94 and 29 CFR 1910.107? Will OSHA insist on a specific rate of ventilation for the constructed facility or will it be sufficient for the operator to show that levels of flammable or combustible vapors do not exceed the safe levels set forth by OSHA in 29 CFR 1926.57?

Answer: 29 CFR Part 1915 contains occupational safety and health standards specific to shipyard employment. However, where coverage of a hazard by a 29 CFR Part 1915 standard is absent, the 29 CFR Part 1910 standards may be applied to address the hazard. The facility that you have described would be considered a “spray room” under 29 CFR 1910.94(c)(1)(iii) and NFPA 33-1969. Although 29 CFR Part 1915 addresses spray painting operations, it does not specifically address “spray rooms.” Therefore, the requirements of 29 CFR 1910.94(c) apply to associated hazards not covered by a 29 CFR Part 1915 standard. For shipyard applications involving surface preparation and preservation of vessels and vessel sections, whether the vessel is located in a large enclosed area (such as a “spray room”) or in a drydock facility, the requirements of 29 CFR Part 1915, Subpart C – *Surface Preparation and Preservation* (i.e., 29 CFR 1915.31/.32/.33/.34/.35/.36), apply. Additionally, other 29 CFR Part 1915 standards, such as 29 CFR Part 1915, Subpart B – *Confined and Enclosed Spaces and Other Dangerous Atmospheres*, may apply. With respect to specific rates of ventilation required to prevent the accumulation of flammable or combustible vapors, the OSHA shipyard employment standards do not establish ventilation rates for spray painting facilities. Instead, the 29 CFR Part 1915 standards require

that levels of flammable and combustible vapors be maintained within 10% of the respective substance's LEL. The 29 CFR 1926.57 standards for construction do not apply to shipyard employment activities.

It is the employer's responsibility to evaluate the spray finishing operation and determine that the appropriate hazard classification (such as Class I or Class II) is used, as well as to ensure that appropriate equipment that is approved for the specific location is used.

Question 19: 29 CFR 1915.34(a)(2) *Mechanical paint removers* states, "All portable rotating tools used for the removal of paints, preservatives, rusts or other coatings shall be adequately guarded to protect both the operator and nearby workers from flying missiles." Does this regulation apply to disc sanders?

Answer: A shipyard employer using portable disc sanders for paint, preservative, rust, or other coatings removal would have to guard the operation. This could be accomplished by guarding either the sander or the complete operation.

Question 20: 29 CFR 1915.55(f)(5) *Gas cutting and welding* states, "Hose couplings shall be of the type that cannot be unlocked or disconnected by means of a straight pull without rotary motion." Do Hansen® Quick Disconnect (QD) Coupling Sets provide protection that is at least equivalent to that provided by the use of coupling sets that comply with paragraph (f)(5) of 29 CFR 1915.55?

Answer: OSHA is generally precluded from approving or endorsing specific products. The variable working conditions at job sites and possible alteration or misapplication of an otherwise safe piece of equipment could easily create a hazardous condition beyond the control of the equipment manufacturer. However, where appropriate, we try to give some guidance to help employers assess whether products are appropriate to use in light of OSHA requirements.

The Hansen® QD couplings for oxyacetylene service consist of two coupling series. The 600-Series couplings are manufactured for oxygen service and the female end is color-coded green. The 700-Series couplings are manufactured for acetylene service and the female end is color-coded red. The 600- and 700-Series couplings are distinguishable from each other by feel (oxygen female sleeve is smooth, acetylene female sleeve is textured), and, through design, the male-to-female coupling ends are not interchangeable between coupling series.

The Hansen® QD couplings are designed to be installed so that the coupling female end is on the gas supply side of the hose. The QD couplings are connected by rotating the female sleeve alignment mark to line up with the retaining ball, pulling back the spring-loaded female sleeve, fully inserting the male end into the female end, releasing the female sleeve, and rotating the sleeve alignment mark ¼ to ½ turn from the retaining ball.

If the female sleeve is aligned to the releasing position during use, it is possible for the coupling to inadvertently become disconnected by means of a straight pull. Should this event occur, the only gas discharged from the hose would be from the hose coupling male end; there would be no danger of the hose whipping around because the female end is fitted with a spring-loaded valve that immediately closes when the male coupling end is removed. Therefore, with the male coupling end removed, no gas can flow through the female coupling end from the gas supply.

The Hansen® 600- and 700-Series QD couplings are in compliance with OSHA standards when properly installed for use. Proper installation includes having the female coupling end on the gas supply side and the female sleeve rotated so that the coupling cannot be disconnected by means of a straight pull.

Question 21: Are employees required to use fall protection while erecting, dismantling, or making alterations to scaffolds in excess of five feet in height in ship repairing or shipbuilding operations?

Answer: Yes. According to 1915.71(b)(7), "No scaffold shall be erected, moved, dismantled or altered except under the supervision of competent persons." Therefore, a competent person must be capable of recognizing and evaluating an employee's exposure to the hazards involved and be capable of specifying when and how protective measures must be taken to protect against a fall.

The intent of 1915.71(b)(7) is to require employees engaged in erecting, moving, dismantling, or altering scaffolds to be secured at all times by wearing a safety harness and lifeline when feasible. The approval of the scaffold manufacturer should be obtained prior to allowing a lifeline to be secured to the scaffold frame.

Question 22: Are welded frame scaffolding systems that utilize crossbracing as a midrail or a toprail acceptable for use in shipyard employment?

Answer: Yes. Employers will be considered to be in compliance with shipyard guarding requirements if they use metal frame scaffolding that meets the requirements of 29 CFR 1926.451(g)(4)(xv), which states, “Crossbracing is acceptable in place of a midrail when the crossing point of two braces is between 20 inches and 30 inches above the work platform or as a toprail when the crossing point of two braces is between 38 inches and 48 inches above the work platform.”

Question 23: 29 CFR 1915.71(j)(2) Scaffolds or staging states, “When used with rigid supports, taut wire or fiber rope of adequate strength may be used.” What is the definition of “taut” as used in the standard?

Answer: “Taut” means that when a load of 200 pounds is applied in any direction at any point on the top rail, the maximum deflection will not exceed three inches in one direction including the free hanging sag in the rope or chain, and the top edge cannot drop below the minimum height required (42 to 45 inches).

Question 24: Does placing a broken ladder back into service after making repairs meet the requirements of 29 CFR 1915.72(a)(1)?

Answer: If repairs restore the ladder to a condition meeting its original design criteria, then it may be returned to use in shipyard employment. Such work may be performed by the original manufacturer or any other qualified repair activity, including the maintenance department of the shipyard. It is the responsibility of the employer to demonstrate that the ladder was repaired so that it meets the original design criteria.

Question 25: 29 CFR 1915.72 Ladders, paragraph (a)(3), states, “Portable ladders shall be lashed, blocked, or otherwise secured to prevent their being displaced.” What are OSHA’s requirements for “stack or scaling ladders?”

Answer: By definition, stack or scaling ladders are portable ladders. Therefore, stack or scaling ladders would have to comply with all the requirements for portable ladders, including 29 CFR 1915.72(a)(3), and be lashed, blocked, or otherwise secured to prevent their being displaced.

Question 26: What is the history of “U” bar guards, and can they be used to temporarily guard flush manholes opened during shipbuilding or ship repair operations?

Answer: According to 29 CFR 1915.73(b), “When employees are working in the vicinity of flush manholes and other small openings of comparable size in the deck and other working surfaces, such openings shall be suitably covered or guarded to a height of not less than 30 inches, except where the use of such guards is made impractical by the work actually in progress.” The “U” bar guard has been widely used throughout the ship repair and shipbuilding industry since the early 1960s as an accepted and suitable method for guarding open flush manholes when permanent guards would be impractical or when the use of a permanent guard would in itself constitute or contribute to a hazard. “U” bars and similar guards have proven to be a practical and suitable solution to various deck opening guarding problems and there have been no known serious injuries attributed to their use. OSHA continues to consider the “U” bar guard as a suitable method for temporarily guarding flush manholes opened during shipbuilding and ship repair operations.

To further clarify the use and suitable applications of “U” bar guards, the following information is provided:

- On certain vessels, particularly tankers and bulk liquid barges, there are a considerable number of manholes, inspection plates, and other deck openings such as Butterworth holes. These openings

are used during construction and repair for the entry of employees and materials as well as for ventilation, either forced or natural. Uncovered openings may exist for very short periods of time, such as for inspection, or may exist for longer periods of time, as during shipbuilding or major ship repairs. “U” bar guards are designed to allow for immediate installation, whereas a welded guard may take longer to fabricate than the time a manhole would be uncovered for work or for inspection.

- The “U” bar guard provides a substantial hand hold for employees entering or leaving the tank or compartment and results in a safer entry and exit, whereas a fixed periphery guard necessitates climbing over the upper rail, which contributes to the hazardous condition.
- Unsecured portable type periphery guards, similar to those used in guarding street utility manholes, would be subject to slipping and sliding on the steel deck when struck by materials or employees working in the vicinity.
- A portable or fixed periphery guard would have to be removed to permit materials to be lowered or hoisted into the space, during which time no protection would be provided. In most cases, a “U” bar guard does not require removal for similar operations, thus providing the greatest amount of protection to the employee.
- In tanker and liquid barge repair, where manhole access is necessary into those tanks classified by the Marine Chemist as “Safe for Workers, Not Safe for Hot Work,” and where no hot work is permitted, the “U” bar guard is particularly suitable in that no hot work is required for its installation.
- Due to the configuration and standardization of the “U” bar guard, safe storage and handling is achieved, reducing the likelihood of injury.
- Recognizing that manholes are generally of standard size, as are bolt and thread sizes, “U” bar guards designed and fabricated in conformity with general manhole size standards can be used consistently from vessel to vessel, thereby heightening their acceptability and ready use.

Question 27: Are there safety rules or regulations outlining the safety of personnel while using rolling gangways?

Answer: Gangways are covered by OSHA regulations for shipyard employment under 29 CFR 1915.74 *Access to vessels*.

The following documents contain useful safety and design information pertaining to rolling gangways on vessels:

- International Labor Organization (ILO) Publication – *ILO Code of Practice, “Safety and Health in Ports,” 2005–Section 3.4, Shore-Side Access to Ships*;
- Det Norske Veritas (DNV) Standard – NS 6249; and
- International Standards Organization – ISO 5488.

Question 28: 29 CFR 1915.87(d)(3) states, “The employer shall ensure that first aid supplies are placed in a weatherproof container.” 1915.87(d)(4) further states, “The employer shall maintain first aid supplies in a dry, sterile, and serviceable condition.” “Unit-type kits” have all items in the first-aid kit individually wrapped, sealed, and packaged in comparable size packages. “Commercial or cabinet-type kits” require only those items that must be kept sterile to be individually wrapped and sealed. The items in the commercial or cabinet-type kit are not necessarily of uniform size. Are commercial or cabinet-type first-aid kits acceptable for compliance with 29 CFR 1915.87(d)(3) and (4)?

Answer: Items such as scissors, tweezers, tubes of ointment, or adhesive tape need not be individually wrapped, sealed, or disposed of after a single application. Individual packaging and sealing should be required only for those items that must be kept sterile in a first-aid kit as recommended by a consulting physician. Commercial or cabinet-type first-aid kits, as well as unit-type first-aid kits, meet the requirements of 29 CFR 1915.87(d).

Question 29: Section 1915.111(a) states, “All gear and equipment provided by the employer for rigging and materials handling shall be inspected before each shift and when necessary, at intervals during its use to ensure that it is safe. Defective gear shall be removed and repaired or replaced before further use.” When conducting a visual inspection of a sheave on a crane or derrick, how is this done and what needs to be looked at? Should the wire rope also be looked at during the visual inspection of the sheaves? When should a sheave be replaced?

If a visual inspection of a sheave on a crane or derrick identifies a condition that has not been previously assessed by the employer, such as corrugation or an unusual wear pattern on the sheave, then a sheave gauge (groove gauge) must be used to accurately assess the wear pattern and the amount of wear to the sheave. Although corrugation (in and of itself as a surface condition) may only cause accelerated wear of the wire rope, it is an indicator that more significant and possibly unsafe sheave component wear conditions may be present.

When excessive component wear is found to exist on a sheave, particular attention should be given to inspecting for distortion and damage to the core of the wire rope. For instance, a wear pattern that is deep and narrow (resulting in a smaller diameter groove) can pinch the wire rope, cause permanent wire rope distortion, and crush the wire rope core. Also, a sheave wear pattern that forms a progressively larger groove diameter may provide insufficient groove contour support (groove diameter too large for the wire rope diameter), cause the wire rope to flatten and become distorted, and result in an increase in the bending fatigue of the wire rope.

Core failure can be checked by diameter measurement (diameter is reduced with core deterioration), or by length of lay measurement (core damage can result in an increase in lay length). Wire ropes that do not meet applicable requirements must be immediately removed from service. A sheave with excessive component wear must be replaced or reconditioned when the wire rope is replaced.

Question 30: 29 CFR 1915.112(b)(4) states, “Wire rope shall not be secured by knots.” Is it ever acceptable in shipyard employment to secure a wire rope by the use of knots?

Answer: No. Securing a wire rope by the use of knots is strictly prohibited in shipyard employment.

Question 31: What are the certification requirements for cranes located in a shipyard, both floating and shore-based?

Answer: As stated in 29 CFR 1915.115(a)(1), “Derricks and cranes which are part of, or regularly placed aboard barges, other vessels, or on the wingwalls of floating drydocks, and are used to transfer materials or equipment from or to a vessel or drydock, shall be tested and certificated in accordance with the standards provided in 29 CFR Part 1919 by persons accredited for the purpose.” Consequently, all shipyard *floating* derricks and cranes that service a vessel or drydock are subject to certification under 29 CFR 1915.115(a)(1). These certifications must be performed by persons accredited for this purpose (i.e., accredited for “full-function vessels” or “floating cranes and derricks” as appropriate) and conducted in accordance with the requirements of 29 CFR Part 1919, *Gear Certification*.

Shipyard *shore-based* derricks and cranes are not required to be certificated in accordance with 29 CFR Part 1919. However, OSHA has a longstanding policy of encouraging shipyard employers to certify shore-based derricks and cranes in accordance with 29 CFR Part 1919, particularly those that service vessels and vessel sections.

Additional guidance regarding 29 CFR Part 1919 accreditation and certification requirements can be found in CPL [02-01-055](#), *Maritime Cargo Gear Standards and 29 CFR 1919 Certification*, September 30, 2013.

Question 32: What are the acceptable methods for reconditioning wire rope sheaves on cranes and derricks? Can defective sheaves be reconditioned using portable hand tools?

Answer: For sheave grooves that can be reconditioned (such as iron, steel, and manganese steel), such reconditioning must be performed within the design tolerances allowed for by the manufacturer. The method of reconditioning must provide for the proper groove size, correct groove contour, proper

surface condition, and consistent roundness (concentricity) of the sheave. Turning sheave grooves (re-machining) is an acceptable method of reconditioning, provided that the original manufacturer's repair procedures and specifications are followed. Grinding defective sheave grooves with portable hand tools is not an acceptable method of reconditioning sheaves.

Question 33: Can slings other than those specifically mentioned in 29 CFR 1915.112 and 29 CFR 1915.118 be used?

Answer: The shipyard standard contains requirements for manila rope, wire rope, and chain slings. The use of other types of slings is not prohibited. Employers must use slings (and shackles, 29 CFR 1915.113) with permanently affixed identification markings that depict the maximum load capacity. If the sling is missing its identification marking, consistent with the latest ASME/ANSI B30.8 standard, employers must remove the sling from service until they reattach the identification markings (See [76 F.R. 33590](#)).

Question 34: 29 CFR 1915.135 Powder actuated fastening tools does not appear to address tools that are fed by a magazine. When are magazine-fed, powder-actuated fastening tools considered safe for inspection?

Answer: In developing and promulgating the standard, the magazine- or clip-fed explosive powder load was not considered. A magazine contains several explosive powder loads and is inserted into the tool; single loads are fed into the ram (firing chamber) as needed. When magazine-fed tools are inspected, the tool is not considered loaded until the magazine feeds an explosive powder load into the tool. A magazine-fed powder-actuated fastening tool is considered safe for inspection when the tool is not loaded, and the magazine is not attached to the tool or has been verified to be empty.

Question 35: 29 CFR 1915.158(a)(1) Personal flotation devices (PFDs) states, "PFDs (life preservers, life jackets, and work vests) worn by each affected employee shall be United States Coast Guard (USCG) approved pursuant to 46 CFR Part 160 (Type I, II, III, or V PFD) and marked for use as a work vest, for commercial use, or for use on vessels." Can a Type V hybrid life belt, which is equivalent to a Type III PFD, meet the requirements of the standard?

Answer: All hybrid PFDs that are approved by the U.S. Coast Guard have specific restrictions with respect to their approved use. For Type V hybrid PFDs, the USCG can grant type approval as either a recreational hybrid or a commercial hybrid. A recreational hybrid PFD is approved for use for recreational purposes. A commercial hybrid PFD is approved for use on commercial vessels and occupational purposes.

Each PFD is specifically marked with text that includes the type of approval for use and any restrictions which apply. OSHA accepts USCG devices approved as a Type I PFD, Type II PFD, Type III PFD, or Type V PFD, or their equivalent if the restrictions marked on the PFD do not preclude its use. A Type V hybrid PFD marked as a "Recreational Hybrid" or "For Recreational Use" would not be in compliance with Federal OSHA standards since the PFD is approved only for recreational use, and not for commercial use or use as a work vest. A Type V hybrid PFD marked for "Commercial Use," "Use as a Work Vest," "Approved for All Vessels," or "Approved for Merchant Service" would be recognized as being in compliance with Federal OSHA standards.

Question 36: 29 CFR 1915.181 contains provisions for the control of electrical energy sources during shipbuilding and ship repair, but not shipbreaking. What electrical energy control regulations would be specifically applicable to shipbreaking?

Answer: 29 CFR 1915.89 *Control of hazardous energy (lockout/tags-plus)*, published as a Final Rule on May 2, 2011, applies to all shipyard employment, including shipbreaking. There are also ground and overcurrent protection requirements in 29 CFR 1915.83 *Utilities*, and 29 CFR 1915.132 *Portable electric tools* that apply to shipbreaking. Additional guidance related to 29 CFR Part 1910, Subpart S, standards can be found in Appendix A of this instruction.

Question 37: Protective clothing is required for welders by the 29 CFR 1910.252(b)(3) general industry standard and the 29 CFR 1926.350(j) construction standard. What standard applies for welders in shipyard employment with respect to protective clothing?

Answer: The applicable standard provisions in shipyard employment that require protective clothing are 29 CFR 1915.152 *General requirements*, 1915.157 *Hand and body requirements*, 1915.51(e) *Inert-gas metal-arc welding*, and 1915.51(f) *General welding, cutting, and heating*. Paragraph 29 CFR 1915.152(a) requires that the employer provide and ensure that each affected employee uses the appropriate personal protective equipment (PPE). Paragraph 29 CFR 1915.152(b) also requires that the employer assess the work activity to determine whether there are hazards present, or likely to be present, which necessitate employee use of PPE and select the type of PPE that will protect the affected employee(s), communicate selection decisions to affected employees, select PPE that fits each affected employee, and verify that the required occupational hazard assessment has been performed and documented. Paragraph 29 CFR 1915.157 *Hand and body protection* requires the use of protective clothing including protection for “thermal burns.” (See also [CPL 02-01-049](#), *29 CFR Part 1915, Subpart I, Enforcement Guidance for Personal Protective Equipment (PPE) in Shipyard Employment*, November 4, 2010.)

Question 38: Do the general industry standards, 29 CFR 1910.302 through 1910.308, and 29 CFR 1910.331 through 1910.335, apply to shipyard work?

Answer: OSHA standards 29 CFR 1910.302 through 1910.308 are applicable to shipyard employment on shore. On vessels, these standards are applicable when shore-based electrical installations provide power for use aboard vessels (i.e., the power for the electrical system comes from shore or from portable electrical generators that are either ashore or placed on a vessel); these standards do not apply to wiring permanently installed in vessels. OSHA standards 29 CFR 1910.331 through 1910.335 apply on shore for both “qualified” persons (those who have training in avoiding the electrical hazards of working on or near exposed energized parts) and “unqualified” persons (those with little or no such training). On vessels, these provisions cover all electrical safety-related work practices for “unqualified” persons, including temporary electrical systems and the vessel’s permanently installed electrical systems. Also, on vessels, these provisions apply to electrical safety-related work practices for “qualified” persons when shore-based electrical installations provide power for use aboard vessels; these provisions do not apply to “qualified” persons working on the vessel’s permanently installed electrical system. Additional guidance related to 29 CFR Part 1910, Subpart S, standards can be found in Appendix A of this instruction.

Question 39: Are Ground-Fault Circuit Interrupters (GFCIs) required on temporary lighting circuits on vessels?

Answer: Temporary lighting circuits are covered by 29 CFR Part 1915 and some aspects of the 29 CFR Part 1910, general industry standard, including 29 CFR Part 1910, Subpart S, *Electrical*. Neither of these standards requires the employer to use a ground-fault circuit interrupter. However, proper adherence to the grounding requirements in this standard would prevent employee exposure to electrocution hazards.

Question 40: On September 15, 2004, OSHA published in the Federal Register, 29 CFR Part 1915 – Fire Protection in Shipyard Employment; Final Rule. This final rule became effective on December 14, 2004. Does the Burning Hose Identification & Security Device (BHISD) comply with the provisions stated in 29 CFR 1915.503(b)(2)(iv)?

Answer: OSHA is generally precluded from approving or endorsing specific products. The variable working conditions at job sites and possible alteration or misapplication of an otherwise safe piece of equipment could easily create a hazardous condition beyond the control of the equipment manufacturer. However, where appropriate, we try to give some guidance to help employers assess whether products are appropriate to use in light of OSHA requirements.

Based on the information submitted, our evaluation of the BHISD sample and the manufacturers' Safety Operating Procedure (MCS-003) June 22, 2004, this device, if used in accordance with the MCS-003 procedure, would appear to satisfy OSHA's provisions stated in 29 CFR 1915.503(b)(2)(iv).

Question 41: Has OSHA provided any interpretations related to the 29 CFR Part 1915 – Fire Protection in Shipyard Employment; Final Rule, other than Question #40 of this instruction?

Answer: Yes. In addition to Question 40 above, additional interpretations related to shipyard fire protection are provided in [Appendix C](#) of this instruction, *Fire Protection in Shipyard Employment* (29 CFR Part 1915, Subpart P).

Question 42: 29 CFR 1915.1001(a) *Scope and application* states, “This section regulates asbestos exposure in all shipyard employment work as defined in 29 CFR Part 1915.” What guidance is available for OSHA compliance officers and industry employers to assist with the application and enforcement of this standard?

Answer: Assistance with the application and enforcement of the requirements of 29 CFR 1915.1001 can be found in [CPL 02-02-063](#), *Inspection Procedures for Occupational Exposure to Asbestos Final Rule, 29 CFR Parts 1910.1001, 1926.1101, and 1915.1001*, November 3, 1995.

Question 43: Does OSHA view wallboard panels and joint compound as a composite building system as does the Environmental Protection Agency (thus allowing for a composite of the bulk sample analysis of the multiple layers)?

Answer: In interpreting the definition of asbestos-containing material (ACM) presented at 29 CFR 1915.1001(b), OSHA regards each of these items used to construct wall shells from wallboard panels as separate materials. Each of the materials that may contain asbestos must be analyzed separately for its asbestos content. If any of these materials contain more than 1 percent asbestos, then the work practices specified in the standard must be followed if the wallboard panels are removed.

Question 44: What class of asbestos work would be involved if the only material containing asbestos greater than 1 percent is the joint compound?

Answer: Removal of [interior] wall shells constructed with sheet rock panels is Class II asbestos work. OSHA does not consider joint compound to be a surfacing material. As indicated on page 41032 of Federal Register [59:40964-59:41162](#), August 10, 1994, joint compound is finishing material. Note that if surfacing material containing more than 1 percent asbestos was applied to the sheet rock panels, removal of the panels would be considered Class I asbestos work.

Question 45: Does the 60x60 inch glove bag limit apply to Class I asbestos abatement work?

Answer: There are glove bags available that are larger than the 60x60 inch size listed in the definition section of the standard. The 60x60 inch limit is intended for Class III abatement work only. Class III abatement work includes glove bags for which the debris area cannot exceed that which normally fits into a 60x60 inch disposal bag. A repair activity that involves the “disturbing” of ACM that cannot be contained in one standard glove bag must be considered Class I work. For Class I work there is no size limitation for glove bags. The standard does allow for the use of glove bags for various job classes. See pages C-12 and C-13 of [CPL 02-02-063](#), *Inspection Procedures for Occupational Exposure to Asbestos Final Rule, 29 CFR Parts 1910.1001, 1926.1101, and 1915.1001*, November 3, 1995.

Question 46: Are controls available for monitoring a recirculation system as specified under 29 CFR 1910.1025(e)(4)(ii) of OSHA's lead standard?

Answer: Various devices are available that monitor the effectiveness of a system for recirculating air in a workplace where there is lead exposure.

Question 47: 29 CFR 1915.1027 *Cadmium* states at 29 CFR 1910.1027(l) *Medical surveillance*, “Biological monitoring that includes the following tests: (1) Cadmium in urine (CdU), standardized to grams of creatinine (g/Cr); (2) Beta-2 microglobulin in urine (B2-M), standardized to grams of creatinine (g/Cr), with pH specified, as described in appendix F of this section; and (3) Cadmium in

blood (CdB), standardized to liters of whole blood (lab).” What urine sampling issues can be expected to affect accuracy for the detection of cadmium exposures?

Answer: Standard medical practice specifies that when specific gravity is low (for example, less than 1.008), urine samples are too dilute for accurate laboratory analysis. Epidemiological studies of cadmium-induced renal damage, summarized in the preamble to the final cadmium standards, specify that Beta-2 microglobulin (B2-M) will degrade in acidic urine, with pH less than 5.5. Since both cadmium in urine (CdU) and B2-M are standardized to grams of creatinine (CRT), artificially low CRT will inflate CdU and B2-M calculations.

Question 48: Do shipyard employers need to maintain Material Safety Data Sheets or Safety Data Sheets (MSDSs/SDSs) for welders working on vessels?

Answer: Any process, including welding, capable of resulting in employee exposure to hazardous chemicals is covered by the *Hazard Communication* standard (29 CFR Part 1910.1200 is incorporated into shipyard employment by 29 CFR Part 1915.1200). Welders in shipyards must have access to an MSDS or SDSs for each type of metal and welding rod used, and any other chemical to which they are or may be exposed.

Question 49: When temporary employees are procured from a temporary employment agency, what are the shipyard employer’s obligations under the *OSH Act*?

Answer: In general, situations where a temporary employment agency maintains a continuing relationship with its employees, but the shipyard (the client) creates and controls the hazards, there is a shared responsibility for assuring that the temporary employees are protected from the hazards under the *OSH Act*. Since the shipyard (the client) creates and controls the hazards, the shipyard has the primary responsibility for such protection. These situations are heavily fact-based; much of the interpretation depends upon the specific facts and circumstances of a particular situation and workplace.

The shipyard may specify what qualifications are required for employees supplied by the temporary employment agency, including medical screening (for respirator use), fit testing, and training in specific chemicals or personal protective equipment (PPE). The shipyard would be responsible for providing PPE for site-specific hazards to which employees may be exposed. However, again, the shipyard may specify the service it wants the temporary employment agency to supply, including provision of PPE for the placed employees. (See also [CPL 02-01-049](#), *29 CFR Part 1915, Subpart I, Enforcement Guidance for Personal Protective Equipment (PPE) in Shipyard Employment*, November 4, 2010.)

Where temporary employees are assigned tasks that require medical monitoring, the shipyard must ensure that the required medical surveillance or evaluation is performed, either as part of the shipyard’s program or by the temporary employment agency. The temporary employment agency must ensure that the required medical surveillance or evaluation records are maintained in accordance with appropriate OSHA standards.

As for the recordkeeping requirements, shipyards that use employees from temporary employment agencies are responsible for recording those employees’ occupational injuries and illnesses when the shipyard provides day-to-day supervision. Otherwise, the temporary employment agency is responsible for maintaining the log of work-related injuries and illnesses.

Question 50: 29 CFR 1926.30 *Shipbuilding and ship repairing*, paragraph (a), states, “Shipbuilding, ship repairing, alteration, and maintenance performed on ships under government contract, except naval ship construction, is work subject to the Act.” I am an employer who only does work on Navy vessels; therefore, am I exempt from the Occupational Safety and Health Administration (OSHA) standards (i.e., 29 CFR Part 1910, general industry standards and 29 CFR Part 1915, shipyard employment standards)?

Answer: No, such an employer is not exempt from OSHA standards. The 29 CFR Part 1910, general industry standards, and 29 CFR Part 1915, shipyard employment standards, DO apply to shipyard employment on Navy vessels. 29 CFR Part 1910.11(b) – *Scope and purpose* states, “...the incorporation

by reference of part 1926 in 1910.12 is not intended to include references to interpretive rules having relevance to the application of the *Construction Safety Act*, but having no relevance to the application to the *Occupational Safety and Health Act*.” Therefore, reference to the “Act” in 29 CFR 1926.30(a), refers to the Construction Safety Act, which does not affect the enforcement of the *Occupational Safety and Health Act (OSH Act)* of 1970 ([29 U.S.C. 654\(a\)\(1-2\)](#)). Employers engaged in shipyard employment activities must follow applicable 29 CFR Parts 1915 and 1910 standards.

Appendix C: Fire Protection in Shipyard Employment (29 CFR Part 1915, Subpart P)

Answers to Frequently Asked Questions (FAQs) Regarding the Application of 29 CFR Part 1915, Subpart P

The purpose of OSHA's *Fire Protection in Shipyard Employment* standard, 29 CFR Part 1915, Subpart P, is to increase the protection of shipyard employment employees from fire hazards. Such employees are exposed to a high risk of injury and death from fires and explosions during ship repair, shipbuilding, shipbreaking and related firefighting work activities. The final rule was published on September 15, 2004 and became effective December 14, 2004. This final rule and the associated preamble (provides detailed explanation of the rule) is available at Federal Register [69:55667-69:55708](https://www.federalregister.gov/documents/2004/09/15/6955667-6955708), September 15, 2004.

OSHA requirements are set by statute, standards, and regulations. Our interpretations explain these requirements and how they apply to particular circumstances, but they cannot create additional employer obligations. These responses constitute OSHA's interpretations of the requirements discussed. Note that our enforcement guidance may be affected by changes to OSHA regulations. Also, from time to time we update our guidance in response to new information. To keep apprised of such developments, you can consult OSHA's website at <http://www.osha.gov>.

This appendix provides additional guidance, in a question and answer format, about OSHA's *Fire Protection in Shipyard Employment* standard, 29 CFR Part 1915, Subpart P. The FAQs are divided into three sections: general questions, fire watch questions, and fuel gas and oxygen hose line management questions.

General (Questions and Answers)

Question 1: When did the final rule go into effect?

Answer: The final rule went into effect on December 14, 2004; however, some of the training requirements did not go into effect until 90 days later, on March 14, 2005. OSHA delayed enforcement of the requirement to train fire watch employees using live fire training. Employers were given until June 30, 2005, to conduct the practical portion of the live fire training for fire watch employees.

Question 2: Who is required to comply with the new standard?

Answer: The standard applies to shipyard employment. Contractors are covered only when they are engaged in shipyard employment. The standard does not apply to employment in general industry or construction; these employers are covered by the 29 CFR Part 1910 and 29 CFR Part 1926 standards, respectively. If you have questions about whether or not you are covered by the new standard, contact your local OSHA or State-Plan office.

Question 3: Does the standard apply to municipal or volunteer fire departments?

Answer: No. Federal OSHA does not have jurisdiction over State and municipal fire departments or volunteers in States under the jurisdiction of Federal OSHA, so in those States the standard does not cover them. In those States with jurisdiction over occupational safety and health, State and local employees are covered by the State's standards and information can be obtained from the State. OSHA intends to promote coordination between the shipyard and local fire response organizations so they can work together safely. OSHA believes that any fire response organization that expects to respond to shipyard fires will benefit from the coordination of activities required by this standard, and will be able to respond to fires faster, more effectively, and with greater safety for the shipyard employees and their own fire response members.

Question 4: The standard incorporates a number of National Fire Protection Association (NFPA) standards. If I am using a more recent edition of an NFPA standard than the one used in the OSHA standard, could I be cited for not following the NFPA standard listed in the OSHA Standard?

Answer: Under OSHA's *de minimis* policy, where OSHA has adopted an earlier consensus standard, employers who are in compliance with the updated version will not be cited for a violation of the old version as long as the new one is at least equally protective ([CPL 02-00-150](#), *OSHA Field Operations Manual (FOM)*; April 22, 2011). OSHA updated the NFPA standards referenced in 29 CFR Part 1915, Subpart P in October 2006. (See [71 F.R. 60843-60847](#) and [71 F.R. 60932-60934](#), *Updating National Consensus Standards in OSHA's Standard for Fire Protection in Shipyard Employment*; Final rule, October 17, 2006.)

Section	Paragraph	NFPA Standards Originally Referenced in the Final Rule of Subpart P of 29 CFR Part 1915 (September 15, 2004)	NFPA Standards Currently Referenced in Subpart P of 29 CFR Part 1915 (October 17, 2006)
1915.505 Fire Response	(e)(3)(v)	NFPA 1981 – 1997 Edition <i>Standard on Open-Circuit Self-Contained Breathing Apparatus for the Fire Service</i>	NFPA 1981 – 2002 Edition <i>Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services</i>
1915.507 Land-side fire protection systems	(b)(1)	NFPA 10 – 1998 Edition <i>Standard for Portable Fire Extinguishers</i>	NFPA 10 – 2002 Edition <i>Standard for Portable Fire Extinguishers</i>
	(c)(6)	NFPA 72 – 1999 Edition <i>National Fire Alarm Code</i>	NFPA 72 – 2002 Edition <i>National Fire Alarm Code</i>
	(d)(1)	NFPA 14 – 2000 Edition <i>Standard for the Installation of Standpipe, Private Hydrant, and Hose Systems</i>	NFPA 14 – 2003 Edition <i>Standard for the Installation of Standpipe and Hose Systems</i>
	(d)(2)	NFPA 13 – 1999 Edition <i>Standard for the Installation of Sprinkler Systems</i>	NFPA 13 – 2002 Edition <i>Standard for the Installation of Sprinkler Systems</i>
		NFPA 750 – 2000 Edition <i>Standard on Water Mist Fire Protection Systems</i>	NFPA 750 – 2003 Edition <i>Standard on Water Mist Fire Protection Systems</i>
	(d)(3)	NFPA 11 – 1998 Edition <i>Standard for Low-Expansion Foam</i>	NFPA 11 – 2005 Edition <i>Standard for Low-, Medium-, and High-Expansion Foam Systems</i>
		NFPA 11A – 1999 Edition <i>Standard for Medium- and High-Expansion Foam Systems</i>	
	(d)(5)	NFPA 12A – 1997 Edition <i>Standard on Halon 1301 Fire Extinguishing Systems</i>	NFPA 12A – 2004 Edition <i>Standard on Halon 1301 Fire Extinguishing Systems</i>
		NFPA 12 – 2000 Edition <i>Standard on Carbon Dioxide Extinguishing Systems</i>	NFPA 12 – 2005 Edition <i>Standard on Carbon Dioxide Extinguishing Systems</i>
		NFPA 2001 – 2000 Edition <i>Standard on Clean Agent Fire Extinguishing Systems</i>	NFPA 2001 – 2004 Edition <i>Standard on Clean Agent Fire Extinguishing Systems</i>

Question 5: The standard requires employers to provide ways for employees to participate in reviewing the programs and policies required by the standard (1915.501(c)). Does OSHA require employers to document employee participation?

Answer: No. Some employers may decide to document their employee participation activities, but the standard does not require employers to produce written documentation of employee participation.

Question 6: When multiple employers have responsibility for fire protection at a single facility, the standard requires the host employer or employers to coordinate their activities, assign fire protection duties to other employers, and communicate relevant fire hazard information to each other (1915.501(d)(1)(iii)). When the ship acts as a host employer, who is in charge, the ship's master or the shipyard employer?

Answer: When there are multiple host employers, the standard does not designate or require either party to be "in charge" of the overall fire protection activity. The employers are jointly responsible for determining which responsibilities will be assigned to each host employer. It is extremely important for the host employers to agree on the details of the incident command system that will be used in the event of a fire. If a fire occurs, a clear chain of command is needed to ensure the effectiveness of fire response and suppression activities.

Question 7: The standard includes requirements for fire emergency plans (1915.502). Do I still need to comply with the 1910.38 and 1910.39 standards requiring fire prevention and emergency plans?

Answer: Yes. Shipyard employers who are currently complying with 1910.38 and 1910.39 will now also be required to comply with the additional requirements of 1915.502. However, there is no need to produce three separate emergency plans. OSHA will accept one unified plan that meets all of the requirements in 1910.38, 1910.39, and 1915.502.

Question 8: When employees are working in a space on board a vessel or vessel section that is equipped with a fixed fire extinguishing system, the standard requires employers to protect employees from the accidental discharge of that system with physical isolation, or by providing employees with specific training (1915.506(b)). Does this requirement apply only to hot work, or to any kind of work?

Answer: The requirement applies to any work done in a space on a vessel or vessel section with a fixed fire extinguishing system. While hot work has the greatest potential for causing accidental activation of the system, other work, such as rigging material into or out of a space, can also result in accidental activation.

NOTE: When a vessel is undergoing sea or dock trials, the employer must ensure that all fire extinguishing systems remain operational (1915.506(c)).

Question 9: What types of training are required by the new standard?

Answer: The standard requires four levels of training that become more complex for employees who are expected to perform more sophisticated fire response and suppression. The training that must be performed includes evacuation procedures for all employees, basic firefighting for employees who may be called upon to fight incipient stage fires, additional firefighting training for fire watch employees, and advanced training for fire response employees. The details of each type of training can be found in 1915.508.

Question 10: Why does the standard use a definition of "hot work" that is different from the definition in 29 CFR Part 1915, Subpart B – *Confined and Enclosed Spaces and Other Dangerous Atmospheres in Shipyard Employment*?

Answer: 29 CFR Part 1915, Subpart B uses a definition of hot work that excludes grinding, drilling, blasting and other spark producing operations that are physically isolated from any atmosphere containing more than 10% of the lower explosive limit of a flammable or combustible substance. That definition is appropriate for protecting employees from the hazards posed by confined and enclosed spaces and other

dangerous atmospheres. Subpart P uses a broader definition of hot work to ensure that all hot work operations are evaluated for fire hazards.

Fire watch (Questions and Answers)

Question 1: Is a fire watch always needed when an employee is performing hot work, such as welding or cutting?

Answer: No. A fire watch is only required under certain circumstances outlined in the standard at 1915.504(b) when the following conditions are present during hot work:

- (1) Slag, weld splatter, or sparks might pass through an opening and cause a fire;
- (2) Fire-resistant guards or curtains are not used to prevent ignition of combustible materials on or near decks, bulkheads, partitions, or overheads;
- (3) Combustible material closer than 35 feet (10.7 meters) to the hot work in either the horizontal or vertical direction cannot be removed, protected with flameproof covers, or otherwise shielded with metal or fire-resistant guards or curtains;
- (4) The hot work is carried out (performed) on or near insulation, combustible coatings, or sandwich-type construction that cannot be shielded, cut back, or removed, or in a space within a sandwich-type construction that cannot be inerted;
- (5) Combustible materials adjacent to the opposite sides of bulkheads, decks, overheads, metal partitions, or sandwich-type construction may be ignited by conduction or radiation;
- (6) The hot work is close enough to cause ignition through heat radiation or conduction on the following:
 - (i) Insulated pipes, bulkheads, decks, partitions, or overheads; or
 - (ii) Combustible materials and/or coatings;
- (7) The work is close enough to unprotected combustible pipe or cable runs to cause ignition; or
- (8) A Marine Chemist, a U.S. Coast Guard-authorized person, or a Shipyard Competent Person, as defined in 29 CFR Part 1915, Subpart B, requires that a fire watch be posted.

Question 2: Do I need to remove all combustible and flammable materials closer than 35 feet before performing hot work?

Answer: No. The standard states that you must evaluate hot work areas to make sure the area is free of fire hazards (1915.503(a)(2)) and maintain fire-hazard free conditions (1915.503(b)(1)). The most effective method is to remove combustible and flammable materials a safe distance away from ignition sources (35 feet). The next most effective methods are to shield the combustible or flammable material with metal or flame-resistant guards, use flame-proof covers, or inert sandwich type material with appropriate precautions. When these methods are not used, a fire watch must be posted.

Question 3: Is the “35-foot” rule for hot work a new requirement?

Answer: No. OSHA’s general industry welding and brazing rules at 29 CFR 1910.252(a)(2)(vii) and NFPA’s 51B-2003 *Standard for Fire Prevention During Welding, Cutting and Other Hot Work*, use a 35-foot limit as an appropriate safety measure.

Question 4: When hot work is to be performed at a location within 35 feet of combustible material, can I choose to post a fire watch instead of removing or shielding the combustible material, even though it could be removed or shielded?

Answer: Yes. You can authorize employees to perform hot work only in areas that are free of fire hazards, or that have been controlled by physical isolation, fire watches, or other positive means (1915.503(a)(2)(ii)).

Question 5: Is a fire watch required if the combustible material is treated to be fire-resistant or fire retardant?

Answer: No. If the employer has purchased fire-resistant or fire retardant material, or has treated normally combustible material so that it is no longer combustible, then a fire watch is not required.

Question 6: Can an employee performing hot work, such as welding, act as his or her own fire watch?

Answer: No. An employee who is performing hot work is concentrating on his or her own work, and may be too distracted to quickly observe a fire as it ignites. Therefore, another employee or employees must be assigned the fire watch duty.

Question 7: Can an employee engaged in fire watch duties also perform other kinds of work?

Answer: No. When an employee is actively engaged in fire watch duty, he or she cannot perform other duties (1915.504(c)(1)). Because the situations requiring a fire watch carry a high risk of fire, a fire watch must have only one task at hand – to watch for and respond to fires that occur during hot work. The fire watch employee also must have the authority to stop the hot work and assist with fire prevention activities, such as wetting down a fire blanket, repositioning a fire curtain, and removing combustible debris that has entered the area. After the hot work is completed, the fire watch must remain in the area for at least 30 minutes to assure that there is no further fire hazard, unless the employer or its representative surveys the area and determines that there is no further fire hazard. During this 30-minute period, the fire watch can perform other duties.

Question 8: Can one employee perform fire watch duty for more than one employee performing hot work?

Answer: Yes. One employee can perform fire watch duty for several employees performing hot work, as long as the fire watch meets all the requirements of the standard. For example, the fire watch employee must have a clear view of and immediate access to all areas included in the fire watch, must be able to communicate with all employees exposed to hot work, and must be authorized to stop work and restore safe conditions when necessary (1915.504(c)(2)). If the fire watch employee stops work for one employee performing hot work to restore safe conditions, he or she also must stop the remaining hot work covered by the fire watch.

Question 9: Are there situations where more than one fire watch employee is needed?

Answer: Yes. A fire watch employee must have a clear view of all areas assigned. Depending on the specific circumstances, two or more employees may be required in the fire watch to ensure that all areas are within view. For example, a fire watch employee may be needed on each side of a bulkhead on which hot work is being performed. Similarly, where hot material from hot work could spread or fall over more than one level, as in trunks and machinery spaces, a fire watch must be stationed at each affected level unless positive means are available to prevent the spread or fall of hot material.

Question 10: Can the fire watch or an employee performing hot work be the designated employer representative to determine that it is safe to vacate the watch before the 30-minute period is over?

Answer: Yes. The employer can designate any employee to perform this function. Of course, OSHA requires that person to have the necessary training, experience, or both to make appropriate decisions concerning the monitoring of recently completed hot work.

Question 11: The employer is required to ensure that employees assigned to fire watch duty are physically capable of performing the work. How does the employer determine the physical qualifications of employees assigned to perform fire watch duty?

Answer: OSHA expects the employer to evaluate the hot work, the environment in which it is performed, and the employee to make sure that the employee can physically perform the work. The employee must have the strength and physical ability to handle fire extinguishing equipment, to access and exit the location, to observe fires, and to extinguish incipient stage fires. The physical requirements may vary. For example, if the hot work in question is in an area that can only be accessed with ladders, an employee who cannot climb ladders is not physically capable of performing fire watch duty. However, the employee may be capable of performing fire watch duties at ground level.

Question 12: Do I have to train all fire watch employees with live fire exercises?

Answer: Yes. Each fire watch employee is expected to extinguish one fire using a fire extinguishing method the employee is likely to use (1915.508(e)). You do not have to use live fire training for each

medium or extinguishing method the employee may use; only one is required. Merely watching another employee extinguish a fire does not meet the requirements of the standard.

Question 13: Must a shipyard build a permanent training facility or contract for the use of a geographically separated training facility for live fire training?

Answer: No. Employers may decide to build a permanent facility or contract with a facility to provide the training, but they are not required to do so. OSHA specifies the material the training must cover, and that it must be performed by an instructor with adequate fire watch knowledge and experience, but does not specify the location where training must be given or provide other specifications for the training. Shipyard employers are free to determine the training methods and locations that meet their needs, and may consider quality, cost and convenience issues when making these decisions. Alternative ways to provide training include building permanent facilities, contracting with an outside facility, using shipyard areas designated for hot work, using other safe areas of the shipyard, or using off-site locations. Likewise, some shipyards will employ their own trainers, some will use contract trainers, and others may obtain training from a local fire department.

Question 14: Has OSHA thought of the practical realities, cost, and time needed to seek permits for live fires, assuming the local jurisdiction will permit them?

Answer: Yes. OSHA recognizes that some shipyard employers will need to seek permission from local authorities to set the fires that are needed to provide live fire training. OSHA expects employers to make a diligent effort to obtain any needed permits or licenses to provide this important training. OSHA believes that most local authorities will grant this permission when they understand the need for the training and that the employer will be using very short-lived fires in a controlled environment under the supervision of a knowledgeable and experienced instructor. It is also likely that local authorities will issue annual or blanket authorizations so that employers are not required to obtain permits for each individual fire. The standard recognizes that a few employers may not be able to get permission from local authorities. When this occurs, despite their diligent efforts, the employer may use simulated fire training.

Question 15: Has OSHA developed acceptable alternatives to reduce the number of fire watch personnel who must be trained?

Answer: No. Paragraph 1915.504(b) sets forth the eight specific circumstances when employers are required to post a fire watch. However, as long as fire watches are used in these circumstances and otherwise follow the requirements of the standard, shipyards are free to seek alternatives to control the cost of the training. For example, a shipyard could train a limited number of personnel and then use them exclusively for fire watch duties. The shipyard could schedule work to reduce the need for fire watches, or make greater use of designated hot work areas. A shipyard could contract fire watch duties to a specialty service and then use the contract personnel on an “as needed” basis. Others may find that it is better to train large numbers of employees so fire watches can be assigned quickly. OSHA expects that each shipyard will find the most effective method for its individual circumstances.

Question 16: How does a shipyard provide training to subcontractor employees performing work in the shipyard?

Answer: In general, each covered employer is required to train their own employees. Paragraph 1915.501(d) of the standard requires host and contract employers to share information about their fire safety plans and share information about fire-related hazards associated with their work. The host employer is required to make sure that responsibilities for fire protection are assigned to other employers as appropriate. These requirements extend to fire watches and fire watch training, and employers are expected to coordinate their activities to make sure that any employees performing fire watch are properly trained.

Fuel gas and oxygen hose line management (Questions and Answers)

Question 1: The standard requires employers to ensure that unattended fuel gas and oxygen hose lines or torches are not left in a confined space (1915.503(b)(2)(i)). Can a fire watch employee

attend these hose lines when the employee performing hot work exits the confined space?

Answer: Yes. Any employee can attend the lines to make sure that they are not damaged.

Question 2: Can the fire watch employee attend the hose lines for one employee while performing fire watch duty for another employee?

Answer: No. When an employee is actively engaged in fire watch duty, he or she cannot perform other duties (1915.504(c)(1)).

Question 3: The standard requires employers to make sure that charged fuel gas and oxygen hose lines are not left unattended in an enclosed space for more than 15 minutes (1915.503(b)(2)(ii)). For hose lines that pass through several enclosed spaces, does the entire length of hose line have to be pulled back to open air when unattended?

Answer: No. If the charged hose line (any hose line that is connected to the manifold and filled with gas) is going to be left unattended for more than 15 minutes, the employer can either roll back the hose lines to open air or disconnect the lines at the manifold to allow the gas to discharge. If the hose lines are left in place and disconnected at the manifold, then the employer is required to make sure that the hose lines are given a positive means of identification to keep them from being improperly reconnected. When the hose lines are reconnected, they must be tested to ensure their integrity before the work can resume.

Question 4: If the torch hose line assembly has a quick disconnect device, or the torch is left attached to the hose line, will this be sufficient to allow the torch to be disconnected without pulling the hose line from a confined or enclosed space?

Answer: No. The objective is to remove unattended gas-filled hose lines from enclosed and confined spaces. In the situation described above, the hose line is still filled with flammable fuel or oxygen gases and is a potential fire and health hazard. The hose line must be rolled back and/or disconnected at the manifold if left unattended for more than 15 minutes in an enclosed space, and immediately from an unattended confined space (1915.503(b)(2)).

Question 5: Can a hose line be disconnected at the manifold or cylinder instead of being removed from a confined space?

Answer: No. A fuel gas and oxygen hose line in a confined space must always be removed or attended.

Appendix D: 29 CFR 1915.89 – Control of hazardous energy (lockout/tags-plus)

Effective date: The provisions in 1915.89 became effective and enforceable on October 31, 2011, with the exception of 1915.89(k)(2)(ii) which became enforceable on May 19, 2013.

Background

New definitions were added to Part 1915, Subpart F, many of which help to explain and clarify OSHA's revised approach to the control of hazardous energy in shipyard employment activities. Definitions that have been added, substantially clarified or modified include:

- **Additional safety measure.** This definition was added to more fully explain and clarify the tags-plus system described in 1915.89 *Control of hazardous energy (lockout/tags-plus)*. "Additional safety measure" is defined as a component of the tags-plus system that provides an impediment (in addition to the energy-isolating device) to the release of hazardous energy or the energization or startup of the machinery, equipment, or system being serviced. Examples include, but are not limited to, removing an isolating circuit element; blocking a control switch; blocking, blanking, or bleeding lines; removing a valve handle or wiring it in place; or opening an extra disconnecting device.
- **Authorized employee.** This definition specifies that an "authorized employee" is an employee who performs one or more of the following lockout/tags-plus responsibilities: executes the lockout/tags-plus procedures; installs a lock or tags-plus system on any machinery, equipment, or system that is to be serviced; or services any machinery, equipment, or system that is under a lockout/tags-plus application. It is also specified that an affected employee becomes an authorized employee if their duties include servicing machinery, equipment, or systems under a lockout/tags-plus application.
- **Contract employer.** This definition was added to clarify the requirements for multi-employer worksites. The definition is currently included in Subpart P, *Fire Protection in Shipyard Employment*, and has been carried over into Subpart F, *General Working Conditions*.
- **Dummy load.** In 1915.85 *Vessel radar and communication systems*, 1915.89(b)(2) was revised to require protection for employees working on a system with a dummy load. A dummy load is defined as a device used in place of an antenna to aid in the testing of a radio transmitter that converts transmitted energy into heat to minimize energy radiating outward or reflecting back to its source during testing.
- **Hazardous energy.** This definition was added to ensure that employers understand that 1915.89 *Control of hazardous energy*, applies to any source or type of energy, including mechanical (such as, power transmission apparatus, counterbalances, springs, pressure, and gravity), pneumatic, hydraulic, electrical, chemical, and thermal (such as, high or low temperature), that could cause injury to employees. These energy sources may be active, residual, or stored.
- **Host employer.** This definition clarifies the requirements for multi-employer worksites. The definition is currently included in Subpart P, *Fire Protection in Shipyard Employment*, and has been carried over into Subpart F, *General Working Conditions*.
- **Lock.** This term is defined as a device that utilizes a positive means, either a key or combination lock, to hold an energy-isolating device in a "safe" position that prevents the release of energy and the startup or energization of the machinery, equipment, or system to be serviced.
- **Lockout/tags-plus coordinator.** The lockout/tags-plus coordinator is an employee designated by the employer to coordinate all lockout and tags-plus applications on vessels or vessel sections and at land-side facilities when employees are performing multiple servicing operations on the same equipment at the same time, or on vessels and vessel sections when employees are servicing multiple machines, equipment, or systems at the same time. The coordinator is only required when employees performing a servicing operation could be endangered by one of more other servicing operations being performed at the same time because of the energization or startup of one or more of

the machines, pieces of equipment or systems being serviced. The employer may have more than one lockout/tags-plus coordinator, depending on the size of the shipyard and the scope of work being performed at any given time. The coordinator is also responsible for maintaining a lockout/tags-plus log for each worksite.

- **Lockout/tags-plus materials and hardware.** This definition was added to clarify the requirements for controlling hazardous energy in 1915.89. This hardware includes locks, chains, wedges, blanks, key blocks, adapter pins, self-locking fasteners, or other hardware used to isolate, block, or secure machinery, equipment, or systems to prevent the release of energy or the startup or energization of the machinery, equipment, or system to be serviced.
- **Navy ship's force.** This term was added to clarify situations when naval vessels are in shipyards and the ship's force will maintain control of the lockout/tags-plus applications under 1915.89. "Navy ship's force" is the crew of a vessel, owned and operated by the U.S. Navy, other than a time-or voyage-chartered vessel, that is under the control of a Commanding Officer or Master (See Chapter 10, Section III, of [CPL 02-00-150](#) – *OSHA Field Operations Manual* concerning OSHA authority over U.S. Navy personnel including, uniformed Navy, civil service mariners (CIVMARs) and MSC Military Department (MILDEPT) personnel).
- **Normal production operations.** This term is defined as the use of machinery or equipment to perform a shipyard employment production process. These machines or types of equipment may include, but are not limited to, punch presses, bending presses, shears, lathes, keel press rollers, or automated burning machines.
- **Servicing.** This definition clarifies that servicing includes workplace activities that involve constructing, installing, adjusting, inspecting, modifying, testing, and repairing machinery, equipment or systems. Servicing also includes maintaining machines, equipment, or systems when performing these activities would expose the employee to harm from the startup or energization of the system being serviced, or the release of hazardous energy. The inspection of a space would not be included in servicing since that is not an inspection of a machine, piece of equipment or a system.
- **Tag.** This term is defined as 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 tag is removed by an authorized employee.
- **Tags-plus system.** Tags-plus is a system for controlling hazardous energy that is comprised of an energy-isolating device with a tag affixed to it and at least one additional safety measure.
- **Verification of isolation.** This term refers to the means necessary to detect the presence of hazardous energy, which may involve the use of a test instrument, such as a voltmeter, a visual inspection, or a deliberate attempt to startup the machinery, equipment, or system.

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

29 CFR 1915.89 establishes the requirements for the control of hazardous energy during the servicing of machinery, equipment, and systems in shipyard employment. These requirements were based upon the substance of the general industry lockout/tagout provisions, with added or modified provisions that are more compatible with protecting workers in shipyard employment. In addition, the requirements were organized and set forth differently than in the general industry standard due to the unique conditions in shipyard employment, both on land, and on vessels and vessel sections. The control of hazardous energy is addressed through the use of locks and tags-plus applications, employee training, written programs and procedures, and program audits, as well as other requirements. Lockout/tags-plus requirements were adopted for shipyard employment due to the complexity of the worksite; the large number of workers involved in the work force; the involvement of multiple employers; and the vast array of machinery, equipment, and systems that employees may be servicing. These requirements build on the general industry lockout/tagout standard, but offer shipyard employers necessary flexibility in choosing the best method to control hazardous energy, given their special circumstances. Shipyard employees working

under 1915.89 are protected at least as effectively as their counterparts in general industry working under 1910.147.

1915.89 – Control of hazardous energy (lockout/tags-plus); summary by paragraph

- (a) Scope, application, and effective dates
- (b) Lockout/tags-plus program
- (c) General requirements
- (d) Lockout/tags-plus written procedures
- (e) Procedures for shutdown and isolation
- (f) Procedures for applying lockout/tags-plus systems
- (g) Procedures for verification of deenergization and isolation
- (h) Procedures for testing
- (i) Procedures for removal of lockout/tags-plus systems
- (j) Procedures for startup
- (k) Procedures for group lockout/tags-plus
- (l) Procedures for multi-employer worksites
- (m) Procedures for shift or personnel changes
- (n) Lockout/tags-plus materials and hardware
- (o) Information and training
- (p) Incident investigation
- (q) Program audits
- (r) Recordkeeping
- (s) Appendices

Exceptions to Provisions in 1915.89: Several exceptions to the provisions of the 1915.89 lockout/tags-plus standard were provided regarding Navy vessels when the work being performed is under the control of the Navy ship's force (See the notes to 1915.89(c)(4), (c)(6), (c)(7), (e), (f), (h), (i), (j), (k)(2), and (l)). These notes also apply to the servicing of machinery, equipment, or systems that take place during the new construction of naval vessels once the ship's force takes control of those machines, equipment, or systems. While these exceptions to the lockout/tags-plus requirements accommodate the Navy's need to exercise control over the machinery, equipment, and systems of its vessels that are undergoing repair, OSHA nevertheless continues to exercise authority over private-sector employers, under contract with the Navy, performing repair work on Navy vessels. Those employers must continue to protect their employees to the full extent required by the remainder of the lockout/tags-plus rule. For example, 1915.89(q) addresses program audits. Even those employers who service vessels and vessel systems that are under the control of Navy ships' force are required to conduct audits. OSHA does not require or expect the employer to audit the Navy's lockout/tags-plus system. However, during the audit of its own participation in the Navy's program, the employer may identify deficiencies in the implementation of the program or may identify ways that a procedure could be improved. In those instances, the employer should coordinate with the Navy to address such concerns. It is emphasized that the exceptions in 1915.89 that apply to Navy vessels do not amend the requirements of any other OSHA standard that regulates the control of hazardous energy.

1915.89(a) – Scope, application, and effective dates

1915.89(a)(1) specifies that the lockout/tags-plus section covers the servicing of machinery, equipment, and systems when an employee could be injured if the machinery, equipment, or system is energized, is started, or releases hazardous energy. Changes were made to two terms in 1915.89(a). First, to streamline 1915.89(a)(1), the lockout/tags-plus section covers "servicing" operations, instead of using the "servicing and maintenance" terminology from the proposed rule. The definition of "servicing" includes the maintenance, as well as the construction, installation, adjustment, inspection, modification, testing, repairing, and servicing of machines, equipment, or systems (See definitions, 1915.80(b)(26)). This precludes the need to pair the term "maintenance" with "servicing." Second, "release of stored

energy” was replaced with “release of hazardous energy,” a term that covers all energy that could be released, not just stored energy. A definition of “hazardous energy” was also added (See definitions, 1915.80(b)(8)). Forms of hazardous energy include active, residual, and stored energy such as mechanical (for example, power transmission apparatus, counterbalances, springs, pressure, gravity), pneumatic, hydraulic, electrical, chemical, and thermal energies (for example, high or low temperature), that could cause injury to employees. Adopting this definition both clarifies and emphasizes that many servicing operations in shipyard employment involve multiple types and sources of energy, and that the lockout/tags-plus section covers all of those types and sources of energy when the energization or startup of machinery, equipment, or systems, or the release of energy, may occur. Requiring that all releases of hazardous energy be controlled provides more protection to workers than if they were simply protected from the release of stored energy.

1915.89(a)(2) applies lockout/tags-plus to any servicing operation that is performed on vessels, vessel sections, and at land-side facilities to the extent that OSHA has authority (See [CPL 02-01-047](#), *OSHA Authority Over Vessels and Facilities on or Adjacent to U.S. Navigable Waters and the Outer Continental Shelf (OCS)*, February 22, 2010). Applying a single lockout/tags-plus rule to all servicing operations, both land-side and on vessels and vessel sections, ensures that employers have a cohesive strategy to protect employees from hazardous energy. It requires shipyard workers to have knowledge of only one hazardous-energy standard, whether the employees are working on vessels or at a land-side facility, and regardless of the shipyard involved. In addition, it ensures that a ships’ crew follows the same rules as shipyard workers, thereby avoiding conflict or confusion during multi-employer operations. Having one standard facilitates employer implementation and maintenance of an effective lockout/tags-plus program, and ensures that employees understand and follow the program effectively.

1915.89(a)(2)(i)(A) clarifies that lockout/tags-plus only applies to servicing equipment at land-side facilities that “perform shipyard employment work.” This includes facilities that perform shipbuilding, ship repair, shipbreaking, or other related employment. Lockout/tags-plus does not apply to servicing equipment at facilities that manufacture components and parts used in shipyard employment when these manufacturers do not perform shipyard employment work at these facilities. Instead, these employers are covered by the general industry lockout/tagout standard. Further, lockout/tags-plus applies to floating fish processors, but does not extend to land-side fish-processing facilities. Fish processing at land-side factories is considered general industry manufacturing, not shipyard employment, and falls under the general industry lockout/tagout standard (1910.147). This position is consistent with the OSHA policy that fish processing on land must follow the general industry lockout/tagout standard (See [CPL 02-01-047](#), *OSHA Authority Over Vessels and Facilities on or Adjacent to U.S. Navigable Waters and the Outer Continental Shelf (OCS)*, February 22, 2010).

1915.89(a)(2)(i)(B) specifies that lockout/tags-plus applies to servicing of all machinery, equipment, and systems on vessels and vessel sections. This application includes the servicing of *shipboard* equipment that is used for processing fish. Having a single standard for vessels will best protect employees from injury due to the energization, startup, or the release of hazardous energy anywhere on a vessel.

1915.89(a)(2)(ii) applies lockout/tags-plus to any employee, including ships’ officers and crew, who services equipment used during shipyard employment. (See [CPL 02-01-047](#), *OSHA Authority Over Vessels and Facilities on or Adjacent to U.S. Navigable Waters and the Outer Continental Shelf (OCS)*, February 22, 2010). The language in this provision clarifies longstanding OSHA policy that Part 1915 applies whenever a ship’s crew performs ship-repairing operations (See 76 FR 24621-24623, May 2, 2011 for a detailed explanation regarding this application).

However, OSHA does not have safety and health coverage for the working conditions of “seamen” aboard *inspected* vessels since the Coast Guard regulates that area (See [CPL 02-01-047](#), *OSHA Authority Over Vessels and Facilities on or Adjacent to U.S. Navigable Waters and the Outer Continental Shelf (OCS)*, February 22, 2010).

1915.89(a)(3) requires that when other standards in Part 1915, or applicable standards in Part 1910, require the use of a lock or tag, employers must follow those requirements and supplement them with the procedural and training requirements specified by 1915.89 *Control of hazardous energy (lockout/tags-plus)*. Part 1910 standards that currently contain lockout/tagout related requirements that may apply, with some exceptions, to shipyards include: 1910.178 *Powered industrial trucks*; 1910.179 *Overhead and gantry cranes*; 1910.181 *Derricks*; 1910.213 *Woodworking machinery*; 1910.217 *Mechanical power presses*; 1910.218 *Forging machines*; 1910.252 *Welding, cutting and brazing*; and 1910.305 *Electrical*. The Part 1915 standards that contain requirements for locks or tags include 1915.162 *Ship's boilers*; 1915.163 *Ship's piping systems*; 1915.164 *Ship's propulsion machinery*; and 1915.181 *Electrical circuits and distribution boards*. The regulatory language for these Part 1915 standards was modified to incorporate the 1915.89 lockout/tags-plus requirements.

For example, an employee working on a ship's main engine would follow 1915.164 which requires that the electrically driven circuit controlling the jacking gear be deenergized by tripping the circuit breaker, opening the switch, or removing the fuse, and then applying a tag at the breaker, switch, or fuse panel. Additionally, the employer would implement the additional requirements in 1915.89 to ensure that all employees are protected while servicing machinery, equipment, or systems. Alternatively, an employee cleaning a space that has electrical wiring or the fire-suppression system running through it will not need to follow 1915.89 since the employee is not servicing the wiring or fire-suppression system, but is merely cleaning the space. However, other 29 CFR Part 1915 standards may apply, and should be considered when working on machinery, equipment, or systems on vessels and vessel sections.

1915.89(a)(4) provides exceptions from the requirement of using lockout/tags-plus for two types of operations: (1) Work on electric machinery, equipment, or systems that are connected with a cord and plug (1915.89(a)(4)(i)), and (2) minor servicing activities that are performed during normal production operations (1915.89(a)(4)(ii)). For equipment connected with a cord and plug, once the machinery, equipment, or system is unplugged, the risk of the equipment either starting up or releasing hazardous energy is eliminated. However, before an employer can claim this exception, the employer must demonstrate how it has assured that exclusive control is being maintained.

With respect to servicing activities that occur during normal production operations, which may include, but is not limited to, certain aspects of troubleshooting such as checking to ensure that the source of a production problem has been corrected, the lockout/tags-plus rule exempts these servicing activities, provided these activities are routine, repetitive, and integral to the use of the equipment. However, the employer is required to provide employees with effective means of protection from the energization, startup, or the release of hazardous energy when they perform these activities. If employees are conducting other-than-minor servicing operations, they must follow the lockout/tags-plus procedures.

1915.89(b) – Lockout/tags-plus program

29 CFR 1915.89 requires that the employer establish and implement a written program and procedures to control hazardous energy during the servicing of any machinery, equipment, or system. These requirements were separated into paragraphs (b)(1) through (b)(6). Although the energy-control program applies to all employees, it is directed primarily at those workers who have the greatest exposure to hazardous energy, which include authorized and affected employees. The final standard defines "authorized employees" as those employees who execute the lockout/tags-plus procedures, install the lock or tags-plus system, or service any machine, equipment, or system under a lockout/tags-plus application (1915.80(b)(3)). "Affected employees" include employees who normally operate the machinery or equipment on which service is being performed, as well as those employees whose job duties require them to work in the area where the servicing is being performed (1915.80(b)(2)). The definition also specifies that affected employees become authorized employees when they perform servicing operations on the equipment under a lockout/tags-plus application. 1915.89(b)(1) through

(b)(6) specify the components of the employer's written lockout/tags-plus program: General procedures for the use of lockout or tags-plus systems in accordance with 1915.89(c); procedures for protecting employees involved in servicing operations in accordance with 1915.89(d)-(m); specification for locks or tagout hardware in accordance with 1915.89(n); employee training procedures in accordance with 1915.89(o); incident investigation procedures in accordance with 1915.89(p); and program audit procedures in accordance with 1915.89(q). The employer's program is required to be written. Because the requirements in the lockout/tags-plus standard are comprehensive, the employer's program must be in writing to assist both employers and employees in implementing the standard's many provisions, and to give those groups ready access to all of the requirements. This is an established standard industry practice that is essential for employee safety.

1915.89(c) – General requirements

1915.89(c)(1) requires that, before any authorized employee performs servicing when the energization or startup, or the release of hazardous energy, may occur, all energy sources be identified and isolated, and the machinery, equipment, or system be rendered inoperative. This requirement means that, prior to servicing, each source of energy must have a lock or tags-plus system applied to it. Failure to identify an energy source prior to servicing could result in serious injury or death. A primary tool for providing protection under the standard is the energy-isolating device, which is the mechanism that prevents the transmission or release of energy by guarding against equipment startup or reenergization during servicing and to which locks or tags are attached. For purposes of 1915.89, there are two types of energy-isolating devices: Those that are capable of being locked, and those that are not. An energy-isolating device is considered "capable of being locked out" (1915.80(b)(4)) if it: Has a locking mechanism built into it; has a hasp or other means of attachment to which, or through which, a lock can be affixed (for example, a lockable electric disconnect switch); or can be locked without dismantling, rebuilding, or replacing the energy-isolating device, or permanently altering its energy-control capability (such as using a lock/chain assembly on a pipeline valve, a lockable valve cover, circuit-breaker lockout, or fuse block-out device).

1915.89(c)(2) requires that when an energy-isolating device is capable of being locked, a lock must be used unless the employer can demonstrate that the use of a tags-plus system will provide "full employee protection" equivalent to the protection obtained by using a lock. In evaluating whether to implement lockout or tags-plus systems, the employer should use the following clarifications. First, as a general rule, lockout must be implemented as part of the overall energy-control program for machinery, equipment, or systems that are "capable of being locked out." Machinery, equipment, or systems that have a hasp or other attachment capable of accepting a lock, or that incorporate a locking mechanism, are considered to be "capable of being locked out." However, other equipment without such a locking capability may still be considered "capable of being locked out," but only if lockout can be achieved without the need to dismantle, rebuild, or replace the energy-isolating device, or permanently alter its energy-control capability (e.g., equipment that accepts bolted blank flanges and bolted slip blinds are considered to be "capable of being locked out"). Second, for machinery, equipment, or systems that are "capable of being locked out," but employers prefer to implement tags-plus, they must demonstrate that the tags-plus program will provide full employee protection. This approach is necessary because a tag serves only as a warning and not as a positive restraint of hazardous energy, whereas the attachment of a lockout device provides greater protection against reactivation.

1915.89(c)(3) states that a tags-plus system must be used when the energy-isolating devices are not capable of being locked out. If the employer wishes to perform modifications of the equipment to accommodate a locking device, such modifications are encouraged but are not required.

1915.89(c)(4) describes the basic components of the tags-plus system, which consists of an energy-isolating device with a tag affixed (1915.89(c)(4)(i)), and at least one additional safety measure (1915.89(c)(4)(ii)).

1915.89(c)(4)(i) requires that a tags-plus system includes an energy-isolating device, which is a mechanical device on a machine, equipment, or system that physically prevents the release or transmission of energy. Examples of energy-isolating devices are manually operated electrical circuit breakers, disconnect switches, line valves, blocks, or similar devices, but do not include push buttons, selector switches, or other types of control-circuit devices. Each energy-isolating device must have a tag affixed to it.

1915.89(c)(4)(ii) requires the use of at least one additional safety measure. This additional measure, in addition to the energy-isolating device, provides a barrier preventing the energization, startup, or the release of hazardous energy of the equipment being serviced. Some examples of additional safety measures include, but are not limited to:

- Removing an isolating circuit element, such as removing a fuse;
- Blocking a control switch, including blocking a circuit breaker with clips;
- Opening an extra disconnecting switch;
- Using a blocking device, such as a tie wire on a valve handle;
- Blocking, blanking, or bleeding a line; including bolting a blank flange on a line;
- Removing a valve handle or wiring it in place; or
- Shutting a second valve (double-valve isolation).

As a last-resort option, an employer could choose to use an attendant as an additional safety measure. While this would not be a preferred method, this could be used should an employer not be able to identify an additional safety measure that would be feasible at that time.

NOTE to 1915.89(c)(4) explains that when the Navy ship's force maintains control of the machinery, equipment, or system on a vessel and has implemented such additional measures it determines are necessary, the provisions of 1915.89(c)(4)(ii) do not apply, provided that the employer complies with the verification procedures in 1915.89(g). Following the deenergization, isolation, and application of a lock or tag of any machinery, equipment, or system, the authorized employee must verify the deenergization and isolation prior to beginning the servicing operation. In a group servicing situation, the employer's primary authorized employee must verify, and all of the employer's authorized employees must be given the option to verify, deenergization and isolation prior to beginning the servicing operation. This procedure will ensure that the employees, who are not in control of the machinery, equipment, or system, are protected from the uncontrolled release of hazardous energy.

1915.89(c)(5) requires the employer to ensure that each energy-isolating device is designed to accept a lock whenever the machinery, equipment, or system undergoes extensive repairs, renovation, or modification, or whenever new machinery, equipment, or systems are installed.

In some situations, shipyard employers do not control the equipment to the extent that they can have locks installed as the main energy-isolating device. Therefore, 1915.89(c)(5)(i) specifies that this provision would only apply to machines, equipment, and systems the shipyard employer owns. Further, 1915.89(c)(5)(ii) specifies that the requirement for installing or converting to lockable systems does not apply when a shipyard employer builds or services a vessel or vessel section according to customer specifications (e.g., military vessels). In all other circumstances, however, the requirement in 1915.89(c)(5) for lockable energy-isolating devices must be followed.

1915.89(c)(6) clarifies the requirements for situations where employers use a tags-plus system in lieu of a lock when a machine, piece of equipment, or system is capable of being locked. These provisions are organized to eliminate any misunderstanding of what is required for "full employee protection" under the standard.

1915.89(c)(6)(i) requires that when a tag is affixed to an energy-isolating device instead of a lock, the tag must be attached at the same location that the lock would have been attached. Tags are prominent warning devices that provide protection by identifying the energy-isolating device as a source of potential danger. Improper placement of a tag could result in a serious injury.

1915.89(c)(6)(ii) requires employers to demonstrate that a tags-plus system will provide a level of protection equivalent to that of a lock. This is primarily accomplished with the use of an additional safety measure as discussed in 1915.89(c)(6)(ii)(B).

1915.89(c)(6)(ii)(A) requires that employers demonstrate full compliance with all tags-plus related provisions of this subpart.

1915.89(c)(6)(ii)(B) requires that employers also implement such additional safety measures as are necessary to provide the equivalent safety to that of using a lock. This requirement for an additional safety measure(s) is a key element in demonstrating that the tags-plus program provides equivalent protection to a lockout program. At least one additional safety measure must be used in addition to tagging the energy-isolating device to prevent unexpected reenergization. This independent, additional measure protects an employee from injury or death from the inadvertent activation of an energy-isolating device caused by human error, unintended contact, the loss or detachment of a tag, or from any other limitation of a tag(s). Examples of additional safety measures are provided on page D-7 of this instruction. Any additional safety measure used must be integrated into an energy-control program through sound hazard-specific analyses on a case-by-case basis. For example, blocking a control switch as an additional safety measure to tagging an electrical disconnect may be an effective second layer of protection for preventing the mechanical activation of a machine, but this block may be an inadequate additional safety measure for the same machine's hydraulic or pneumatic hazardous-energy sources. In short, this additional control measure provides the authorized employee using a tagout program with a "second layer of protection" in the event the tagout device for the primary isolating device is defeated.

NOTE to 1918.89(c)(6) explains that 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 1915.89(c)(6)(ii)(B) do not apply, provided that the employer complies with the verification procedures in 1915.89(g). Following the deenergization, isolation, and application of a lock or tag of any machinery, equipment, or system, the authorized employee must verify deenergization and isolation prior to beginning the servicing operation. In a group servicing situation, the employer's primary authorized employee must verify, and all of the employer's authorized employees must be given the option to verify, deenergization and isolation prior to beginning the servicing operation. This procedure will ensure that the employees, who are not in control of the machinery, equipment, or system, are protected from the uncontrolled release of hazardous energy.

1915.89(c)(7) pertains to lockout/tags-plus coordination and requires the use of a lockout/tags-plus coordinator and log in two situations: (1) When multiple employees service the same machinery, equipment, or system at the same time on vessels, in vessel sections, or at land-side facilities; and (2) when employees service multiple machinery, equipment, or systems at the same time on the same vessel or vessel section (See 1915.80(b)(15)). The coordinator is only required when employees performing a servicing operation could be endangered by one or more other servicing operations being performed at the same time because of the energization or startup of one or more of the machines, pieces of equipment or systems being serviced.

1915.89(c)(7)(i)(A) requires employers to ensure the coordination of all lockout/tags-plus applications when employees are servicing multiple machinery, equipment, or systems at the same time on vessels and in vessel sections. This requirement for a lockout/tags-plus coordinator (hereafter referred to as "coordinator") applies when employees, whether contract or host employees, are performing separate, but concurrent, servicing operations on different machinery, equipment, or systems. Because of the complexity of machinery, equipment, and systems used in vessels and vessel sections, as well as the existence of shared and redundant energy sources, this requirement for coordination heightens employee protection. For example, a generator aboard a U.S. Navy combatant vessel may supply power to the vessel's weapons system and to the lighting system for a particular part of a vessel. If the generator is secured for servicing both of these systems, and the employee servicing the weapons system restores power to the generator for testing or troubleshooting, an employee servicing the lighting system at the same time would be at risk of electrocution. The presence of a

coordinator, who would oversee removal of the lockout/tags-plus system for the two operations, would eliminate such a possibility. However, this paragraph does not require that a coordinator be used when servicing multiple machinery, equipment, or systems at the same time at land-side facilities. Machinery, equipment, and systems at land-side facilities do not have the same complexities and redundant or shared energy sources as those aboard vessels and in vessel sections. Further, machinery, equipment, or systems at land-side locations often have their own individual disconnect or cutoff mechanisms that completely isolate them from other machinery, equipment, or systems. In such cases, a coordinator is not necessary because hazardous energy to a machine, piece of equipment, or system can be controlled through a single source that will not affect other machinery, equipment, or systems (See CPL 02-00-147 – *The Control of Hazardous Energy – Enforcement Policy and Inspection Procedures*, February 11, 2008 for examples and explanation).

1915.89(c)(7)(i)(B) requires employers to provide a coordinator when employees, whether employed by the host employer or a contract employer, are performing multiple servicing operations on the same machinery, equipment, or systems at the same time on vessels, in vessel sections, and at land-side facilities. Such a situation might arise during land-side servicing operations, for example, when an electrician secures the power on a portable crane so that a machinist can inspect the crane's wire rope while ironworkers repair the crane's structural members. Another situation may include two or more sets of employees working on high-pressure steam lines aboard a vessel. In such situations, the energy source would be secured, possibly using a single blank, in order for the piping to be repaired in one location, such as the forward location of a machinery space, while additional repairs are being performed in another separate location (i.e., aft location of the machinery space two levels below the forward location). By complying with the requirement to have a coordinator, who would be aware of the status of each separate servicing operation, the employer can avoid situations when an employee servicing one part of a system is injured because another employee working on another part of the system, without knowledge of the first employee, restores power to that system.

1915.89(c)(7)(ii) requires that the coordination process include both the lockout/tags-plus coordinator and a lockout/tags-plus log. In addition, the lockout/tags-plus log must be specific to each vessel, vessel section, or land-side work area. The specific requirements for the lockout/tags-plus log are discussed in 1915.89(c)(7)(iv).

The number of servicing operations and number of employees performing the servicing before a coordinator must be designated is left up to each employer, allowing them the flexibility to make decisions based on the need in their facilities to ensure employee protection. The term "multiple" was intended for when there was more than one servicing operation or more than one employer. Employers must base the use of a coordinator on the complexity of vessels or vessel sections under construction or repair. For example, a large vessel that is undergoing extensive repairs and upgrades, with multiple contract employers and multiple servicing operations, will likely have one employee with the sole responsibility to be the lockout/tags-plus coordinator for that particular vessel. On the other hand, if an employer has two smaller vessels on adjacent piers with minimal servicing operations, that employer may choose to either have one coordinator for both vessels, or have an employee on each vessel with the collateral duty to serve as the lockout/tags-plus coordinator.

1915.89(c)(7)(iii)(A), (B), and (C) specify several responsibilities of the lockout/tags-plus coordinator. These three provisions require, respectively, the coordinator to oversee and approve: The application of each lockout and tags-plus system; the verification of hazardous-energy isolation prior to any servicing performed on any machinery, equipment, or system; and the removal of each lockout or tags-plus system. Giving one coordinator the responsibility for approving each phase of the lockout/tags-plus process ensures employee safety by avoiding the untimely energization of a piece of machinery, equipment, or system that is still being worked on. This oversight and approval authority will require the coordinator to work closely with the authorized personnel for each lockout/tags-plus application. The coordinator will review the authorized person's plan and either approve or deny the request. Once the coordinator approves a request, the authorized person, in consultation with the

coordinator, will apply the lock or tags-plus system, verify isolation of the hazardous energy, and remove the lockout/tags-plus system upon the completion of servicing.

1915.89(c)(7)(iv) specifies six items that the coordinator must maintain in the log, including: The location and the type of the machinery, equipment, or system (1915.89(c)(7)(iv)(A) and (B)); the name of the authorized employee applying the lockout/tag-plus system (1915.89(c)(7)(iv)(C)); the date that the lockout/tags-plus system was applied (1915.89(c)(7)(iv)(D)); the name of the authorized person removing the lock or tags-plus system (1915.89(c)(7)(iv)(E)); and the date that the lockout/tags-plus system was removed (1915.89(c)(7)(iv)(F)). This information is needed so that the lockout/tags-plus coordinator can effectively oversee all lockout/tags-plus applications prior to servicing operations to ensure the safety of each authorized and affected employee. Inclusion of this information in the log will permit the coordinator to know, at all times, which systems are under lockout/tags-plus and which authorized person is responsible for each lockout/tags-plus application.

NOTE to 1915.89(c)(7) explains that when the Navy ship's force is the lockout/tags-plus coordinator and maintains control of the lockout/tags-plus log, the employer will be in compliance with 1915.89(c)(7) when coordination occurs between the ship's force and the employer to ensure that applicable lockout/tags-plus procedures are followed and documented. Here, the term "employer" refers to the host employer, any of its contractors, or any employer contracted directly by the Navy. In these cases, all employers performing servicing work must coordinate all aspects of the lockout/tags-plus program with the Navy ship's force. The host employer should perform this coordination for all host employer personnel and for contractors and other personnel hired by the host employer.

1915.89(d) – Lockout/tags-plus written procedures

1915.89(d) provides a requirement for employers to have lockout/tags-plus written procedures, which is a departure from the 29 CFR Part 1910 general industry standards. Variations from the general industry standards primarily involve the recognition that servicing machinery, equipment, and systems in the shipyard environment often entails complexities that require a different approach regarding documentation of procedures.

1915.89(d)(1) specifically states that employers must establish and implement written energy-control procedures to prevent energization or startup, or the release of hazardous energy, during the servicing of machinery, equipment, or systems. The written procedures must contain the necessary information employees need to control hazardous energy during servicing and includes:

1915.89(d)(1)(i) gives a clear and specific outline of the scope and purpose of the lockout/tags-plus procedures. Requiring documentation of the authorization and rules regarding the control of hazardous energy is not necessary or appropriate.

1915.89(d)(1)(ii) provides the means the employer will use to enforce compliance. This requirement does not specify how an employer must enforce employee compliance with the lockout/tags-plus program and procedures, only that the employer must do so. This requirement is performance-based, allowing employers to establish disciplinary programs that will be effective under the unique conditions of each shipyard. This requirement ensures that employers and employees understand the importance of following the established lockout/tags-plus procedures. At the same time, this provision provides employers with flexibility to tailor their enforcement programs to shipyard conditions.

1915.89(d)(1)(iii) lists the steps employees must follow when using each of the procedures specified by 1915.89(d)(1)(iii)(A) through (I). These paragraphs specify, respectively, the following procedures: Preparations for shutting down and isolating the machinery, equipment, or system to be serviced in accordance with 1915.89(e); application of the lockout/tags-plus system in accordance with 1915.89(f); verification of isolation in accordance with 1915.89(g); testing the machinery, equipment, or system in accordance with 1915.89(h); and removing lockout/tags-plus systems in accordance with 1915.89(i). Employers are also required by 1915.89(d)(1)(iii)(F) through (I) to provide the steps employees must

follow when using each of these procedures. These paragraphs specify: Starting up the machinery, equipment, or system in accordance with 1915.89(j); applying lockout/tags-plus systems in group servicing operations in accordance with 1915.89(k); addressing multi-employer worksites involved in servicing machinery, equipment, or systems in accordance with 1915.89(l); and addressing shift or personnel changes during servicing operations in accordance with 1915.89(m).

By establishing procedures that include all of the steps necessary for identifying each source of hazardous energy, applying the lockout/tags-plus system, releasing the energy, testing the equipment, removing the lockout/tags-plus system, and starting up the machinery, equipment, or system, the employer will have a comprehensive and easy-to-administer lockout/tags-plus program. In addition, employers will be able to establish the basic provisions of a lockout/tags-plus program throughout their facilities and with the entire workforce, which will enable employees to better protect themselves. 1915.89(d)(1) does not require separate procedures to be written for each and every piece of equipment. Similar machines and/or equipment (such as those using the same type and magnitude of energy) that have the same or similar types of controls can be covered with a single procedure. For example, employers may develop one set of procedures for all steering gear systems, ship's lighting systems, ship's refrigeration systems, fire-suppression systems, grinders, or lathes if the type and magnitude of energy and type of controls are the same or similar for the particular systems, and as long as the procedure satisfactorily addresses hazards and the steps that must be taken to control these hazards. However, if unique conditions are present, such as multiple energy sources or different means of connection, then the employer must develop specific energy-control procedures to address these conditions to ensure that employees are protected. For example, if a system requires that a unique shutdown sequence be followed, specific energy-control procedures will be required for that system.

1915.89(d)(2) provides an exception to the requirement to have written control procedures for particular machinery, equipment, and systems. Under this exception, employers need not have a written procedure for equipment when all of the following conditions exist: (1) The machine, equipment, or system has no potential for the release or re-accumulation of hazardous energy after shutting down or restoring energy; (2) the machine, equipment, or system has a single energy source that can be readily identified and isolated; (3) the isolation and locking out of the energy source will completely deenergize and deactivate the machine, equipment, or system, with no potential for re-accumulation of energy; (4) the machine, equipment, or system is isolated from that energy source and secured during servicing; (5) a single lock will achieve a locked-out condition; (6) the lock is under the exclusive control of the authorized employee performing the servicing; (7) the servicing does not create hazards for other employees; and (8) the employer, in utilizing this exception, has had no accidents involving the activation or reenergization of this type of machinery, equipment, or system during servicing. The exception is warranted as there is little or no risk to employees when applied correctly. To require a written procedure under these conditions would divert resources from other high-risk situations. This exception will primarily apply to land-side facilities and not ship's machinery, equipment, or systems due to the latter's complex nature.

1915.89(e) – Procedures for shutdown and isolation

1915.89(e) establishes the provisions for the safe shutdown and isolation of hazardous energy to machinery, equipment, or systems.

1915.89(e)(1)(i) requires that, before any authorized employee shuts down any machinery, equipment, or system, the authorized employee must have knowledge of the source, type, and magnitude of the hazards associated with energization or startup of the machinery, equipment, or system; the hazards associated with the release of hazardous energy; and the means to control those hazards. The machinery, equipment, and systems on vessels and vessel sections are complex and sometimes have multiple sources of energy. Under such conditions, the release of hazardous energy presents a grave risk to employees. This risk is the primary reason for the training requirements in 1915.89(o)(4)(i) and (o)(4)(ii). All authorized employees must have training so they know the types of energy sources and

the magnitude of the energy present at the worksite. In addition, all authorized employees must know the means and methods necessary for effective isolation and control of hazardous energy. Authorized employees must have this knowledge prior to performing servicing operations in order to protect themselves and other employees.

1915.89(e)(1)(ii) requires employers to notify affected employees when machinery, equipment, or systems are being shut down and a lockout/tags-plus system is being applied. Notification of affected employees is an important step in the process and is necessary to protect affected employees who may not be aware that shutdown will take place and that the machine, equipment, or system they normally work on will be taken out of service for a period of time. When affected employees are not aware of the shutdown condition, they may take actions that are not consistent with safe practices, such as attempting to restore power to the system. For example, some systems may run the length of the vessel and pass through several decks, or span several spaces within the vessel. Affected employees may be working on a system in various locations, or they may be working near where the servicing is taking place. These affected employees must be notified of the lockout/tags-plus application to ensure that they are aware that they must not energize or startup the machinery, equipment, or system because it is being serviced, that they must not remove or disable the lockout/tags-plus application, and that they cannot use the machinery, equipment, or system to perform their regular job until after they are notified that the lockout/tags-plus application has been removed. Without such notification, affected employees may inadvertently energize or start a piece of machinery, equipment, or system, thus endangering any authorized employee performing servicing. As a reminder, affected employees are those who either normally operate the machinery, equipment, or system that is being serviced, or who work in the area where the servicing is taking place.

1915.89(e)(2) requires that the machinery, equipment, or system be shut down according to the written procedures established by the employer pursuant to 1915.89(d). This action is the starting point for all subsequent steps necessary to put the machinery, equipment, or system in a state that will allow employees to work on or near it safely. The employer must establish and implement procedures for all machinery, equipment, or systems, and the authorized employee must follow these procedures.

1915.89(e)(3) requires that an orderly shutdown be used to prevent exposing any employee to additional or increased hazards resulting from the release of energy.

1915.89(e)(4) requires the employer to 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 that will be serviced. This requirement emphasizes that the authorized employee must ensure that every possible source of energy to the machinery, equipment, or system being serviced is deenergized. Thus, if a system is deactivated; but stored, residual, or otherwise hazardous energy remains, the authorized employee must relieve or disconnect that energy to fully protect the employees who will be servicing the system. It is noted that 1915.89(e)(1)(i) is a prerequisite to 1915.89(e)(4), since the authorized employee must fully understand all sources of potential energy associated with the machinery, equipment, or system that will be serviced.

NOTE to 1915.89(e) explains that when the Navy ship's force shuts down machinery, equipment, or systems and relieves, disconnects, restrains, or otherwise renders safe all potentially hazardous energy connected to the machinery, equipment, or system, the employer will be in compliance with 1915.89(e) when the employer's authorized employee verifies that the machinery, equipment, or system being serviced has been properly shutdown, isolated, and deenergized. Here, the term "employer" refers to the host employer, any of its contractors, or any employer contracted directly by the Navy.

1915.89(f) – Procedures for applying lockout/tags-plus systems

As specified in 1915.89(e), once the machinery, equipment, or system has been shut down, the next step is to apply the lock or tags-plus system. The lock or tags-plus system (which is a tag attached to the

energy-isolating device and an additional safety measure) must be located and applied in such a manner as to isolate the machinery, equipment, or system from all energy sources.

1915.89(f)(1) requires that only the authorized employee apply the lock or tags-plus system.

1915.89(f)(2) requires that when a lock is used, the authorized employee must affix the lock so that the energy-isolating device is held in a safe or off position.

1915.89(f)(3) and (f)(4) specify the requirements for the use of tags. When a tags-plus system is used, tags must be affixed by the authorized employee directly to the energy-isolating device. The placement of these tags must clearly indicate that the removal of the device from the safe or off position is prohibited. When a tag cannot be affixed directly to the energy-isolating device, it must be located as close as possible to the device in a safe and obvious position. These requirements also are included in the training of both affected and authorized employees, as discussed in 1915.89(o).

1915.89(f)(5) requires that the energy-isolating devices used to control the energy to the machinery, equipment, or system, are effective in isolating the machinery, equipment, or system from all potentially hazardous-energy sources. The purpose of lockout/tags-plus is to eliminate or control hazardous energy, and the devices used to do so are critical to the success of the employer's program. Hazardous energy includes stored or residual energy. This type of energy presents a unique hazard to employees when, for example, the energy becomes trapped in a system or develops from gravity exerting pressure on spring-loaded components. Such stored or residual energy cannot be turned on or off; it must be dissipated or controlled. To control this potentially hazardous energy, the authorized employee may need to use blanks, blocks, bleed valves, or other physical components. Finding and rendering safe all potentially hazardous energy sources, with appropriate energy-isolating devices and additional safety measures, is essential to the success of all lockout/tags-plus programs.

NOTE to 1915.89(f) explains that when the Navy ship's force applies the lock or tag, instead of the employer's authorized employee, the employer will be in compliance with 1915.89(f) when the employer's authorized employee verifies the application of the lockout/tags-plus system or device. Here, the term "employer" refers to the host employer, any of its contractors, or any employer contracted directly by the Navy.

1915.89(g) – Procedures for verification of deenergization and isolation

1915.89(g)(1) requires that after the application of locks or a tags-plus system, the authorized employee, or the primary authorized employee in a group lockout/tags-plus application must verify that the machinery, equipment, or system is deenergized, and that the hazardous energy has been isolated before starting the servicing operation.

For the instances when a group lockout/tags-plus application occurs, the *primary authorized employee*, rather than all of the authorized employees working in the group application, is required to verify that the machinery, equipment, or system has been deenergized and all energy sources isolated. However, employees working in a group lockout/tags-plus servicing operation must be offered the option to verify deenergization and isolation (See 1915.89(g)(3)).

1915.89(g)(2) requires that verification of isolation is continued throughout the servicing operation. This ensures the ongoing protection of employees, particularly when a servicing operation cannot be accomplished quickly or during a single workshift. For those instances when there is a group lockout/tags-plus application occurring, the primary authorized employee is required to continue the verification of deenergization and isolation during servicing operations.

1915.89(g)(3) requires employers to ensure that each employee working in a group lockout/tags-plus servicing operation is offered the option to verify the deenergization and isolation of machinery, equipment, or systems. This requirement also applies when the Navy ship's force controls the application of lockout/tags-plus system.

1915.89(h) – Procedures for testing

1915.89(h) allows for the temporary removal of locks or tags-plus systems and the reenergization of equipment during the limited time when power is needed for testing the equipment or positioning of its components. The restart operation, however, must be conducted by the authorized employee using the sequence of steps outlined in paragraphs (h)(1) through (h)(5) to ensure employees' safety when they transition equipment from a deenergized to an energized condition, and then return to a deenergized condition. The sequence is as follows: (1) Clear the work area of tools and materials; (2) remove non-essential employees from the work area; (3) remove the lock or tags-plus system in accordance with the required removal procedures (See 1915.89(i)); (4) energize the machinery, equipment, or system and proceed with testing or positioning; and (5) when testing or positioning is completed, deenergize and shut down the machinery, equipment, or system, and reapply the locks or tags-plus systems in accordance with the required control application procedures (See 1915.89(e) through (h)). Machine guarding or other safety equipment need not be replaced before energizing the system for testing, unless the employer establishes such a requirement in the lockout/tags-plus program and procedures. However, when servicing is completed, the safety equipment, including restraints and guarding, must be fully restored prior to reenergization. These provisions permit the employer to conduct interim testing and still protect employees by ensuring that the procedures are orderly and complete.

NOTE to 1915.89(h) clarifies the employer's role when the Navy ship's force serves as the lockout/tags-plus coordinator, performs the testing, and maintains control over the lockout/tags-plus applications. Specifically, the note states that during testing, the employer will be in compliance with 1915.89(h) when the employer's authorized employee acknowledges to the Navy's 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. Here, the term "employer" refers to the host employer, any of its contractors, or any employer contracted directly by the Navy.

1915.89(i) – Procedures for removal of lockout and tags-plus systems

1915.89(i) establishes the procedures that authorized employees must follow when removing locks or tags-plus systems (i.e., when the equipment is being released from lockout or tags-plus status). These procedures are provided to assist the employer in safely returning the machinery, equipment, or system to an effective operating condition without exposing employees to the risk of injury while the lockout/tag-plus system is being removed or when the machinery, equipment, or system is reenergized.

1915.89(i)(1) requires the employer to ensure that, before the lock or tags-plus system is removed and energy restored to the machinery, equipment, or system, the authorized employee takes three steps as specified in 1915.89(i)(1)(i) through (iii).

1915.89(i)(1)(i) First, the authorized employee must notify all other authorized and affected employees in the work area that the lockout/tags-plus system will be removed. It is emphasized that the notification must take place prior to the lock or tags-plus system being removed.

1915.89(i)(1)(ii) Second, the authorized employee must ensure that all employees in the work area have been safely positioned or removed. This step is critical to guaranteeing that these employees are not harmed when the equipment is reenergized. Examples of methods employers may use to alert employees that they need to either be safely positioned or leave the work area may include conducting visual inspections, or using buzzers, bells, alarms, or whistles.

1915.89(i)(1)(iii) Third, the authorized employee must inspect the work area to ensure that nonessential items have been removed and that the equipment components are operationally intact. A visual inspection may be sufficient to meet this requirement; however, the employer may choose to use a checklist, or other means, depending upon the equipment's complexity.

1915.89(i)(2) requires that the lock or tags-plus system be removed by the authorized employee who applied it. This requirement ensures that the authorized employee, who is in direct control of the

lockout/tags-plus device, and who also, is exposed to potential injury while servicing operations are in progress, remains in full operational control of the machinery, equipment, or system. Ensuring that the authorized employee who applied the device, is the only employee permitted to remove it, emphasizes the importance of the authorized employee and the employer's lockout/tags-plus program. Further, this provision will help prevent other employees from removing the device, either intentionally or accidentally.

1915.89(i)(3) specifies that when the authorized employee who applied the lockout/tags-plus system is not available to remove it, the lockout/tags-plus system may be removed by another employee who is an authorized employee and is working under the direction of the employer. However, the employer must take specific actions prior to removal of the system by another authorized employee. The employer must develop and incorporate specific procedures and training in the lockout/tags-plus program that address removal of the system by another authorized employee. In addition, the employer must demonstrate that the procedures provide a level of safety that is equivalent to removal by the initial authorized employee. 1915.89(i)(3)(i) through (iii) establish the sequence of events that must take place prior to the removal of the lockout/tags-plus system by another authorized employee.

1915.89(i)(3)(i) requires that the employer must first verify that the authorized employee who applied the lockout/tags-plus system is not in the facility.

1915.89(i)(3)(ii) requires the employer to make all reasonable efforts to contact the absent authorized employee to inform him/her that the lockout/tags-plus system has been removed.

1915.89(i)(3)(iii) requires the employer to ensure that the absent authorized employee who applied the lock or tags-plus system knows that the lock or tags-plus system has been removed prior to them resuming work. This provision does not apply to an absent authorized employee who is simply on a break, is using a sanitation facility, or is temporarily doing other work. In addition, the substitution of another authorized employee should not occur just because the original authorized employee left at the end of his/her workshift. Employers may apply this provision only in emergency situations, or when the absent authorized employee is on vacation or will not be returning to the worksite for an extended period of time (for example, the employee is sick and is not able to return for the next assigned workshift).

NOTE to 1915.89(i) clarifies the employer's role when the Navy ship's force acts as the lockout/tags-plus coordinator and removes the locks or tags-plus systems. Specifically, the provision states that the employer will be in compliance with all 1915.89(i) when the employer's authorized employee informs the lockout/tags-plus coordinator that the procedures in 1915.89(i)(1) have been performed. Here, the term "employer" refers to the host employer, any of its contractors, or any employer contracted directly by the Navy. It is imperative for employee protection that the lockout/tags-plus coordinator be informed that all employees servicing the machinery, equipment, or system have been notified, all employees are safely positioned or removed, and the work area is clear of nonessential items before the Navy ship's force removes the lockout/tags-plus system.

1915.89(j) – Procedures for startup

1915.89(j) requires employers to ensure that authorized employees understand how to safely restart machinery, equipment, or systems after servicing operations are completed. The procedures required for each step involved in servicing equipment safely will assist employers in developing programs that represent all required actions from start to finish in lockout/tags-plus applications.

1915.89(j)(1) requires that after servicing is completed and before an authorized employee turns on or reenergizes any machinery, equipment, or system, the authorized employee understand the source, type, and magnitude of all hazards associated with the energization process, and the means to control these hazards. This requirement specifies an important duty of the authorized employee; this requirement is integral with paragraphs 1915.89(o)(4)(ii) and (iii), which provide that the authorized employee must be trained to know this information prior to the start of servicing operations.

1915.89(j)(2) requires that an orderly startup must be implemented to prevent or minimize any additional or increased hazards to employees. Authorized employees may be servicing complex or large systems while other employees are in the area. An orderly startup ensures that all of these employees are safe when the machinery, equipment, or system is reenergized. Startup must consist of at least the following three steps, as specified in 1915.89(j)(2)(i) through (iii).

1915.89(j)(2)(i) requires that tools and materials must be cleared from the work area;

1915.89(j)(2)(ii) requires that all non-essential employees must be removed from the work area; and

1915.89(j)(2)(iii) requires that the machinery, equipment, or system must be started according to the detailed procedures the employer established for that machinery, equipment, or system. The employer must comply with the first two requirements either by using a checklist or by having supervisors or foremen ensure, by inspection or any other effective means, that the work area is cleared of all tools, materials, and non-essential employees. It is not required that all guards be replaced prior to reenergization; such a requirement is not necessary since employers know that having an operationally intact machinery, equipment, or system means that the machine guarding or other safety components must be replaced.

NOTE to 1915.89(j) clarifies the employer's role when the Navy ship's force serves as the lockout/tags-plus coordinator and maintains control over lockout/tags-plus during startup of the machinery, equipment, or system, and the employer is prohibited from starting up the machinery, equipment, or system. The provision states that the employer will be in compliance with all of the provisions in 1915.89(j) provided that the employer's authorized employee informs the Navy's lockout/tags-plus coordinator that the procedures in 1915.89(j)(2)(i) and (j)(2)(ii) have been performed. Here, the term "employer" refers to the host employer, any of its contractors, or any employer contracted directly by the Navy. It is imperative for employee protection that the employer's authorized employee ensures, and communicates to the Navy's lockout/tags-plus coordinator, that the work area is clear of tools, materials, and nonessential employees before the machinery, equipment, or system is restarted.

1915.89(k) – Procedures for group lockout/tags-plus

1915.89(k) establishes the provisions for group lockout/tags-plus. Group lockout/tags-plus occurs when more than one employee is working on the same machinery, equipment, or system simultaneously. The term "employee" encompasses ship's crew, different yard crafts or departments, or employees from another employer (e.g., contract employees).

1915.89(k)(1) specifies the procedures for primary authorized employees that must be implemented in group lockout/tags-plus operations.

1915.89(k)(1)(i) requires that the employer assign responsibility to one authorized employee (the primary authorized employee) for each group of authorized employees working on the same machinery, equipment, or system. For example, if three groups of employees are working on a fire-suppression system, there must be three primary authorized employees – one for each group. Each primary authorized employee will ensure that the members of the group have applied their own locks, signed a group tag, or otherwise complied with the employer's procedures for group servicing operations.

1915.89(k)(1)(ii) requires the employer to develop and implement procedures through the primary authorized employee for determining the safe exposure status of individual group members, and for taking appropriate measures to control or limit that exposure. If work needs to be conducted on a ship's system for which the primary authorized employee has no experience, it is the employer's responsibility to ensure that, prior to any servicing operation, the primary authorized employee receives the necessary training in accordance with 1915.89(o)(4). Knowledge of systems and the ability to determine whether fellow employees are exposed to hazardous energy during servicing are critical skills needed by the individual whom the employer designates as the primary authorized employee.

1915.89(k)(1)(iii) requires each primary authorized employee to obtain approval from the lockout/tags-plus coordinator before applying and removing each lock or tags-plus system when

required by 1915.89(c)(7)(i). This provision recognizes the responsibilities and duties of the lockout/tags-plus coordinator in group lockout/tags-plus applications. When there are multiple groups or individuals performing servicing operations on the same machinery, equipment, or system at the same time, which is a common occurrence in shipyards, having a lockout/tags-plus coordinator who coordinates with and approves each group's lockout/tags-plus system, will be more effective in managing all lockout/tags-plus systems.

1915.89(k)(1)(iv) requires that the primary authorized employee coordinates each servicing operation with the coordinator. Involvement of the coordinator ensures that the safety of other authorized employees who are servicing equipment is taken into account, which is critical when an energy source that has been, or will be, isolated provides power to more systems than the one being serviced.

1915.89(k)(2) includes the provisions for authorized employees working in a group lockout/tag-plus operation. When servicing is performed by multiple authorized employees, the employer must either have each authorized employee apply a personal lockout or tags-plus system (1915.89(k)(2)(i)), or 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 (1915.89(k)(2)(ii)). These procedures must incorporate a means for each authorized employee to have personal control of, and accountability for, his or her own protection. Examples provided in 1915.89(k)(2)(ii) include employees signing-on and signing-off a group tag or its equivalent, or attaching a personal identification device to a group lockout device (i.e., lockbox). The use of a job assignment sheet or any other comparable system that requires tangible action by the employee to ensure he/she is "signed-on" or "signed-off" would be appropriate if it is addressed in the employer's written plan.

In certain situations, the safety of the servicing employees will be maximized if each employee in the group affixes his/her personal lockout or tags-plus system device as part of the group lockout. First, the placement of a personal lockout or tags-plus system device gives the employee a degree of control over his/her own protection. Second, the presence of an employee's lockout or tags-plus system will inform all other persons, including the other servicing employees and supervisors that the employee is still working on the machinery, equipment, or system. Third, as long as the device remains attached, the primary authorized employee in charge of the group lockout or tagout knows that the job is not completed and that it is not safe to reenergize the machinery, equipment, or system. Fourth, the servicing employee will continue to be protected by the presence of his/her device until he/she removes it. The primary authorized employee is not to remove the group lockout device until each authorized employee in the group has removed his/her personal device, indicating that employees are no longer exposed to the hazards from the servicing operation.

However, it is not always possible for each authorized employee to affix his or her own lock or tag to an energy-isolating device, especially when multiple employees are working on a highly complex system. Therefore, an alternative method may be necessary.

Using an alternative method such as a group lockbox, once the machinery, equipment, or system is locked out the key is placed into the lockbox and each authorized employee places his/her lockout or tagout device on the box. When each individual authorized employee completes their portion of the work, they remove their lockout or tagout device from the group lockbox. After all of the personal lockout or tagout devices have been removed, the key for the group lockout devices for the machinery, equipment, or system can be used to remove the group lockout device. This method provides protection for all employees working under a particular group lockout/tags-plus device.

A group tags-plus system works similarly to the group lockbox in that all authorized employees must take the affirmative action of signing the group tag. After the tag is properly placed, the employer must ensure that each authorized employee "signs on" by signing the tag. As each authorized employee completes his/her portion of the servicing, he/she will "sign off" by initialing or signing the tag. Once

all employees have signed off, the primary authorized employee will be able to proceed with removing the tag.

Employers who choose to use an alternative method must be able to demonstrate that their system protects each authorized employee to the same degree as a personal lock or personal tags-plus system. Additionally, to achieve this level of protection, the employer would need to develop well-designed and carefully monitored procedures, as well as provide thorough training to all authorized employees and lockout/tags-plus coordinators.

NOTE to 1915.89(k)(2) explains those situations 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. Specifically, it states that the shipyard 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 order listed: (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. This requires the employer's primary authorized employee, but not each authorized employee, to sign the group tag (i.e., Work Authorization Form (WAF)). As discussed above, the Navy ship's force maintains control of the machinery, equipment, and systems during servicing, which removes control from the individual shipyard employers. Since it is the shipyard employer's authorized employees who perform the servicing operations and are exposed, it remains the responsibility of the shipyard employer to ensure the health and safety of their employees, which entails employer verification of the application of lockout/tags-plus systems or devices; employer coordination with Navy ship's force for maintenance and accuracy of lockout/tags-plus logs; and in group lockout/tags-plus, employer verification of the safe exposure status of each authorized employee and signature on a group tag (or a group tag equivalent) before and after servicing equipment.

1915.89(l) – Procedures for multi-employer worksites

1915.89(l) gives requirements for exchanging information and coordinating responsibilities for a lockout/tags-plus program among host and contract employers. These requirements are fundamental to any effective and safe lockout/tags-plus program at a multi-employer worksite.

Situations may arise where one employer may introduce hazards into the workplace where employees of other employers are exposed. Because these situations cannot be prevented, the host employer must establish and implement procedures that will protect all workers. All employers need information about relevant hazards present at the worksite to enable them to fulfill their obligations to protect workers. For these reasons, communication and coordination among employers are essential.

1915.89(l)(1) requires that the host employer establish and implement procedures to protect employees from hazardous energy in multi-employer worksites. The procedures must specify the responsibilities for both the host employer and the contract employer(s).

1915.89(l)(2) and (l)(3) specifies and differentiates between the responsibilities of the host and contract employer.

Host Employer

1915.89(l)(2)(i) requires the host employer to inform each contract employer about the contents of the host employer's lockout/tags-plus program and procedures, which also may include training. The host employer, in conjunction with the contract employers, must decide which employees to train.

1915.89(l)(2)(ii) requires that the host employer instruct each contract employer to follow the host employer's lockout/tags-plus program and procedures.

1915.89(l)(2)(iii) requires the host employer to ensure that the lockout/tags-plus coordinator knows about all servicing operations and communicates with each contract employer. This communication must involve each contract employer with employees servicing machinery, equipment, or systems, or working in an area where servicing is being performed. The lockout/tags-plus coordinator should communicate with contractors about the host employer's lockout/tags-plus program and procedures and the role of the lockout/tags-plus coordinator. Establishing open lines of communication between the lockout/tags-plus coordinator and contractors is important because the contractor is responsible for alerting the employer (i.e., lockout/tags-plus coordinator) of any new lockout/tags-plus hazards they identify.

Contract Employer

1915.89(l)(3)(i) requires that the contract employer follow the host employer's lockout/tags-plus program and procedures. The ultimate responsibility for lockout/tags-plus must remain with the host employer. However, the contract employer has the important responsibility to ensure that its employees know and understand the host employer's lockout/tags-plus program and procedures. Adherence to the program will result in contract employees protecting themselves and others during potentially dangerous work involving the control of hazardous energy.

1915.89(l)(3)(ii) requires the contract employer to inform the host employer about any lockout/tags-plus hazards associated with the contract employer's work, and any abatement steps being taken by the contract employer to correct such hazards.

1915.89(l)(3)(iii) requires that contract employers inform host employers (i.e., lockout/tags-plus coordinators) of any previously unidentified lockout/tags-plus hazards the contractor employer and employees identify at the worksite. Servicing operations on vessels are often complex, involving many employees and multiple employers. This provision ensures that the host employer is alerted and takes appropriate precautions if contractors discover new hazards during the servicing operation. This requirement is necessary to ensure that all employees, regardless of their employer, are protected from hazardous energy during servicing operations.

NOTES to 1915.89(l): Two notes were added to 1915.89(l) for clarification.

The first note explains that 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 when those provisions would provide an equivalent level of safety for both the host and contract employers' employees. There may be situations when it is preferable for contract employees to comply with their own employer's lockout/tags-plus program when working at a host employer's worksite. The note acknowledges these situations, and gives employers flexibility in how they interact with their contractors.

The second note pertains to 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. In such a situation, the contract employer shall consider the Navy to be the host employer for purposes of 1915.89(l)(3). As a host employer is considered to be an employer in charge of coordinating work or hires other employers to perform shipyard-related work, or provide shipyard-related services, the Navy would fulfill the duties as the host employer. The contract employer would follow the Navy lockout/tags-plus program and procedures, inform the Navy ship's force of any lockout/tags-plus hazards associated with their work, and inform the Navy ship's force of any previously unidentified hazards.

1915.89(m) – Procedures for shift or personnel changes

1915.89(m) requires that specific procedures be utilized to ensure the continuity of lockout/tags-plus protection for employees during shift or personnel changes.

1915.89(m)(1) requires that the employer establish and implement procedures for the orderly transfer of lockout/tags-plus systems between authorized employees when starting and ending their workshifts, and when there are personnel changes. It is essential that locks or tags-plus systems be

maintained on energy-isolating devices through transition periods involving shift or personnel changes. This will ensure that no employee is exposed to uncontrolled energy hazards associated with servicing machinery, equipment, or systems.

1915.89(m)(2) requires, for workshift or personnel changes, that there be an orderly transfer of lockout/tags-plus protection between authorized employees coming onto and leaving a workshift. This provision, which ensures continuity of lockout/tags-plus protection, was written in performance-based language so that the employer can conduct shift or personnel transitions in any manner that the employer determines is appropriate, safe and effective. Employers may choose that the transfer of responsibility be accomplished by the on-coming shift's authorized employee accepting the control of the machinery, equipment, or system involved prior to the off-going authorized employee relinquishing such control. Other employers may choose to have only one shift conduct work on any particular machinery, equipment, or system so that there will be no transfer of responsibility. However, such a restriction may be impractical for shipyards that have more than one work shift. An alternative means of transfer may involve the on-coming authorized employee accompanying the off-going authorized employee to inspect and verify isolation, and to ensure that the lock or tags-plus system is still intact. This alternative provides the on-coming authorized person the assurance that the machinery, equipment, or system has been deenergized prior to work. The oncoming authorized employee also may initial the lockout/tags-plus log and tag after verifying isolation, or apply his/her own lock or tags-plus system. This action will inform all authorized employees who are working on the machinery, equipment, or system of the change in personnel. There may be occasions when the authorized employee who applied the lock or tags-plus system is not the employee who completes the job. Because the authorized employee applying the lock or tags-plus system is being protected by that device or system, it is important that the device or system not be removed by anybody else. However, if removal by another authorized employee occurs at any time, including during another workshift, the employer must comply with the requirements of 1915.89(i)(3)(i) through (i)(3)(iii). A written log that transfers primary authorized employee ownership of the applied tags-plus system would be appropriate under 1915.89(m).

1915.89(n) – Lockout/tags-plus materials and hardware

1915.89(n) addresses the locks and tags-plus system hardware used to isolate, secure, or block hazardous-energy sources to any machinery, equipment, or system. When attached to energy-isolating devices, both locks and tags are tools that protect employees from hazardous energy. A "lock" provides protection by holding the energy-isolating device in a safe position, thus preventing the release of energy and the startup or energization of the machinery, equipment, or system (See 1915.80(b)(13)). A tag is a prominent warning device that provides protection by identifying the energy-isolating device as a source of potential danger (See 1915.80(b)(30)). The tag is used to indicate that the energy-isolating device, and the equipment being controlled by such device, may not be activated until the tag is removed by an authorized employee. An additional safety measure provides a barrier to the release of energy (See 1915.80(b)(1)) and is required when a tag is used. When the use of tags is combined with an energy-isolating device as an additional safety measure, a tags-plus system is established.

1915.89(n)(1) requires that the employer provide materials and hardware to block hazardous energy whether a lock or tags-plus system is used.

1915.89(n)(2) requires that each lock and tag be uniquely identified for lockout/tags-plus applications. One way for employers to comply with this requirement is to use the same color lock, or tag, for all lockout/tags-plus applications. For example, the employer could select red locks for lockout applications only.

1915.89(n)(3) requires employers to meet certain requirements for locks and tags.

Durable

1915.89(n)(3)(i)(A) requires that locks and tags be able to withstand the environmental conditions to which they are exposed for the maximum duration of expected exposure.

1915.89(n)(3)(i)(B) requires that each tag must be constructed and printed so that it does not deteriorate or become illegible in wet or damp environments, or when used in environments where corrosives (for example, acid and alkali chemicals) are used or stored.

Standardized

1915.89(n)(3)(ii) requires that locks and tags be standardized in at least color, shape, or size so they are readily recognized and associated with the control of hazardous energy. An employer could elect to use red locks only for lockout and train employees in such use, thus meeting the requirements of 1915.89(n)(2), (n)(3)(ii)(A) and (o)(2)(ii). In addition, tags must be standardized in print and format (1915.89(n)(3)(ii)(B)).

Substantial

1915.89(n)(3)(iii)(A) requires that each lock be sturdy enough to prevent removal without the use of excessive force or special tools such as bolt cutters or other metal-cutting tools.

1915.89(n)(3)(iii)(B) requires that each tag and tag attachment be sturdy enough to prevent inadvertent or accidental removal.

1915.89(n)(3)(iii)(C) requires that the tag attachment have the general design and basic safety characteristics equivalent to a one-piece nylon cable tie that will withstand all environmental conditions to which it will be exposed.

1915.89(n)(3)(iii)(D) requires that the tag attachment be non-reusable, attachable by hand, self-locking, and non-releasable. It also must have a minimum unlocking strength of 50 pounds.

Identifiable

1915.89(n)(3)(iv) requires that each lock and tag clearly identify the authorized employee who applied it. This may include assigning each authorized employee a certain color lock or simply signing their name on the tag. Other acceptable means of identification include:

- Stamping the authorized employee's name or identification number on the lock to allow for quick identification of who applied the lock; or
- Applying a tag to the lock that contains identifying information. In such a case, the authorized employee's name or identification number may be written in indelible ink or with any medium that will withstand the conditions to which the tag will be exposed.

1915.89(n)(3)(v) requires that tags warn of hazardous conditions that could arise if the machine or equipment is energized, and include a legend such as one of the following: DO NOT START; DO NOT OPEN; DO NOT CLOSE; DO NOT ENERGIZE; DO NOT OPERATE.

1915.89(o) – Information and training

1915.89(o) addresses the lockout/tags-plus training requirements and ensures that employees have adequate training targeted for their level of exposure and responsibilities under the lockout/tags-plus program. These training provisions are equally important whether the employees involved in the servicing of machinery, equipment, or systems are employees of the host or contract employer. In the event that a contract employee is involved in the servicing of machinery, equipment, or systems, it is the contract employer's responsibility to provide the necessary training for the control of hazardous energy in accordance with the host employer's lockout/tags-plus program.

1915.89(o)(1) requires employers to complete initial lockout/tags-plus training for employees no later than October 31, 2011.

1915.89(o)(2) through (o)(5) identify four categories of employees who must receive lockout/tags-plus training: (1) Employees whose work operations are or may be in an area where a lockout/tags-plus system is in effect, (2) affected employees, (3) authorized employees, and (4) lockout/tags-plus coordinators. These provisions establish tiered training requirements for each employee category based on an employees' level of exposure to hazardous energy and their duties and responsibilities under the

employer's lockout/tags-plus program. All employees whose work operations are, or may be, in a lockout/tags-plus area receive the first-tier of training (1915.89(o)(2)). Since the work operations of affected employees, authorized employees, and lockout/tags-plus coordinators also are in a lockout/tags-plus area, they also must receive first-tier training. In addition to first-level training, affected employees must have a second-level of training (1915.89(o)(3)). Authorized employees receive the first, second, and third tiers of training (1915.89(o)(4)); and lockout/tags-plus coordinators receive all four tiers of training (1915.89(o)(5)). The relative degree of knowledge that authorized, affected, and other employees must acquire varies. The lockout/tags-plus coordinator and authorized employees need the most extensive training because of their responsibilities, respectively, for the entire lockout/tags-plus program and procedures, and for implementing energy control procedures (for example, shutting down and isolating energy sources, applying and removing locks and tags-plus systems) to perform servicing operations.

Initial training

1915.89(o)(2) specifies the training requirements for all employees who are, or may be, in an area where a lockout/tags-plus system is used. As indicated by the phrase "all employees who are, or may be, in an area," this provision applies to employees who are incidentally exposed to a lockout/tags-plus system, as well as affected employees, authorized employees, and lockout/tags-plus coordinators. For example, this could include employees who simply enter or pass through a space where a lockout/tags-plus system is applied, or employees who transit a gangway attached to an aircraft elevator where a lockout/tags-plus system is applied. Each of these employees must 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 that will be used, as well as the standardized shape, size, or color of these devices; (iii) that tags-plus systems are comprised of an energy-isolating device with a tag affixed, and an additional safety measure; (iv) that lockout/tags-plus applications are not to be tampered with or removed; and (v) that machinery, equipment, and systems are not to be restarted or reenergized while being serviced. This information is critical for their protection, as well as the protection of authorized employees performing the servicing.

Affected employee training

1915.89(o)(3) outlines additional training requirements for affected employees. An affected employee is any employee who normally operates, for production purposes, the machinery, equipment, or system that is going to be serviced. In addition to being trained to the requirements in 1915.89(o)(2) and 1915.89(o)(3) it is also required that affected employees be trained in the use of the employer's lockout/tags-plus program and procedures, that they are not to apply or remove any lockout/tags-plus systems, and that no lockout/tags-plus systems are to be bypassed, ignored, or otherwise defeated.

Authorized employee training

1915.89(o)(4) specifies the training authorized employees must receive in addition to the training in 1915.89(o)(2) and (o)(3). An employee is considered an authorized employee when their work would expose them to harm from startup or energization of a system being serviced, or the release of hazardous energy.

1915.89(o)(4)(i) requires that authorized employees be trained in the steps that are necessary for the safe application, use, and removal of lockout/tags-plus systems. Since authorized employees apply and remove locks or tags-plus systems, it is crucial that they fully understand the procedures and steps they must follow to safely accomplish those tasks.

1915.89(o)(4)(ii) requires that authorized employees be trained in the type of energy sources, and the magnitude of the energy available, in the workplace. This is particularly important aboard vessels where several types of energy may be present (e.g., electrical, steam, hydraulic, ionizing radiation, etc.).

1915.89(o)(4)(iii) specifies that authorized employees be trained in the means and methods necessary for effective isolation and control of hazardous energy. This provision is necessary because the final rule requires authorized employees to lock machinery, equipment, or systems that are capable

of being locked, as well as apply both energy-isolating devices and additional safety measures if the machinery, equipment, or system cannot be locked. It is important that authorized employees understand this control framework to ensure that employees are protected from hazardous energy during servicing operations.

1915.89(o)(4)(iv) requires that the authorized employee designated as a group's primary authorized employee be trained to know the means for determining the exposure status of other employees in the group. Since the primary authorized employee determines the exposure status for those employees in the group, primary authorized employees need to receive training in this task to ensure their assessments are accurate. The training needs to provide the primary authorized employee with information necessary to understand how to determine whether, how, and to what extent employees in the servicing group are exposed to hazardous energy. This is a critical skill that primary authorized employees must possess because they have responsibility for the employees in the group, and for coordinating the lockout/tags-plus application with the lockout/tags-plus coordinator.

1915.89(o)(4)(v) requires that authorized employees be trained so they know that tags must be written so as to be legible and understandable to all employees. Authorized employees are responsible for writing the information on the tags, and this provision requires that they carefully write the information so other employees can read and understand the tag, thereby increasing the protection afforded to employees performing servicing operations.

1915.89(o)(4)(vi) requires that authorized employees be trained so they know that tags must be made of materials which will withstand the environmental conditions encountered in the workplace. 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.

1915.89(o)(4)(vii) requires that authorized employees be trained so they know they must securely attach tags to energy-isolating devices to prevent them from becoming detached during servicing. This training is particularly important in shipyard employment, where servicing operations may take place in all types of weather and environmental conditions. For example, if tags are not firmly attached, they may fall off if there are strong winds. Also, many servicing operations in shipyard employment take place in tight and confined spaces where employees passing by a tag could knock it off if it is not firmly attached. Since it is the authorized employee's responsibility to ensure that the tag is attached, they are the employees who must receive such training.

1915.89(o)(4)(viii) requires authorized employees to be trained that tags are warning devices and do not provide the same physical barrier against the energization or startup or the release of hazardous energy that locks or additional safety measures provide.

1915.89(o)(4)(ix) requires authorized employees to understand that because tags may evoke a false sense of security, they must be used in conjunction with energy-isolating devices.

Lockout/tags-plus coordinator training

1915.89(o)(5) addresses the training that lockout/tags-plus coordinators must have in addition to the training in paragraphs (o)(2), (o)(3), and (o)(4). The job of lockout/tags-plus coordinator is critical because it directly affects the safety of employees working in complex shipyard environments. The position requires a high degree of skill and expertise. The lockout/tags-plus coordinator is responsible for overseeing all servicing operations and lockout/tags-plus applications in those operations. As such, the lockout/tags-plus coordinator must have a thorough working knowledge of the employer's lockout/tags-plus program and procedures, as well as the available energy sources. In addition, the coordinator needs to have a full understanding of the machinery, equipment, and systems that employees are servicing, including the energy-isolating devices and additional safety measures that will need lockout/tags-plus applications. This coordination job will necessitate being able to read plans and schematics of the machinery, equipment, and systems being serviced to ensure that all sources of energy are identified, isolated, and deenergized.

1915.89(o)(5)(i) requires that lockout/tags-plus coordinators be trained so they know how to identify and isolate any machinery, equipment, or system that is being serviced. The coordinator must be able to identify all of the energy sources so the sources can be shut down and isolated. If any sources are missed, employees performing the servicing operation may be exposed to hazardous energy. Therefore, the coordinator must be able to accurately identify all energy sources, because they will be overseeing and authorizing, and possibly applying, the lockout/tags-plus systems necessary to protect authorized employees.

1915.89(o)(5)(ii) requires the coordinator to be trained to accurately document the lockout/tags-plus systems and maintain the lockout/tags-plus log. Whatever methods and procedures the employer has established for the lockout/tags-plus log, the coordinator will need to be trained in them so the log is accurate. For example, if the employer uses an electronic log, the coordinator will need to be trained to operate that program.

Employee retraining

1915.89(o)(6)(i) specifies when employees must be retrained or receive additional training. The employer must retrain each employee whenever:

- A change in the employee's job assignment presents a new hazard or requires a greater degree of knowledge about the employer's program or procedures (1915.89(o)(6)(i)(A));
- A change in machinery, equipment, or systems presents a new hazard for which the employee has not received training (1915.89(o)(6)(i)(B));
- A change is made in the employer's lockout/tags-plus program or procedures (1915.89(o)(6)(i)(C)); and
- It is necessary in order to maintain the employee's proficiency (1915.89(o)(6)(i)(D)).

Retraining must be provided to those employees whose jobs, tasks, or responsibilities may be affected by changes. Thus, if changes in the lockout/tags-plus program or procedures affect any employee whose work operations are, or may be, in a lockout/tags-plus area, then all four categories of employees would need to be retrained. However, if the program or procedure changes pertain only to authorized employees and lockout/tags-plus coordinators, such as changes in communication procedures between these employees, then the retraining can be limited to those two categories of employees.

There may be some changes in job assignments for which it may not be necessary to retrain employees. For example, if authorized employees are assigned to service the same types of machinery, equipment, or systems on a different vessel, they may not need to be retrained. In this case, additional program knowledge would not be required. Likewise, if authorized employees are assigned to work on similar machinery, equipment, or systems in another area of the vessel, their current training may be sufficient. An affected employee, newly assigned as an authorized employee, would need additional training because the new tasks and responsibilities require greater knowledge of the employer's lockout/tags-plus program. In addition, the job likely would involve additional hazards as the employee's new responsibilities would include shutting down and isolating energy sources, applying lockout/tags-plus systems, and performing servicing on machinery, equipment, or systems that are under a lockout/tags-plus system.

1915.89(o)(6)(ii) requires the retraining of employees, as applicable, when an incident investigation or audit indicates there are deviations from or deficiencies in the lockout/tags-plus program or procedures, and when there are inadequacies in an employee's knowledge or use of the lockout/tags-plus program or procedures. Performing retraining when either employee knowledge or employer programs or procedures are deficient is necessary to adequately protect workers during servicing operations. The retraining requirement in 1915.89(o)(6)(ii) implicitly requires employers to implement the corrective actions identified in incident investigations and program audits. In many cases, the appropriate corrective action will be retraining.

1915.89(o)(6)(iii) requires the employer to ensure that retraining establishes employee knowledge and proficiency in the employer's lockout/tags-plus program and procedures, and in any new or revised

procedures. This performance-based requirement gives employers flexibility in determining effective methods and means to attain employee efficiency. For example, employers could test employee proficiency, or have employees demonstrate safe practices, before they begin or resume servicing activities. Retraining of employees also must use methods and language that employees are able to understand. Workers in the shipyard employment industry have a variety of backgrounds, languages, and literacy levels. The employer will need to tailor the training to their employees to ensure that the retraining establishes employee knowledge.

1915.89(o)(7) requires employers to keep a current record of training that is conducted. This record must include at least the employee's name, date(s) of the training, and the subject of the training. Employers are free to determine the form of the record. For example, some employers may retain training course sign-in sheets while other employers may maintain individual employee training records. Further, some employers may choose to maintain an electronic database record instead of paper copies.

1915.89(p) – Incident investigation

1915.89(p) requires employers to investigate each incident that resulted in, or reasonably could have resulted in, the energization or startup, or the release of hazardous energy (1915.89(p)(1)). It is long-standing OSHA policy to encourage, and in some instances to require, incident reports, accident assessments, and other types of reports that document an investigation of an incident that could, or does, compromise safety. (See http://www.osha.gov/SLTC/etools/safetyhealth/mod4_factsheets.)

Investigating “near misses” in addition to actual incidents is an important proactive measure to maintain an effective lockout/tags-plus program, helping to prevent incidents and keep small or minor problems from becoming major problems. Further, successfully identifying and addressing root causes of incidents is the most effective way to prevent fatalities and injuries from occurring.

1915.89(p)(2) requires that within 24 hours of the incident the employer initiate an investigation and notify each employee who was, or could reasonably have been, affected by the incident.

1915.89(p)(3) requires that the investigation be conducted by at least one employee who has knowledge of, and experience in, the employer's lockout/tags-plus program and procedures. This employee also must have knowledge of, and experience in, investigating and analyzing incidents involving the release of hazardous energy.

Some employers use outside safety and health consultants to perform various services, such as inspections, program development, and incident investigations. Thus, 1915.89(p)(3) permits employers to use additional individuals to participate in incident investigations. Such individuals may include co-workers, outside consultants, or other ship's forces or crafts. However, the responsibility for the incident investigation rests with the employer, regardless of whom the employer may designate to assist with the task.

1915.89(p)(4) specifies that the employer prepare a written report of the investigation. This report must include the following seven items (1915.89(p)(4)(i) through (vii)): the date and time of the incident; the date and time the incident investigation began; the location of the incident; a description of the incident; the factors that contributed to the incident; a copy of any lockout/tags-plus log that was current at the time of the incident; and any corrective actions that the employer must take as a result of the incident. Incidents or near misses may occur as a result of procedural mistakes, lack of knowledge, or employee error. It is from examining incidents that the employer can determine which corrective actions to take so that such incidents do not recur.

1915.89(p)(5) requires that the employer review the written incident report with each employee having job tasks related to the findings of the incident investigation. This review must include contract employees, when applicable. This review provides employers with an opportunity to discuss and reinforce the importance of corrective actions and to identify any training or other deficiencies not included in the written report.

1915.89(p)(6) requires that the investigation and report be completed, and any necessary corrective

actions taken, within 30 days of the incident.

1915.89(p)(7) recognizes that there will be some situations that cannot be corrected within 30 days, and in those situations requires the employer to prepare a written abatement plan that explains the circumstances of the delay, a proposed timeline for corrective actions to be implemented, and a summary of the interim steps that the employer will take to protect employees.

1915.89(q) – Program audits

Employers are required to perform periodic audits at least annually to ensure that energy-control procedures are working properly. The audit must make four findings: (1) Whether the steps in the energy-control procedures are being followed; (2) whether the employees involved know their responsibilities under the procedures; (3) whether the procedures are adequate to provide the necessary protection; and (4) what changes, if any, are needed to correct identified deficiencies.

1915.89(q)(1) clarifies that the required audits apply to programs and procedures currently in use. Thus, if an energy-control program was implemented at some point during the previous year, but the servicing has been completed and the program discontinued, the employer need not audit the discontinued program. The employer is not required to audit “each” energy-control program; instead the employer may inspect a representative sample of the equipment the procedure covers, and assess and evaluate through discussions with the authorized employees who implemented the procedure on that equipment. Accordingly, equipment that has the same type and magnitude of hazardous energy, and has the same or similar type of controls, may be grouped together and inspected by type of procedure. Moreover, as stated in an OSHA interpretation letter regarding general industry requirements for periodic inspections, a group of detailed individual procedures are considered a single procedure for the purposes of periodic inspection, provided all of the procedures have the same:

- Planned equipment use;
- Procedures for applying controls (i.e., shut down, isolation, blocking, and securing equipment);
- Procedures for placing, removing and transferring lockout/tags-plus devices, and identifying who has responsibility for these procedures; and
- Requirements for testing the machinery, equipment, or system and verifying the effectiveness of lockout/tags-plus devices and other control measures.

A properly conducted program audit will determine whether an employer’s lockout/tags-plus program and procedures are effective, and whether the employer is implementing the program and procedures properly. Audits help ensure that employees implementing the program and procedures remain familiar with their responsibilities. Also, audits assist the employer in identifying deficiencies in the program and procedures, including employee training.

1915.89(q)(2)(i) requires that the audit be performed by an authorized employee other than the employee using the energy-control procedures under review.

1915.89(q)(2)(ii) allows employers to perform the required audit using other individuals knowledgeable about the employer’s lockout/tags-plus program and procedures and the machinery, equipment, or systems being reviewed. Having an outside consultant is a reasonable alternative to having an employee conduct the audit, especially since the consultant may provide a fresh perspective on the review process. This individual must be knowledgeable about the employer’s program and procedures, as well as knowledgeable about the machinery, equipment, or systems that are being serviced on vessels and in land-side facilities.

1915.89(q)(3) identifies what records the employer must examine as part of the audit.

1915.89(q)(3)(i) requires a review of the written lockout/tags-plus program and procedures. This requirement ensures that the employer addresses all of the machinery, equipment, and systems and the specific procedures for energy control in the worksite, as well as confirms that the employer is in compliance with 1915.89(b).

1915.89(q)(3)(ii) requires a review of the current lockout/tags-plus log. By reviewing the log, the auditor will determine if it is up to date, if all possible sources of hazardous energy supplied to machinery, equipment, or systems have been properly isolated, and if the lockout/tags-plus coordinator is properly approving and authorizing each lock or tagout application.

1915.89(q)(3)(iii) requires verification of the logs accuracy.

1915.89(q)(3)(iv) requires a review of any incident reports that have been completed since the last audit. By reviewing the incident reports, the auditor will analyze information that could lead to further incidents. This review also ensures that the employer implements any corrective actions identified in the incident report, and that the employer conducts any necessary retraining.

1915.89(q)(3)(v) and (vi) requires a review with the authorized employees of their responsibilities under the lockout systems being audited, and with affected and authorized employees of their responsibilities under the tags-plus systems being audited. These requirements are essential to the auditor's understanding of whether the employer's lockout/tags-plus procedures are understood and being followed by the applicable employees.

1915.89(q)(4) requires the employer to prepare a detailed written audit report that includes, among other things, audit findings and recommendations for corrective actions.

1915.89(q)(4)(i) and (ii) require the employer to ensure that the auditors prepare, and deliver to the employer, a written audit report that includes the date of the audit and the identity auditor(s). The auditors must prepare and deliver the report within 15 days after completing the audit.

1915.89(q)(4)(iii) requires that the written report contain the identity of the procedure, and the applicable machinery, equipment, or system, being audited.

1915.89(q)(4)(iv) requires the written audit report to contain the findings of the program audit and all recommendations for correcting deviations or deficiencies identified during the audit.

1915.89(q)(4)(v) specifies that the written audit report also must contain any incident investigation reports prepared since the previous audit (See 1915.89(p)).

1915.89(q)(4)(vi) requires the report to contain a description of any corrective actions that the employer performed in response to the findings and recommendations of any incident reports prepared since the previous audit.

1915.89(q)(5) and (q)(6) requires that the employer promptly communicate the audit report findings and recommendations to each employee having a job task that may be affected by the audit and, within 15 days following receipt of the audit report correct any deviations or inadequacies in the lockout/tags-plus program. It is important for employers to promptly communicate the findings of the report to employees and to have a set period of time in which to correct the deviations and deficiencies, thereby protecting workers from the release of hazardous energy. The program audits are intended to provide feedback to employers on hazardous-energy control programs so that the employers will promptly correct any deviations or deficiencies found in the lockout/tags-plus program. These audits also serve to ensure that employers are implementing the procedures properly, and that all employees receive information about the status of the program and procedures. Further, program audits permit employers to monitor significant safety procedures, and ensure compliance with 1915.89.

1915.89(r) – Recordkeeping

1915.89(r) consolidates in a single location the records that employers must retain, and the period of time they must retain these records. The table, "Retention of Records Required by 1915.89," provides a summary of these recordkeeping requirements.

1915.89(b) and (d) require that employers establish and implement a written lockout/tags-plus program and procedures. Employers must maintain these documents until they are replaced by updated programs or procedures. This ensures that documentation of the employer's lockout/tags-plus program, and the resulting safety to employees, continues uninterrupted, even if the program and/or procedures

change.

1915.89(o)(1) requires that employees receive initial training at whatever level they are working (i.e., employee, affected employee, authorized employee, or coordinator).

1915.89(o)(6) requires retraining as necessary. Over the course of an employee's career, he/she may participate in numerous training sessions. Employers need to document various types and levels of training that employees receive pursuant to the lockout/tags-plus standard to prevent any omission in training required for an employee. This requirement also aids employers in determining when retraining is necessary.

1915.89(o)(7) requires the employer to maintain records that employees accomplished training on lockout/tags-plus, and that this training is current. The employer must maintain these records until replaced by updated records for each type of training. The training record must contain the employees' names, dates of training, and the subject of training received.

1915.89(p)(4) requires the employer to prepare a written incident investigation report. The employer must maintain this report at least until completing the next program audit. This requirement will aid auditors in determining whether the employer successfully adopted the corrective actions recommended in the investigation report.

1915.89(q)(4) requires that the employer prepare a written audit report. Employers must maintain this report for at least 12 months after being replaced by the next audit report. Since audits must be conducted at least once a year, the retention of audit reports for one year after being replaced by the next audit report provides the employer with at least two audit reports at any one time. Inspection of these reports will give the employer an indication of safety trends in the workplace, as well as information about components of the employer's lockout/tags-plus program that may need improvement.

1915.89(q)(4)(v) specifically requires that audit reports include, among other information, incident investigation reports generated since the previous audit. To comply with this provision, the employer must retain all investigation reports prepared since the previous audit.

1915.89(s) – Appendices

Appendix A to 1915.89 (Non-Mandatory) – *Typical Minimal Lockout/Tags-Plus Procedures* is a guideline that is provided at the end of 1915.89 to assist employers and employees in establishing and implementing the requirements of lockout/tags-plus. None of the information in this appendix adds or detracts from any of the requirements of 1915.89.

1915.89 – Lockout/tags-plus (Questions & Answers)

Section (c): General requirements.

Authorized employees

Question 1: A common practice during the course of ship construction is to isolate and test portions of a system while simultaneously constructing the remaining system. Are all employees involved in servicing the remaining system authorized employees?

Answer: The lockout/tags-plus requirements only apply when the energization or startup of the machinery, equipment, or systems being serviced expose an employee to a hazard. Therefore, if the section of the system being serviced is connected to an energy source, but is locked out, they are authorized employees. If the section of system is not connected to an energy source, then they may not fall under the provisions of lockout/tags-plus.

Question 2: Electric power is transferred from shore power to ship's power during new construction ("initial light off"). Are all employees servicing electrically powered systems aboard the vessel during these transfers considered authorized employees?

Answer: An employee who is performing servicing as defined in the standard is not covered by 1915.89 unless he or she is exposed to a hazard by the energization or startup of the machinery,

equipment, or system being serviced. If the systems being serviced are powered by shore power, and can be restarted or energized, then they would be authorized employees.

Question 3: Submarines are often in a dry dock during new construction and overhaul periods. “Dry dock Safety Tags” are hung to prevent the operation of submarine systems that might harm personnel working in the dry dock. Are workers who enter the dry dock considered authorized employees?

Answer: No. An employee, who is simply passing through or near equipment that is under a lockout/tags-plus application, and is not performing any servicing to the affected equipment, would not be considered an authorized employee. However, any employee “who...is working in the area where servicing is being performed under lockout/tags-plus” would be defined as an “affected employee.”

Question 4: Do the lockout/tags-plus requirements apply to employees when their servicing work on machinery, equipment, or systems does not expose them to harm from startup or energization of the machinery, equipment, or system being serviced?

Answer: No. The lockout/tags-plus section of Subpart F applies only when the energization or startup of the machinery, equipment, or systems being serviced could endanger an employee. Thus, an employee who is performing servicing as defined in the standard is not covered by 1915.89 unless he or she could be endangered by the energization or startup of the machinery, equipment, or system being serviced.³

Question 5: Do ship’s force personnel have to follow the requirements of 29 CFR 1915.89 if they are servicing a shipboard system that is under the operational control of a private shipyard employer?

Answer: OSHA does not have jurisdiction over ship’s force.

Question 6: If employees are assigned to enter a tank, are they considered to be authorized persons if the control valve has been physically secured?

Answer: Subpart F defines “servicing” as “workplace activities that involve the construction, installation, adjustment, inspection, modification, testing or repair of machinery, equipment, or systems. Servicing also includes maintaining machines, equipment, or systems when performing these activities would expose the employee to harm from the startup or energization of the system being serviced, or the release of hazardous energy.” Depending on what the employee in the tank is doing, and if he is in the area of servicing operation, he could be an affected employee.

Question 7: If an employee was to physically enter a tank that has been de-energized and isolated by means of a lockout/tags-plus system, would that worker be considered an authorized employee?

Answer: Lockout/tags-plus requirements apply only when the energization or startup of the machinery, equipment, or systems being serviced could endanger an employee. If the employee entering the tank can be endangered, he could be an affected employee. If the employee is applying a lockout/tags-plus application, then that employee would be an authorized employee.

Question 8: If an employee simply enters a space in which a tank is located and where a lockout/tags-plus system is applied to the tank’s piping, would that employee be considered an authorized employee if he or she is not performing servicing or maintenance? Similarly, if an employee inspects the space where the tank is located (but does not inspect the tank itself or associated piping, equipment, or systems), would that employee be considered an authorized employee? Finally, if an aircraft carrier elevator is isolated with a tags-plus system and employees must access the ship via gangway attached to the elevator, would those employees be acting as authorized employees if they are not conducting servicing or maintenance?

³ This answer was developed as part of a settlement agreement with the Shipbuilders Council of America, and issued as an [interpretive letter](#) on November 20, 2012.

Answer: No. 29 CFR Part 1915, Subpart F defines “servicing” as “[w]orkplace activities that involve the construction, installation, adjustment, inspection, modification, testing, or repair of machinery, equipment or systems. Servicing also includes maintaining machines, equipment, or systems when performing these activities would expose the employee to harm from the startup or energization of the system being serviced, or the release of hazardous energy.” 29 CFR 1915.80(b)(26). Thus, an employee who is simply passing through or near equipment that is under a lockout/tags-plus application and is not performing any servicing to the affected equipment would not be considered an authorized employee. However, any employee “who . . . is working in the area where servicing is being performed under lockout/tags-plus” would be defined as an “affected employee.” 29 CFR 1915.80(b)(2).⁴

Question 9: Employees performing the duties of maintenance personnel and inspectors often rely on the lockout/tags-plus coordinator to attach tags to a system where there are both mechanical and electrical interfaces. These affected employees have also received additional training on the procedures for applying lockout/tags-plus systems, which includes “stab in” or “sign in” procedures. Would OSHA require these employees to be held accountable for implementing lockout/tags-plus procedures?

Answer: This question touches on several aspects within the lockout/tags-plus provisions.

- If employees are hanging a tag or performing a servicing operation on machinery, equipment or systems under lockout/tags-plus, they are authorized employees.
- Signing-in refers to group lockout/tags-plus and is not required for all applications. In addition, the group lockout/tags-plus provisions only require authorized employees to sign, not affected employees.
- From the example given above, these employees would be affected: They understand how they are affected by the servicing operation, but are not authorized to operate machinery, equipment, systems, or apply tags.
- The training requirements outline the hierarchy of each level of training, dependent upon the work the employee will be completing.

Log books

Question 1: Does OSHA require a logbook for each individual building in a land-side area?

Answer: Yes. However, logs are only required when you have a lockout/tags-plus coordinator. In land-side facilities, a coordinator would be required when employees are performing multiple servicing operations on the same machinery, equipment, or system at the same time and if employees performing a servicing operation could be endangered by one or more other servicing operations being performed at the same time because of the energization or startup of one or more of the machines, pieces of equipment or systems being serviced. In this instance, OSHA does intend that each work area (facility) has its own log.

Question 2: Can an electronic version of a logbook be used in lieu of several manual logbooks?

Answer: Yes, pursuant to 29 CFR 1915.89(c)(7)(ii) there is no specification for the format the log has to be, just the required information.

Isolation

Question 1: The tags-plus system requires a tag and at least one additional safety measure. We consistently pull fuses as means of isolating energy from a worksite, but there is no method to lock the fuse removed. Paragraph 1915.80(b)(1) lists examples of additional safety measures, which include “removing an isolating circuit element.” Does removal and tagging of fuses therefore meet the tags plus requirement?

Answer: In this example, lockout/tags-plus could be achieved by removing the fuse from the

⁴ This answer was developed as part of a settlement agreement with the Shipbuilders Council of America, and issued as an [interpretive letter](#) on November 20, 2012.

electrical system and securing a tag to the breaker. The employee may take custody of the fuse and bring it with them to another location.

Question 2: Are we compliant with the standard if a single switch is used to control multiple energy sources? Example: Air to a gas turbine can control the operation (startup) of the turbine. There are several other energy sources on the turbine (i.e., fuel, electricity). If the air to the turbine effectively controls all other energy sources, can isolation of the air be used as a single control for multiple sources of energy?

Answer: All energy sources to any one machine, equipment, or system that the maintenance is being performed on must be isolated.

Question 3: Can software lockout be considered an isolation device?

Answer: No. OSHA is not aware of any software that could achieve lockout/tags-plus and protect employees.

Coordinator

Question 1: Does 1915.89(c)(7)(i) require a lockout/tags-plus coordinator every time a task involves more than one employee or more than one servicing operation?

Answer: No. The 29 CFR Part 1915, Subpart F lockout/tags-plus standard does not require a lockout/tags-plus coordinator whenever a task involves more than one employee. Nor did OSHA intend that a coordinator be assigned automatically (a) whenever servicing on a vessel or in a vessel section occurs on multiple machines, equipment, or systems at the same time, or (b) whenever multiple servicing operations on a vessel, in a vessel section, or at a land-side facility occur simultaneously on the same machine, equipment, or system. A coordinator is required when employees performing a servicing operation could be endangered by one or more other servicing operations being performed at the same time because of the energization or startup of one or more of the machines, pieces of equipment or systems being serviced. The standard gives employers the flexibility to make decisions based on the need in their facilities to ensure employee protection. As noted in the preamble to the final standard, OSHA believes employers are in the best position to assess this need. 76 FR 24629.⁵

Question 2: The majority of new construction tagouts are simple isolatable systems being worked by single work crews within a defined boundary. There is no limitation noted that the foreman cannot have concurrent lockout/tags-plus coordinator responsibilities for these system segments. We believe this is the intent of the language on [pages 46 and 47 in [76 F.R. 24575-24711](#)]. Is this correct?

Answer: Lockout/tags-plus provisions do not need to be implemented on new construction unless the machinery, equipment or systems are connected to an energy source. Irrespective of new construction or repair, the employer can use discretion to decide if an employee's work load is such that they could serve as foreman and lockout/tags-plus coordinator at the same time.

Question 3: 1915.89(c)(7)(iii) requires that the coordinator "is responsible for overseeing and approving" lockout/tags-plus application, verification of hazardous energy isolation and lockout/tags-plus removal. The explanation provided in the preamble (pg. 24629 - 24630) states that the coordinator would "work closely with the authorized person . . . review the authorized person's plan and either approve or deny the request. Once the coordinator approves a request, the authorized person, in consultation with the coordinator, will apply the lock or tags-plus system, verify isolation of the hazardous energy, and remove the lockout/tags-plus system." This seems to indicate that the coordinator does not have to visually and/or physically personally supervise and/or confirm all applicable lockout/tags-plus activities. Does "oversee" and "approve" mean that a

⁵ This answer was developed as part of a settlement agreement with the Shipbuilders Council of America, and issued as an [interpretive letter](#) on November 20, 2012.

coordinator must visually and/or physically personally supervise and/or confirm all applicable lockout/tags-plus activities?

Answer: The coordinator does just that – coordinates all work between employees, subcontractors, ship’s force, etc. They must approve all lockout/tags-plus applications to ensure that no one will be working on a system that has not been isolated and secured. The lockout/tags-plus coordinator oversees and approves the application of lockout/tags-plus systems, but does not have to be physically located where the tagging occurs.

Question 4: Section (c)(7), lockout/tags-plus coordination seems to imply what we refer to as “master tagouts,” where we are putting the entire system or plant in a safe condition for release of all work within the boundaries. Are we correctly interpreting this intent? At that phase of operations, we are either working on a commissioned naval vessel on new construction or have “certified” that the systems are complete and have completed turnover to the shipyard test team or directly to the Navy.

Answer: No. OSHA is not familiar with “Master tagout” and can’t answer that portion of the question. However, the lockout/tags-plus coordination involves one person who coordinates all lockout/tags-plus applications on each vessel, vessel section, or land-side facility.

Question 5: During ship construction, multiple and very diverse systems undergo continual “servicing.” Section (c)(7) mandates lockout/tags-plus coordination when “employees on vessels and in vessel sections are servicing multiple machinery, equipment, or systems at the same time; or...are performing multiple servicing operations on the same machinery, equipment, or system at the same time.” 1915.89(c)(7)(ii) further requires the employer to “designate a lockout/tags-plus coordinator.” The example provided in the preamble seems to suggest that a single coordinator is to direct all lockout/tags-plus activities aboard a vessel, as opposed to multiple “subject matter experts” who concentrate on coordinating systems within their domains. Does the standard require only one coordinator to manage all applicable lockout/tags-plus activities aboard vessels and vessel sections?

Answer: Yes, when multiple employees service the same machinery, equipment, or system at the same time on vessels, in vessel sections, or at land-side facilities; or when employees service multiple machinery, equipment, or systems at the same time on the same vessel or vessel section there is to be a lockout/tags-plus coordinator who will have control of the lockout/tags-plus log for the life of the servicing operation(s) (See 1915.80(b)(15)). However, coordination in such situations discussed above are only necessary if employees performing a servicing operation could be endangered by one or more other servicing operations being performed at the same time because of the energization or startup of one or more of the machines, pieces of equipment or systems being serviced. Employers may have more than one lockout/tags-plus coordinator, depending on the size of the shipyard and the scope of work being performed at any given time (e.g. shiftwork). Subject matter experts may serve as assistants to the coordinator in managing lockout/tags plus activities.

Additional safety measures

Question 1: Naval vessels have “locking lanyards” with the appropriate markings (Locked Shut) that prevent operation of the component. This is used frequently on naval vessels where a system is not designed to be locked and disconnecting the device would be a willful act. Due to ships design characteristics, it’s preferred to utilize these tools in lieu of padlocks due to the sheer number of components/valves on a naval vessel. Would these devices be acceptable to meet the OSHA standard? This seems to meet the intent of section 1915.89(c)(4)(ii). It’s noted that the OSHA standard appears to provide relaxation of this standard due to the Note to section 1915.89(c)(4)(ii) [which states] “the provisions of paragraph (c)(4)(ii) shall not apply provided the employer complies with the verification procedures in paragraph (g).”

Answer: OSHA is not familiar with locking lanyards. However, any safety measure must be as protective as the use of a lock. If this locking lanyard provided such protection, it may meet the

specifications of 1915.89.

Procedures for shutdown and isolation

Question 1: On naval vessels, we use the operator's technical manuals and operating instructions to isolate machinery and systems. Will the use of naval procedures meet the criteria for having a procedure to isolate equipment and return it to service?

Answer: No. Each employer needs to develop procedures, but employers can use the manuals as a reference in developing their procedures.

Procedures for applying lockout/tags-plus systems

Question 1: Section 1915.89 Paragraph (f)(5) contains the Navy note afterwards. It says if the Navy owns the system then the employer is compliant with 1915.89(f) (*Procedures for applying lockout/tags-plus systems*) when the authorized employee verifies the application of the lockout/tags-plus systems or devices. Does this mean that the authorized employee must physically inspect all tagged components prior to servicing the equipment?

Answer: Employers must "verify" the application, but OSHA has not specified how that verification must be completed.

Question 2: The 1915.89 Proposed Rule, under "Energy Isolation," mirrored the general industry mandate that "lockout or tagout shall be performed only by the authorized employees who are performing the servicing or maintenance." In the Final Rule, 1915.89(f)(1), however, relates that "the employer shall ensure that only an authorized employee applies a lockout/tags-plus system." Also, 1915.80(b)(3) defines an "authorized employee" as "an employee who performs one or more of the following lockout/tags-plus responsibilities:

- (A) Executes the lockout/tags-plus procedures;
- (B) Installs a lock or tags-plus system on machinery, equipment, or systems; or
- (C) Services any machine, equipment, or system under lockout/tags-plus application."

Moreover, in supporting lockout/tags-plus coordination in the preamble (page-24629), OSHA offered its own hypothetical example of an electrician securing power on a portable crane to protect a machinist and ironworkers performing servicing. Is it permissible for an authorized employee other than the authorized employee actually performing the servicing to apply lockout/tags-plus to protect the employee servicing the equipment from the release of hazardous energy?

Answer: Yes. An authorized employee must apply the lock or tagout system but it does not necessarily need to be the authorized employee who is doing the servicing. However, the authorized employee who removes the lockout/tags-plus system must be the same authorized employee who installs it, unless you follow the requirements in 1915.89(i)(3).

Procedures for removal of lockout and tags-plus systems

Question 1: When equipment, machinery and shipboard installations require months of actively working a task, is there a time limitation of the use of lockout/tags-plus?

Answer: No. There is no time limit. Lockout/tags-plus ends when the servicing ends and the procedures for removal and startup are completed. However, when there is a long task, employers should have procedures in place to ensure that verification is taking place for the duration of the work. Employers must ensure that all locks, tags and additional safety measure remain in place.

Question 2: Under paragraph (i), *Procedures for removal of lockout and tags-plus systems*, subparagraph (2) states, "(2) The employer shall ensure that each lock or tags-plus system is removed by the authorized employee who applied it." Under a group lockout/tags-plus system where each authorized employee is signing on and off a group tag or equivalent, can the employer assign the responsibility for application and removal of the lockout/tags-plus system represented by the group tag to a defined position rather than an individual?

Answer: This is the job of the primary authorized employee who will ensure that each member of the

group have applied their own locks, have signed a group tag, or have otherwise complied with the employers procedures for group servicing operations. Additionally, the primary authorized employee determines the safe exposure status of the entire group. Finally, the primary authorized employee works directly with the lockout/tags-plus coordinator to achieve approval for each lockout/tag-plus application. An employer could designate that all foremen will be a primary authorized employee for their group.

Procedures for group lockout/tags-plus

Question 1: 1915.89(k)(1)(ii) requires that a primary authorized employee verify the safe exposure status of each authorized employee in the group when using a group lockout/tags plus procedure. Does the agency consider verbal notification of each authorized employee an acceptable method of verifying safe exposure status? Is initial written notification acceptable?

Answer: OSHA did not specify the method of verification for this particular provision.

Question 2: 1915.89(k) has a note to paragraph (k)(2) that states, “When the ship’s force maintains control of a system, the employer must ensure that the primary authorized employee verifies the safe exposure status of each authorized employee.” Does OSHA consider verbal notification from each authorized employee a method to verify safe exposure status? Does OSHA require that each authorized employee be notified each shift even if they have been notified the prior day and conditions have not changed?

Answer: Section 1915.89(m) is performance-based and gives the employer flexibility in deciding how to ensure the continuity of lockout/tags-plus protection during shift or personnel changes. If there was only one shift working on the machinery, equipment, or system, and conditions did not change, the employer could notify the employee prior to the start of work the next shift that safe conditions have been verified.

Question 3: Would the use of a job assignment sheet or other comparable system that requires a tangible action by the employee to “sign on” to the lockout/tags-plus system and “sign out” before it is removed be acceptable under 29 CFR 1915.89(k)(2)?

Answer: Yes. Section 1915.89(k)(2) requires employers to use a procedure that provides each authorized employee a level of protection that is equivalent to a personal lockout/tags-plus system. The lockout/tags-plus standard requires that each authorized employee take an affirmative action before he/she begins servicing operations and before the lockout/tags-plus system is removed at the completion of such operations. The two actions protect employees by ensuring that (1) upon signing on, they understand that a lockout/tags-plus system is in place and that they may safely perform servicing operations, and (2) upon signing out, they understand that the lockout/tags-plus system will be removed and that they must not perform further servicing. Thus, your example of a job assignment sheet that requires the employee to sign on and sign out of the lockout/tags-plus system would meet the requirements of paragraph (k)(2). As noted in the preamble to the final rule, 1915.89(k)(2) “gives employe[r]s flexibility to develop a system equivalent to the group lockout/tags-plus systems . . . [such as] signing a group tag or tag equivalent, attaching a personal identification device to a group lockout device, or performing some comparable action before servicing is started.” 76 FR 24638.⁶

Question 4: If an employer is in compliance with the group lockout/tagout section of 29 CFR 1910.147(f)(3) for general industry or 29 CFR 1910.269(d)(8)(iii) for electric power transmission, generation, and distribution, would the employer be considered compliant with the group lockout/tags-plus portion of 29 CFR 1915.89, including 29 CFR 1915.89(c)(7)?

Answer: Not necessarily. The specific requirement in the group lockout/tags-plus provision of 1915.89 for an affirmative action (e.g., sign in and sign out) by each authorized employee is found in the

⁶ This answer was developed as part of a settlement agreement with the Shipbuilders Council of America, and issued as an [interpretive letter](#) on November 20, 2012.

group lockout/tagout standards for general industry and electric power transmission, generation, and distribution. However, other group lockout/tags-plus requirements in 1915.89 are not found in either of the other two standards. For example, the requirement in the shipyard lockout/tags-plus standard for a lockout/tags-plus coordinator under certain conditions has no counterpart in the general industry and electric power lockout/tagout standards. Thus, a shipyard employer cannot rely solely on compliance with the lockout/tagout requirements of either the general industry or the electric power transmission, generation, and distribution standard to meet the requirements of Subpart F.⁷

Procedures for multi-employer worksites

Question 1: If a private shipyard is under contract to build Navy ships, and a Navy contracted employee is required to perform servicing on the ship that requires a lockout/tags-plus system to protect the employee from hazardous energy, and the systems being serviced and isolated with the lockout/tags-plus system have not yet been turned over to the Navy for operational control, then who is considered the Navy's contracted employee's host employer?

Answer: The Navy contractor will follow the shipyard employer's program and procedures, unless the Navy is in control of the machinery, equipment or system.

Procedures for shift or personnel changes

Question 1: Section 1915.89(m) requires the employer to establish and implement specific procedures for shift or personnel changes to ensure the continuity of lockout/tags-plus protection. Does a written log that transfers authority over the lockout/tags-plus system from the off-going primary authorized employee to the oncoming primary authorized employee during a shift change meet the requirements of 29 CFR 1915.89(m)?

Answer: Yes. Section 1915.89(m) is performance oriented and gives the employer flexibility in deciding how to ensure the continuity of lockout/tags-plus protection during shift or personnel changes. Paragraph (m) is written broadly enough to accept the transfer of primary authorized employee responsibilities from one shift to another through a written log.⁸

Note Section

Question 1: The notes in paragraphs (c)(7), (h)(1)-(5), (i)(3), and (j)(2) all refer to the Navy serving as the lockout/tag plus coordinator, while the notes in paragraphs (c)(4), (c)(6), (e)(4), (f)(5), and (k)(2) do not. However, the description of the Navy's role in the second set of paragraph notes indicates the Navy is acting in a coordinator role. Is our understanding correct that the employer never acts in a coordinator role when the Navy maintains control of the lockout/tag plus system?

Answer: While the Navy is in control of machinery, equipment and systems, they are the coordinator. The employer will still need to have a coordinator to make sure all work is coordinated between the shipyard, subcontractors and the Navy. The note under 1915.89(c)(7) states that if the Navy is serving as coordinator, the employer will be in compliance with the coordinator and log provisions provided that they (the employer) are coordinating with the ship's force to ensure that the lockout/tags-plus procedures are followed and documented.

Question 2: Does the Navy note under the *group lockout/tags-plus* paragraph relieve the employer of providing the employee the ability to somehow provide individual employee accountability such as sign in and sign out to the tags-plus system the Navy has established for the work the employee is performing?

Answer: No.

⁷ This answer was developed as part of a settlement agreement with the Shipbuilders Council of America, and issued as an [interpretive letter](#) on November 20, 2012.

⁸ This answer was developed as part of a settlement agreement with the Shipbuilders Council of America, and issued as an [interpretive letter](#) on November 20, 2012.

Definitions

Question 1: We note that a definition is missing in regard to the term “Primary Authorized Employee” (paragraphs (g) and (j)) in the specification that is talked about in great detail in the discussion. We believe that as discussed in the OSHA document that this is our Foreman / Supervisor who oversees a crew of approximately 10-12 folks who perform the maintenance as a small team of authorized employees. We have in place an additional safety procedure for shift check, which provides a “sign out” of each employee every shift and a turnover process for transfer between shifts. Our policy is to provide the option for the individual to verify the work isolation. In the other sections of the OSHA standard is the use of a “primary authorized employee” and “authorized employee” interchangeable?

Answer: No, these positions are not interchangeable, although they serve similar functions. Paragraph 1915.89(g) requires the verification of deenergization by either the authorized employee or the primary authorized employee in a group lockout/tags-plus application. When there is no group, but an individual, they would be the authorized employee. In a group lockout/tags-plus situation, the primary authorized employee is responsible verification for the entire group. However, paragraph 1915.89(g)(3) requires that each individual in a group lockout/tags-plus application be given the option to verify isolation, even if the primary authorized employee has already done so.

Question 2: The definition of tags-plus coordinator states that the lockout/tags-plus coordinator is an employee whom the employer designates to coordinate and oversee all lockout and tags-plus applications. This definition implies that a single individual holds this role on vessels or vessel sections and at land-side work areas when employees are performing multiple servicing operations on the same machinery, equipment, or system at the same time, and when employees are servicing multiple machinery, equipment, or systems on the same vessel or vessel section at the same time. The lockout/tags-plus coordinator also maintains the lockout/tags-plus log. On larger vessels or vessel sections where a logical grouping of ship’s systems and/or physical areas can be made by the employer, can the employer assign a lockout/tags-plus coordinator for each logical grouping with a lead lockout/tags-plus coordinator for those lockout/tags-plus systems that interface between the groupings?

Answer: Yes, when multiple employees service the same machinery, equipment, or system at the same time on vessels, in vessel sections, or at land-side facilities; or when employees service multiple machinery, equipment, or systems at the same time on the same vessel or vessel section, a lockout/tags-plus coordinator is required. That said, as noted above, a coordinator is only necessary during these scenario’s if employees performing a servicing operation could be endangered by one or more other servicing operations being performed at the same time because of the energization or startup of one or more of the machines, pieces of equipment or systems being serviced. That coordinator will have control of the lockout/tags-plus log for the life of the servicing operation(s) (See 1915.80(b)(15)). However, an employer may have more than one lockout/tags-plus coordinator, depending on the size of the shipyard and the scope of work being performed at any given time (e.g. shiftwork). Subject matter experts may serve as assistants to the coordinator in managing lockout/tags plus activities, but they must go through the coordinator when they are ready to apply a lockout/tags-plus system.

General

Question 1: Does the OSHA rule allow the Navy to transfer operational and lockout/tags-plus control back to the employer if the employer meets the requirements of the rule absent the Navy note provisions/exceptions?

Answer: The notes are only applicable when the Navy maintains control of the machinery, equipment or systems. If the Navy does not have operational control, or control of machinery, equipment or systems, the employer will follow the requirements in 1915.89 as written, minus the notes. If the Navy has control, employers will follow the requirements in 1915.89, in addition to the notes and should continue to protect the safety and health of their employees.

Question 2: Naval shipyards and private shipyards share assets, and private shipyards lease employees to naval shipyards. For civilian employees at naval shipyards, is the standard any different than for a private shipyard employee?

Answer: No. The only difference in the requirement would be determined by the Navy control over machinery, equipment, or systems (See above).

Question 3: How is hazardous energy defined by this standard? Definitions of hazardous energy can vary based on industry uses of temperature, pressure, or “low-energy vs. high-energy.” In addition there can be multiple sources. Finally, there are naval requirements that define “barrier criteria” for hazardous and nuclear energy in their manuals. Are these specifications acceptable in regard to the OSHA standard?

Answer: This rulemaking included a definition for hazardous energy (1915.80(b)(8)) – any energy source, including mechanical, pneumatic, hydraulic, electrical, chemical, and thermal, that could cause injury to employees. OSHA does not distinguish between high- or low-hazards, nor does OSHA have jurisdiction over nuclear energy.

Question 4: If a shipyard were to set up a process that mirrored the Navy’s WAF/TUM process and demonstrate the same impact to national security, could the shipyard use the provisions/exceptions afforded to the Navy of the various notes throughout the rule?

Answer: No. Consistent with OSHA policy to not approve or endorse an employer’s safety and health program, OSHA has not approved or endorsed the Navy’s WAF/TUM program as a lockout/tags-plus program to follow. Employers should develop their own programs that include all requirements in 1915.89 and protect their employees, but can pull from any resource in the development of such program.

Appendix E: General Working Conditions in Shipyard Employment (29 CFR Part 1915, Subpart F)

1915.80 – Scope, application, definitions, and effective dates

1915.80(a) specifies that the provisions in Subpart F apply to general working conditions in shipyard employment, regardless of geographic location, on vessels, on vessel sections, and at land-side operations.

With regard to vessels, the requirements of Subpart F apply to the extent that OSHA has authority over the vessel. (See [CPL-02-01-047](#), *OSHA Authority over Vessels and Facilities on or Adjacent to U.S. Navigable Waters and the Outer Continental Shelf (OCS)*, February 22, 2010)

1915.80(b) provides definitions that are applicable to Subpart F; however, it does not include definitions pertaining to lockout/tags-plus applications, programs, or procedures. These definitions can be found in Appendix D of this directive. Definitions that have been added, substantially clarified or modified include:

- **Hazardous substances.** This term replaces the term “hazardous and toxic substances” and is defined as a substance that may cause injury, illness or disease or otherwise harm an employee by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating or otherwise harmful. This definition will assist employers to address the hazards in their particular workplaces by providing, for example, quick-drenching facilities and other first aid or emergency medical equipment.
- **Isolated location.** This term was added to support 1915.84 (Working alone), where employees are not in close proximity to each other due to the type, time, or location of their work. Examples of isolated locations include an employee working alone on a job task at the far end of a vessel, vessel section, or shipyard; an employee working alone in a hold, sonar space, or tank; or an employee working in a confined space. The intent is to include situations where co-workers may be near an employee working alone but are not participating in the work of the lone worker. For example, an isolated location exists when two employees are working on either side of a metal partition, or when one employee performs hot work and a firewatch is on the other side of the bulkhead.
- **Readily accessible/available.** This definition supports 1915.82 (Lighting), 1915.83 (Utilities), 1915.87 (Medical services and first aid), and 1915.88 (Sanitation). The term is defined to mean capable of being reached quickly enough by an employee to ensure, for example, that medical services and first aid can be rendered effectively, or that employees can reach sanitation facilities in time to meet their health and personal needs.
- **Short bight.** In 1915.83 (Utilities), this term is used to define the loop that is created in a line or rope that is used to tie back or fasten hoses, wiring, or fittings. A short bight is not the rope, or the act of fastening the hose, but the loop in the rope that is being used.
- **Walkway.** In 1915.81 (Housekeeping), this term defines any surface where employees walk or pass through to perform their job tasks. This may be a vertical, slanted, or horizontal surface, and may include access ways, designated walkways, aisles, exits, gangways, ladders, ramps, stairs, and passageways. In addition, if an employer has instructed employees to use an area such as a scaffold to gain access to other locations, the scaffold will also be considered a walkway.
- **Work area.** This term is used throughout Subpart F and is defined as a specific area, such as a fabrication area, machine shop, tank, space, or hold, where one or more employees are working.
- **Working surface.** This term is used in 1915.81 (Housekeeping) and encompasses any surface where work is occurring or any area where tools, materials, and equipment are being staged for performing work. This definition does not include storage areas where tools, materials, and equipment have been stored out of walkways, but it may include a walkway that is now being used to stage tools, materials, and equipment for a job in progress.
- **Worksite.** This term is used throughout Subpart F and is a general work location where

employees are performing work, such as a shipyard, pier, vessel, vessel section, or barge.

1915.81 – Housekeeping

1915.81 addresses requirements that pertain to housekeeping issues applicable to shipyards. Covered under this section are provisions for “walkways” and “working surfaces,” which were previously grouped together as “walking and working surfaces.” However, it was determined that combining this terminology created too broad of a term, causing confusion. To make the distinction between walkways and working surfaces, 1915.81 is organized into three paragraphs: 1915.81(a) covers general requirements that apply to both *walkways* and *working surfaces*; 1915.81(b) includes specific requirements for *walkways*; and 1915.81(c) includes specific requirements for *working surfaces*.

1915.81(a)(1) – General requirements – requires the employer to establish and maintain good housekeeping practices to eliminate hazards to employees to the extent practicable. The establishment of regular housekeeping practices will help reduce slip, trip, and fall injuries that occur in shipyard employment.

1915.81(a)(2) specifies that employers must eliminate slippery conditions on walkways and working surfaces “as necessary.” The words “as necessary” are intended to mean conditions are such that they pose a hazard to employees. This language gives employers flexibility in determining whether the particular conditions may pose a hazard to employees and what method(s) will be most effective in eliminating the hazardous condition. In some circumstances, weather conditions may make it impracticable for employers to eliminate slippery conditions. In such cases, employers must take alternative action to ensure that employees are not injured. Accordingly, this provision specifies that when it is impracticable for employers to eliminate slippery conditions, they must either: (1) Restrict employees to designated walkways and working surfaces where the employer has been able to eliminate slippery conditions, or (2) provide and ensure that employees use slip-resistant footwear in accordance with 29 CFR Part 1915, Subpart I. (See [CPL 02-01-049](#) – 29 CFR Part 1915, Subpart I, *Enforcement Guidance for Personal Protective Equipment (PPE) in Shipyard Employment*, November 4, 2011.)

1915.81(a)(3) requires that employers store materials in a manner that does not create a hazard for employees. Shipyard employment activities involve large amounts of materials, including construction materials, drums filled with hydraulic fluid, pallets (empty and full), and equipment such as welding machinery. If any of these materials are not properly stored or stacked, they could create a hazard for employees. For instance, if hydraulic drums are not properly stacked, they could topple over and injure workers. Likewise, scaffolding material could cause trips and falls if they are not stored properly when not in use. Therefore, the scope of this provision was expanded to cover all materials used in shipyard employment, including materials for constructing or repairing vessels and vessel sections, as well as any materials used in daily shipyard operations. Additionally, 1915.81(a)(3) specifies that the employer must “store” materials safely. This will protect employees from injury no matter whether the employer chooses to stack them or use another storage method.

1915.81(a)(4) requires that employers maintain easy and open access (i.e., unobstructed) to fire alarm boxes, fire call stations, all fire-fighting equipment, and exits (including ladders, staircases, scaffolds, and gangways). Employers are required to provide employees with immediate access to all means of egress in the event of an emergency.

1915.81(a)(5) requires that all flammable and combustible substances, such as paint thinners, solvents, rags, scrap, and waste, be disposed of or stored in covered fire-resistant containers. This provision addresses flammable and combustible substances wherever they are used, located, or stored in shipyard employment worksites. Further, 1915.81(a)(5) requires that flammable and combustible substances be disposed of or stored at the completion of a job or end of a workshift, whichever occurs first. This provision does not require that employers store flammable substances while employees are at lunch or on break.

1915.81(b)(1)(i) – Walkways – requires that all walkways provide adequate passage. This requirement is intended to be followed in conjunction with 1915.81(b)(1)(ii)-(iv), which address keeping walkways clear of debris, materials, hoses, and cords.

1915.81(b)(1)(ii) requires that walkways be clear of debris, including solid and liquid wastes, which may create a hazard for employees. This includes any materials unused and rejected as unwanted, such as trash, used materials, scraps, studs, welding rod tips, nuts or bolts, broken equipment, empty containers, or other items that will be thrown away.

1915.81(b)(1)(iii) specifies that walkways must be kept free from tools, materials, equipment, and other objects that may cause a hazard to employees. If materials and equipment are left in walkways, employees passing through the area are at risk of injury. It is recognized that workers need to have the necessary tools, materials, and equipment at hand to perform their jobs, however, if employees place materials or equipment in a walkway, the walkway now becomes a working surface and the employer must prevent the area from being used as a walkway.

1915.81(b)(1)(iv) requires that walkways be clear of hoses and electrical service cords in order to prevent injury to employees and damage to the hoses and cords. Employers may either place hoses and cords above walkways, or underneath walkways, or on walkways provided they are covered by crossovers or other means. To provide employers with greater flexibility in complying with this provision, there is a performance-based alternative that allows the employer to protect each hose and cord by another *suitable means*, provided that the *suitable means* provides equivalent protection for employees and prevents damage to the hoses and cords.

1915.81(b)(2) requires employers to cordon off any portion of a walkway they are using as a working surface to prevent the area from being used as a walkway. If workers are allowed to walk through a walkway that is also being used as a working surface, they could bump into employees working in the area or disturb equipment or materials that are being used to perform the job in that area. This requirement protects not only workers who otherwise would use the walkway as a thoroughfare, but also employees who are working in the cordoned off section. Even if the employer uses a portion of a walkway as a working surface, the employer is still required to ensure that each walkway provides adequate passage (1915.81(b)(1)(i)). If the remaining portion of the walkway does not provide adequate passage, the employer must provide other means of access.

1915.81(c) – Working surfaces – specifies the requirements that employers must follow, in addition to those in 1915.81(a), to protect employees on working surfaces.

1915.81(c)(1) requires that employers ensure that each working surface is cleared of tools, materials, and equipment that are not necessary to perform the job in progress. Some jobs require a large amount of tools, materials, or equipment, and workers should be able to access these items as they are needed. However, excess tools, materials, and equipment pose a risk of slips, trips, falls, or other injuries.

1915.81(c)(2) requires each working surface to be cleared of debris, including solid and liquid waste, at the end of each workshift or job, whichever occurs first. By this provision, it is not intended to require employers to stop the job to clear the area every time debris is produced. Rather, it is intended that at the end of each workshift, the employer shall clean up and remove debris from the work area. If a job is completed before a workshift ends, the employer must clear the work surface from debris at that time.

1915.81(c)(3) specifies that each working surface be maintained, so far as practicable, in a dry condition. Keeping working surfaces dry will help to prevent slips, trips, and falls, which constitute a significant portion of injuries in shipyard employment. When wet processes are used (such as hydro-blasting, gas-freeing, and tank cleaning) employers are required to implement measures so workers have dry standing places. Employers do not have to implement the additional actions in non-wet processes or operations or where working surfaces are wet because of weather conditions. When using wet processes, employers are required to maintain drainage and implement measures, such as false floors, platforms, mats, or other types of dry standing places, to prevent employees from being exposed to contaminated water or from standing for prolonged periods of time in water, both of which may result in adverse health

effects. When the implementation of such measures is determined impracticable, employers must provide employees with footgear that protects employees from exposure. Employers must provide the type of footgear that will protect employees from the particular wet process. (See [CPL 02-01-049](#) – 29 CFR Part 1915, Subpart I, *Enforcement Guidance for Personal Protective Equipment (PPE) in Shipyard Employment*, November 4, 2011.)

1915.81 – Housekeeping (Questions and Answers)

Question 1: Can a level of staging be considered a working surface and a walkway at the same time?

Answer: No. If employees are working on the level of staging, it is a working surface. If the level is being used for employees to gain access to another location, then it is a walkway. However, 1915.81(b)(2) requires that a walkway that has a portion being used as a working surface be cordoned off so that it can no longer be used as a walkway. Staging a working surface that is part of a walkway, would be difficult to cordon off and still allow sufficient room for employees to work.

Question 2: By ship’s design, interior spaces and passages are limited. Was the intent of this regulation to eliminate the ability for an employee to step around another employee working in a walkway to gain access through an area? For example, cleaning or pipe stenciling in a passageway. Are employees able to transit through while this work is occurring?

Answer: Generally, if any part of the work area would be used to gain access to another location, the employer must cordon off that part of the work area and prevent its use as a walkway. If this presents practical problems, the employer may schedule work activities in the area only for certain times and use the area as a walkway during other times when work is not being performed. In addition, employers could assign an employee to help direct traffic flow to ensure that the employee working is not interrupted or that employees walking through do not step on materials.

Question 3: 1915.81(b)(2) requires that “while a walkway or part of a walkway is being used as a working surface, the employer shall cordon off that portion to prevent it from being used as a walkway.” Submarines have limited internal ingress/egress passageways. In case of emergency, Navy Ship Safety requirements require two ingress/egress pathways be open at all time for workers and Navy personnel on board. During construction, work must often be performed on equipment or structure adjacent to one of these internal ship’s passageways. In these cases, tools, material, equipment etc. are placed neatly to one side of the “walking surface” to allow safe passage of other workers and Navy personnel. Cordoning off the area would often equate to eliminating a pathway into/out of the ship and negatively impacting emergency response. Is it OSHA’s intent to require shipyards to cordon off walkways whenever that walkway is being used as a working surface, or only when associated tools, material, equipment, and associated work will not prevent injury to employees? In addition, can a portion of passageway be cordoned off? For example if a hazard did exist solely due to equipment, tools, or material occupying half of a passageway, could that half be cordoned off allowing employees to transit in the other half?

Answer: Section 1915.81(b)(2) states, “While a walkway or part of a walkway is being used as a working surface, the employer shall cordon off that portion to prevent it from being used as a walkway.” Walkways are defined as “any surface, . . ., employees walk, including areas that employees pass through...” The area of the work only has to be cordoned off. There may be situations where working surfaces are wide enough that the work could be cordoned off, and still allow enough room for others to walk through. One example would be a ramp where work is being performed.

OSHA does not intend for a walkway to be any and every surface on which an employee theoretically could walk, but rather an area where employees do walk to get from one location to another. Thus, if an employee walks into a work area to collect a tool, to inspect work, or to conduct other business within the work area, the employer need not cordon off the area simply because the employee walked in.

Question 4: What part of a work area would be considered a walkway and need to be cordoned off to comply with 29 CFR 1915.81(b)(2)?

Answer: Section 1915.81(b)(2) states, “While a walkway or part of a walkway is being used as a working surface, the employer shall cordon off that portion to prevent it from being used as a walkway.”

A walkway is defined at 1915.80(35) as, “Any surface, whether vertical, slanted, or horizontal, on which employees walk, including areas that employees pass through, to perform their job tasks. Walkways include, but are not limited to, access ways, designated walkways, aisles, exits, gangways, ladders, ramps, stairs, steps, passageways, and scaffolding. If an area is, or could be, used to gain access to other locations, it is to be considered a walkway.”

OSHA does not intend for a walkway to be any and every surface on which an employee theoretically could walk, but rather an area where employees do walk to get from one location to another. Thus, if an employee walks into a work area to collect a tool, to inspect work, or to conduct other business within the work area, the employer need not cordon off the area simply because an employee walked in it.

Generally, if any part of the work area would be used to gain access to another location, the employer must cordon off that part of the work area and prevent its use as a walkway. If this presents practical problems, the employer may schedule work activities in the area only for certain times and use the area as a walkway during other times when work is not performed or take other steps to ensure that employees do not have to walk through areas where work is being performed to get from one location to another.⁹

1915.82 – Lighting

1915.82 addresses lighting requirements in shipyard employment workplaces and is organized into four paragraphs: general requirements; temporary lights; portable lights; and explosion-proof, self-contained lights.

1915.82(a) – General requirements – establishes general lighting requirements that apply in all areas of shipyard employment, regardless of whether permanent or temporary lights are used. Adequate lighting is essential to prevent employees from being injured or killed because they cannot see and avoid hazards that might be present.

1915.82(a)(1) requires that employers adequately illuminate each work area and walkway whenever a worker is present.

1915.82(a)(2) pertains to land-side areas and ensures that workers have sufficient lighting to safely move about and perform work tasks by requiring illumination consistent with the minimum illumination requirements in Table F-1. For instance, Table F-1 specifies that general land-side areas, such as corridors and walkways that employees pass through, must have an illumination intensity of at least five lumens (foot candles). Higher illumination levels (for example, 10 lumens) are required for land-side areas such as machine and carpentry shops where employees use hazardous tools and equipment and perform precision work. Likewise, higher illumination levels are required in warehouses where employees read signs and warning labels, and operate forklift trucks and other heavy equipment with controls or instructions that must be seen and understood. The illumination levels in the Table F-1 do not apply to emergency or portable lighting.

NOTE: Table F-1 was developed from the requirements in the *Construction Illumination* (1926.56) and *Hazardous Waste Operations* (1910.120) standards, and from the *American National Standards Institute (ANSI) standard, Recommended Practice for Lighting Industrial Facilities* (ANSI/IESNA RP-7-01).

⁹ This answer was developed as part of a settlement agreement with the Shipbuilders Council of America, and issued as an [interpretive letter](#) on November 20, 2012.

1915.82(a)(3) applies to vessels and vessel sections and requires employers either to provide lighting that achieves the levels in Table F-1 or to meet the requirements of ANSI/IESNA RP-7-01, *Recommended Practice for Lighting Industrial Facilities* (incorporated by reference).

Although the minimum levels specified in Table F-1 provide useful and clear guidance for employers, maintaining uniform lighting levels on vessels and vessel sections using permanent lighting may not always be practical or feasible, particularly when the vessel is old or when the employer does not own the vessel. Therefore, for vessels and vessel sections, employers are allowed to either follow the illumination levels set forth in Table F-1 or comply with the appropriate values specified in ANSI/IESNA RP-7-01 (2001).

1915.81(a)(4) specifies that when adequate illumination is not obtainable through permanent lighting on vessels or vessel sections that meets the requirements in 1915.82(a)(2) and (a)(3), employers may supplement the permanent lighting with temporary lights. This requirement is necessary to ensure that employees have adequate lighting to move about and work safely, while giving employers additional flexibility in meeting the lighting requirements.

1915.82(a)(5) prohibits the use of matches and open-flame devices for providing lighting, including during emergencies. Matches and open flames are never a safe method to light a dark area. This rule requires that employers provide employees with portable lights (this can include chemical lights) to ensure safe movement when there is no lighting, or when lights are not working (See 1915.82(c)(1)).

1915.82(b) – Temporary lights – sets forth the requirements for temporary lighting, including light guards, circuit grounding connections, insulation, and splicing.

1915.82(b)(1) requires that temporary lights be guarded if they do not have completely recessed bulbs to prevent employees from accidentally coming into contact with the hot bulb or a damaged/broken bulb (potentially causing injuries such as electrical shock or lacerations). These safeguards also will help to prevent combustible materials from igniting.

1915.82(b)(2) requires that employers equip temporary lights with electric cords “designed with sufficient capacity to carry the electric load.” This requirement is intended to protect employees from electrical, fire, and other hazards. The previous OSHA standard required “heavy duty” electrical cords. Heavy-duty, hard, and extra-hard cords have accepted meanings in industry standards; however, the use of a heavy-duty cord does not ensure that it has sufficient capacity to carry the particular electric load. This provision provides clearer direction while giving employers flexibility in choosing what type of cord to use so long as it can safely carry the electric load.

1915.82(b)(3) specifies that connections and insulation for electric cords for temporary lights be “maintained in a safe condition.” To ensure that connections and insulation are maintained in a safe condition, employers must check insulation and connections to determine whether they continue to be in proper working order and replace those that are broken, cracked, or damaged. If insulation and connections are damaged, workers can be exposed to electrical, fire, and other hazards.

1915.82(b)(4) prohibits temporary lights and lighting stringers from being suspended solely by their cords, unless specifically designed by the manufacturer to be hung in this manner. Improper suspension of lights by their electric cords places the cords under tension that they were not designed to withstand. Such tension could cause the cords to fray, break, or become damaged and expose employees to electrical and other hazards.

1915.82(b)(5) specifies that lighting stringers must not overload branch circuits. This provides an adequate measure of safety from electrical and fire hazards associated with circuit overloading.

1915.82(b)(6) requires that branch circuits be equipped with over-current protection with a capacity that does not exceed the rated current-carrying capacity of the cord used. This provides an adequate measure of safety from electrical and fire hazards associated with circuit overloading.

1915.82(b)(7) specifies that splices must have insulation that “exceeds” that of the original insulation of the cord. When a splice is necessary on an electrical cord, the current may create a surplus of energy

or “hot spot” at the splice junction that is greater than the current for which the cord was designed. Requiring that the rated capacity of the new insulation exceed the capacity of the cord’s insulation ensures that employees will be protected if they touch or come into contact with the cord at the splice, and that hot spots do not start burning or ignite combustible materials in the area. For example, employers who use splices with insulation that is 1-1/2 times greater than the original will be in compliance. The performance-based language provides employers greater flexibility which will be beneficial, especially since different capacities of splice insulation may be needed depending on the use and location of each temporary lighting cord.

1915.82(b)(8) requires that exposed, non-current-carrying metal parts of temporary lights be grounded in accordance with the electrical standards in 29 CFR Part 1910, Subpart S. This provision also requires that grounding be provided either through a third wire in the cord that contains the circuit conductors, or through a separate wire that is grounded at the source of the current.

1915.82(c) – Portable lights – sets forth requirements for providing and using portable lights, including emergency lights. The intent of this provision is to ensure that workers do not enter unlighted areas, and that they have some form of illumination if provided lights stop working. Permitting employers to supply employees with other types of portable lights, as well as handheld ones, provides greater flexibility towards ensuring that workers are protected.

1915.82(c)(1) requires that employers provide, and ensure that employees use, portable lights before they enter a dark area: If that area does not have permanent or temporary lights, if the lights do not work, or if permanent or temporary lights are not readily accessible. The term “not readily accessible” means that fixtures for turning on permanent or temporary lights are not located at, or in close proximity to, the entrance to the dark area. For example, when an employee has to walk across a dark work area or climb steps in the dark to turn on the lights, such lights would not be considered to be readily accessible. In such cases, the employer would have to provide, and ensure that the employee uses, a portable light to enter the area.

1915.82(c)(2) requires employers to provide portable or emergency lights for the safe movement of employees on a vessel or vessel section when the only means of illumination comes from off-vessel light sources. Like 1915.82(c)(1), this provision is needed because off-vessel lighting could fail, making it hazardous for employees to move around or exit a dark area on the vessel or vessel section. If off-vessel lights stop working when employees are working below deck on a vessel, the workers could be injured or killed if they try to move around or exit the space. Further, portable or emergency lights must be supplied to employees in adequate numbers to ensure that each employee is able to move about and exit the dark areas safely.

NOTE: Every worker is not required have a portable light when working on a vessel. For instance, if a number of employees work in the same area on a vessel, one portable light may be sufficient to allow them to move around safely and exit the vessel. However, when an employee is working alone, especially in an isolated area or confined space, the employer must ensure that the worker has a portable or emergency light.

1915.82(d) – Explosion-proof, self-contained lights – specifies what type of portable lights employers must provide for use in areas that contain a concentration of flammable vapors at or above 10 percent of the lower explosive limit. Only “explosion-proof, self-contained” portable lights or other electrical equipment approved by a nationally recognized testing laboratory (NRTL) are permitted to be used in such atmospheres (See 29 CFR 1915, Subparts B and C).

1915.82 – Lighting (Questions and Answers)

Landside walking and working areas

Question 1: 1915.82(a)(2) requires that for landside areas, the employer shall provide illumination that meets the levels set forth in Table F-1. The second criterion in the table establishes a minimum of 5 foot-candles for “general land-side areas such as corridors, exits, stairs and walkways.” Is it

OSHA’s intent that this criteria apply to all outdoor spaces where a shipyard worker may walk (e.g. from one building to another along internal roadways)?

Answer: OSHA does not require that employers meet the lighting requirements provided in Table F-1 in all areas of the shipyard at all times. The lighting requirements will ensure that employees have adequate light to safely perform their work on vessels and vessel sections. Thus, if employees are assigned to work only in a specific location within a larger area, the minimum 5 lumen requirement applies to that area in which the work is performed, and not to the other locations within the larger area where no work is performed. However, in general land-side areas, such as corridors, exits, stairs, and walkways frequented by employees, the minimum lighting requirement of 5 foot-candles must be met.

Question 2: What is the minimum lighting requirement for land-side outdoor work areas such as access areas for vessel sections or work areas adjacent to ships or on platens or barges?

Answer: Table F-1 in 29 CFR 1915.82 requires illumination of 10 lumens for “land-side work areas such as machine shops, electrical equipment rooms, carpenter shops, lofts, tool rooms, warehouses, and outdoor work areas.” Other land-side areas require lesser illumination. OSHA explained that the higher 10 lumen level for land-side areas such as machine and carpentry shops is necessary because employees use tools and equipment that could pose a hazard and perform precision work in these areas. Higher illumination levels are required in warehouses and similar land-side areas to ensure that employees can read warning signs and safely operate equipment such as forklift trucks. 76 FR 24588. OSHA recognizes that certain functions of a temporary nature take place land-side outdoors where permanent lighting is not always practical because the configurations of the area and vessel sections change frequently over time. OSHA also recognizes that, after sunset, these land-side outdoor work areas share many of the same characteristics as work areas inside the vessel, which require only 5 lumens of illumination. Where land-side outdoor shipyard work tasks require employees to use tools and equipment that could pose a hazard, perform precision work, read signs and warning labels, or operate forklift trucks or other heavy equipment where the controls and instructions must be seen and understood, OSHA will require 10 lumens of illumination. However, OSHA does not intend to enforce the 10 lumen requirement for other land-side outdoor work tasks if those work tasks do not pose a danger to employees working under lesser lighting conditions. For such land-side outdoor work tasks and for land-side outdoor walkways, OSHA will permit an employer to install temporary lighting of 5 lumens. For areas of vessel ingress and egress, OSHA will permit an employer to install temporary lighting of 3 lumens, as is required for access ways on vessels and vessel sections.¹⁰

Question 3: OSHA defines a work area as a specific area, such as a fabrication area, machine shop, etc. Is it OSHA’s intent that “every” location within a work area meet the requirements in Table F-1, even if employees are assigned only to a specific location within that work area?

Example: A large assembly building is a work area, but employees do not perform work in all spaces/locations within the building.

Answer: No. The lighting requirements ensure that employees have adequate light to safely perform their work on vessels and vessel sections. Thus, if employees are assigned to work only in a specific location within a larger area, the minimum 10 lumen requirement applies to that area in which the work is performed, and not to the other locations within the larger area where no work is performed. However, if any part of the larger work area will be used as an access way by employees, the minimum illumination must be 5 lumens, in accordance with Table F-1.

Work on vessels and vessel sections

Question 1: If employees are assigned only to a specific location within a work area on a vessel or vessel section and there are no other employees performing job tasks in other sections of that work

¹⁰ This answer was developed as part of a settlement agreement with the Shipbuilders Council of America, and issued as an [interpretive letter](#) on November 20, 2012.

area, does every location within that work area need to meet the lighting requirements in Table F-1 of 29 CFR 1915.82, “Lighting”?

Answer: No. Table F-1 requires “assigned work areas” on vessels or vessel sections to have minimum lighting of 5 foot-candles (lumens). This requirement is intended to ensure that employees have adequate light to safely perform their work on vessels and vessel sections. Thus, if employees are assigned to work only in a specific location within a larger area, the minimum 5 lumen requirement applies to that area in which the work is performed and not to other locations within the larger area where no work is performed. However, if any part of the larger work area will be used as an access way by employees, the minimum illumination must be 3 lumens, in accordance with Table F-1.¹¹

Question 2: Table F-1 in 1915.82(a)(2) establishes a minimum of 3 foot-candles for “general areas on vessels and vessel sections such as access ways, exits, gangways, stairs and walkways.” Our product is built to Navy specifications with different lighting requirements. Certain areas of the vessel fall below this 3 foot-candle requirement. Is it OSHA’s intent to specify additional lighting requirements above and beyond Navy contract requirements? When performing work on vessels that have achieved a state of construction such that permanent ship’s lighting is in place and functional, is it OSHA’s intent that the shipyards provide supplemental temporary lighting to achieve the 3 foot-candle minimum in all areas where shipyard workers may travel or perform work?

Answer: It is not OSHA’s intent to impact the specification of shipbuilding (i.e., Navy specification). However, if a vessel’s permanent lighting does not meet the minimum requirements of the standard, and work is continuing, supplemental lighting must be provided in cases where shipyard employees are expected to transit through or perform work.

Outside working areas

Question 1: Much work on vessel sections is conducted outside, which we believe falls in the 5 foot-candle category. Outdoor work areas list a 10 foot-candle requirement, and based on the area grouping we would interpret those outdoor work areas to have similar characteristics to machine shops, etc. These areas are characterized by fixed machinery and installations, while the outdoor work on vessel sections would be primarily accomplished with portable tools and temporary installations. Would OSHA agree with this description of the lighting requirement difference between vessel sections and outdoor work areas?

Answer: Certain functions of a temporary nature take place land-side outdoors where permanent lighting is not always practical because the configurations of the area and vessel sections change frequently over time. Also, after sunset, these land-side outdoor work areas share many of the same characteristics as work areas inside the vessel, which require 5 lumens of illumination. Where land-side outdoor shipyard work tasks require employees to use tools and equipment that could pose a hazard, perform precision work, read signs and warning labels, or operate forklift trucks or other heavy equipment where the controls and instructions must be seen and understood, OSHA will require 10 lumens of illumination. However, OSHA does not intend to enforce the 10 lumen requirement for other land-side outdoor work tasks if those work tasks do not pose a danger to employees working under lesser lighting conditions.

General (Questions and Answers)

Question 1: If an external, land-based, walkway light has blown out and darkened the area so that it no longer meets the requirements in Table F-1, is the shipyard in violation of the regulation until it gets repaired?

¹¹ This answer was developed as part of a settlement agreement with the Shipbuilders Council of America, and issued as an [interpretive letter](#) on November 20, 2012.

Answer: Regardless of where the inoperative lights are (vessel, vessel section, land-side walkway), employers must replace the bulbs as soon as possible. In the interim, employers should avoid assigning employees to work in the areas that are not adequately lit with permanent or portable lighting.

Question 2: Does the standard provide the necessary time to repair blown bulbs?

Answer: See question 1 above. The standard does not specify how long employers have to replace bulbs, but employers should replace any burnt bulbs as soon as possible, or avoid assigning work in that area.

Question 3: Will employers be cited for brief periods of time when lighting may not meet the requirements of Table F-1 because, for example, a light bulb burns out?

Answer: No, as long as the employer replaces the inoperative light bulbs promptly and avoids assigning employees to work in areas that are not adequately lit with permanent or portable lighting.¹²

Question 4: Is it acceptable to use portable lighting (flashlights, headlamps) to illuminate a work area or walkway to meet the requirements in Table F-1?

Answer: 1915.82(c) requires that portable or emergency lights be used in any dark area that does not have permanent or temporary lights, where lights are not working, or where lights are not readily accessible; however, the employer must provide employees with these lights and ensure that they do not enter those areas without such lights.

Additionally, the standard requires that on vessels and vessel sections, portable or emergency lighting be used if the only means of illumination are from lighting sources that are not part of the vessel or vessel section. Therefore, portable lighting, such as flashlights and headlamps, may be an acceptable means of lighting. However, it is not OSHA's intent that this method be used on a regular basis (daily activity).

1915.83 – Utilities

1915.83 provides requirements to protect workers from hazards associated with the unchecked release of steam or electricity, excessive wear and tear of steam hoses that could compromise their integrity, and burns and fires from unguarded heat lamps.

1915.83(a)(1) – Steam supply system – requires that employers ensure that the vessel's steam piping system, including hoses, is designed to safely handle the working pressure prior to supplying steam from an outside source to the vessel. The responsible vessel's representative, contractor, or any other person, who is qualified by training, knowledge, or experience, is required to determine whether the working pressure is safe. Requiring employers to ascertain from a qualified person whether the working pressure is safe enhances worker safety because it builds regular safety checks into the process. Employers are not required to document in writing that a qualified person has determined that the working pressure of the steam supply system is safe.

1915.83(a)(2) sets forth several requirements regarding relief valves and pressure gauges for a steam supply connected to the vessel's steam system. This provision applies only to outside steam supply systems connected to the vessel's steam piping system. Outside steam supply connections must meet the following requirements:

1915.83(a)(2)(i) requires both the **pressure gauge** and **relief valve** to be installed at the point where the steam pipe or hose from an outside steam source joins a vessel's steam piping system.

1915.83(a)(2)(ii) requires that relief valves are set to relieve excess steam, and are capable of relieving steam, at a pressure that does not exceed the safe working pressure of the vessel's steam piping system in its present condition.

¹² This answer was developed as part of a settlement agreement with the Shipbuilders Council of America, and issued as an [interpretive letter](#) on November 20, 2012.

1915.83(a)(2)(iii) requires that there be no means of inadvertently disconnecting the relief valve from the system that it protects.

1915.83(a)(2)(iv) requires the marking of pressure gauges and relief valves of steam supply systems to be legible and located so that they are visible and readily accessible. The use of illegible pressure gauges constitutes a hazard. Employees working in or walking through the area need to be able to readily identify whether pressure is increasing to a hazardous level or continues to be at a safe level.

1915.83(a)(2)(v) requires relief valves to be positioned so they are not likely to cause injury if steam is released. For example, the relief valve must not be positioned so that, if an employee is walking by and the steam is released, the employee would be injured. Therefore, employers are required to position the relief valve so that it is not likely to cause injury if steam is released, regardless of where the valve is located.

1915.83(b)(1) – Steam hoses – requires that employers ensure that steam hoses and their fittings are used in accordance with manufacturers’ specifications. This allows the employer flexibility, and ensures that steam hoses meet all critical specifications necessary to protect employees from injury.

1915.83(b)(2) requires that employers hang steam hoses tightly with short bights to prevent chafing and to reduce tension on the hose and its fittings. A short bight is defined as a loop made in a line or rope that is used to tie back or fasten hoses, piping, wiring, or fittings. This performance-based requirement adequately ensures that bights will be placed to “prevent chafing and reduce tension,” while giving employers flexibility in determining how best to space the bights so they prevent damage to hoses.

1915.83(b)(3) requires that steam hoses be protected from damage. Preventing damage to steam hoses is necessary to protect employees working or walking near steam hoses. In walking and work areas, steam hoses can be damaged when equipment and materials are moved or operated nearby.

1915.83(b)(4) requires that employers shield steam hoses and temporary steam piping, including metal fittings and couplings (hereafter collectively referred to as “hoses”), if they pass through walkways or work areas. Shielding hoses is necessary to protect workers from accidentally contacting hot elements and getting burned. If employers elect to re-route hoses so they do not pass through walkways or working areas, the requirement will be met, and workers will not come into contact with hot steam hoses. In this instance, the hoses will not pass through walkways or working areas, and employers will not be required to shield them. Under this provision, it would also be acceptable for employers to block or cordon off areas where unshielded steam hoses are present. However, appropriate warning signs, or instructions prohibiting workers from entering the blocked-off areas is necessary.

1915.83(c) – Electric shore power – addresses precautions employers must take prior to energizing a vessel’s circuits when electricity is supplied from a land-side power source. The hazards of remote power carried by electric cables or wires onto a vessel differ from other electrical hazards such as the hazards associated with hand-held powered tools.

1915.83(c)(1) requires employers to ensure that vessels are grounded prior to energizing any of the vessel’s circuits. Vessels must be grounded in a dry dock, on a marine railway or pier side (floating). The language in the final rule clarifies that a vessel should always be grounded prior to energizing its circuits.

1915.83(c)(2) requires that prior to energizing any vessel circuit, employers equip the circuit to be energized with over-current protection that does not exceed the rated current-carrying capacity of the conductors. “Conductors” was used in lieu of “cord” to make the provision more inclusive and protective; conductors include connections in addition to cords.

1915.83(c)(3) requires employers to ensure that vessel circuits are in a safe condition prior to energizing any circuit with land-side power. Employers must obtain a determination that vessel circuits are in a safe condition from a responsible vessel’s representative, a contractor, or any other person qualified by training, knowledge, or experience to make that determination. The requirement is clear that only circuits “to be energized” need to be checked to determine whether they are in a safe condition.

Therefore, if shore power will be supplied to only a portion of the vessel, employers are required to ascertain that only the circuits affected by the energization are in a safe condition. A good safety practice would be to check the wires and connectors on the vessel to ensure that they are not damaged before providing land-side power to the vessel. Since land-side power has high amperage, energizing wires and connectors that are damaged could cause an explosion or electric arc that could electrocute or burn workers on the vessel.

1915.83(d) – Heat lamps – requires that heat lamps, including the face, be equipped with surround-type guards to prevent contact with the lamp and bulb. This provision applies to all heat lamps used in shipyard employment, including infrared electrical heat lamps. Prevention of heat lamp contact hazards ensures that employees are fully protected from being burned by accidental contact, and the risk of igniting combustible materials is reduced.

1915.83 – Utilities (Questions and Answers)

Question 1: In 1915.83(b)(4), is it OSHA’s intent to require that steam hoses be shielded only if they are in a walkway or work area and represent a burn hazard to employees?

Answer: 1915.83(b)(4) states that *each steam hose or temporary steam piping, including metal fittings and couplings, that pass through a walking or working area is shielded to protect employees from contact*. Therefore, steam hoses or temporary steam piping that do not pass through walking or working areas, do not have to be shielded. However, if there is a possibility that an employee may pass through or conduct work activities in an area where steam hoses or temporary steam piping are not shielded, employers must ensure that shielding is used.

Question 2: Does the shielding requirement apply if the steam hose does not get hot enough to present a burn hazard?

Answer: The purpose of shielding hoses is to prevent damage to the hose, which could present a hazard to employees should it burst, and also to protect employees from coming in contact with hoses and/or metal couplings that could burn them. A worker coming into contact with steam hoses or temporary piping, including metal fittings and couplings, could be burned. Therefore, in any walking or working area where employees may be exposed to steam hoses, shielding must be used.

1915.84 – Working alone

1915.84 addresses the hazards associated with working alone, such as in isolated or confined spaces. The purpose of this section is to ensure that employers account for employees working alone, thereby enhancing the safety of these employees. Further, frequent checks will increase survivability, or decrease injury severity should an employee become injured while working alone. The following examples describe work that is considered to be in isolated locations: A lone oiler checking a forward bilge on a vessel; an employee working alone “below deck” or “in the bowels of the ship”; and an employee working alone in a side or ballast tank. (See OSHA fact sheet, *Subpart F – General Working Conditions in Shipyard Employment: Working Alone*.)

NOTE: In the event of an emergency rescue situation, safe entry practices set forth in other OSHA standards, such as 29 CFR Part 1915, Subpart B, must still be followed.

1915.84(a) requires that employers account for each employee working alone at regular intervals throughout the workshift (1915.84(a)(1)), and at the end of the job assignment or at the end of the workshift, whichever occurs first (1915.84(a)(2)). Accounting of each employee working alone must be done by sight or verbal communication (1915.84(b)). It is imperative that verbal communication involves both parties speaking. Acceptable forms of verbal communication include two-way radios, in-person, or an intercom system. Cell phones may be used in areas where there is reception. If an employer cannot demonstrate that reception will be available, below deck for example, cell phones will not be allowed. Acceptable forms of visual communication may involve in-person communication or by way of a camera. Without visual communication an employer may wrongfully assume that the noise of running equipment,

such as a power tool, indicated that an employee is safe; when in fact the employee is unconscious or injured, and the power tool is still running. Another method of communication that has low reliability and is an unacceptable means of verification is tapping on tank walls, bulkheads, or decks.

1915.84 – Working alone (Questions and Answers)

Question 1: Section 1915.84(a) and (b) require that “whenever an employee is working alone, such as in a confined space or isolated location, the employer shall account for each employee . . . by sight or verbal communication.” Does this mean that the employer may use email responses, text messages, or transponders that require employees to press buttons to confirm communication?

Answer: No. OSHA intended “verbal” to mean “oral.” As stated in the preamble, “OSHA has determined that, when employers use verbal communication to check on employees working alone, communication must include both parties speaking.” 76 FR 24596. In sum, employers can account for their employees by talking with them (e.g., face-to-face or by radio), or by seeing them work, even if at a distance. Where an employer chooses to use a cell phone as the primary means of verbal communication, the employer must verify cell phone reception in all areas where the employee will be working alone.¹³

Question 2: The rule states, “Except as provided in 1915.51(c)(3) of this part, whenever an employee is working alone, such as in a confined space or isolated location, the employer shall account for each employee. Is documentary evidence required of the employer to demonstrate compliance?”

Answer: No. This is a performance-based requirement so each employer can develop a program that fits their workplace.

Question 3: The rule requires the employer to account for each employee by sight or verbal communication. This section appears to exclude many technologies from the accounting process such as transponder systems, and text messaging. Is this a correct interpretation?

Answer: Yes. OSHA intended “verbal” to mean “oral” and that communication must include both parties speaking. Employers can account for their employees by talking with them (such as face-to-face, or by radio), or by seeing them work, even if at a distance. Where an employee chooses to use a cell phone as the primary means of verbal communication, the employer must verify cell phone reception in all areas where the employee will be working alone.

Question 4: Does the standard apply to employees working in an office environment? Is it the standard’s intent to require checks on office employees that are working in an office environment alone?

Answer: Offices are not excluded from this provision. Therefore, employees working alone in an office setting, including after hours, or employees working on cleaning crews who may be working alone are included in this provision.

1915.85 – Vessel radar and communication systems

This section specifies the requirements to protect employees working on or near vessel radar and communication systems from radiation and other energy and mechanical hazards. If precautions are not taken, these workers may be exposed to radiation (for example, radio frequency radiation). They also may be electrocuted or struck by the antennas or other components if the system activates, energizes, or releases hazardous energy. Vessel radar and communication system components, particularly antennas and transmitters that emit radiation, may electrocute employees or may move and strike employees working-on or -near them. However, if these components cannot emit radiation at levels that could injure

¹³ This answer was developed as part of a settlement agreement with the Shipbuilders Council of America, and issued as an [interpretive letter](#) on November 20, 2012.

workers in the vicinity, or cannot electrocute or strike workers if the system suddenly activates, the requirements of 1915.85 would not apply.

In addition, this section does not apply to sonar, as the hazards associated with sonar are not the same as hazards associated with radar and communication systems. Further, although the scope of 1915.85 covers shipbreaking operations, it is unlikely that radar and communication systems would be operational when workers perform shipbreaking operations. However, to the extent that radiation hazards or hazardous energy are present in shipbreaking operations, the employer must protect workers from the risk of injury.

1915.85(a) requires that employers service vessel radar and communication systems in accordance with the requirements of 29 CFR 1915.89, the lockout/tags-plus standard for shipyard employment. Employers must implement a lockout/tags-plus program for all servicing operations when machinery, equipment, or systems could activate. Such a program requires the use of lockout/tags-plus applications; implementation of procedures for the safe servicing of machinery, equipment, and systems; and employer training of employees. In addition, 1915.89(a)(3) specifies that, when other standards in Part 1915, and applicable standards in Part 1910 (See Appendix A of this instruction), require the use of a lock or tag to protect workers from the risk of equipment activation or energization, employers are required to supplement such protections with the procedural and training requirements in 1915.89. Employers are required to use energy-isolating measures that provide a physical barrier to the hazards of equipment activation and ensure that all employees involved in the servicing operations follow consistent and uniform procedures in all servicing operations.

1915.85(b) requires employers to secure each vessel radar and communication system so it is incapable of energizing or emitting radiation before an employee begins work:

- On or in the vicinity of the system (**1915.85(b)(1)**);
- On or in the vicinity of a system equipped with a dummy load (**1915.85(b)(2)**); or
- Aloft, such as on a mast or king post (**1915.85(b)(3)**).

NOTE: Although dummy loads are designed to minimize radiation emissions, they still may emit some radiation. Therefore, employers are required to secure systems equipped with dummy loads before employees begin work on or in the vicinity of these systems.

1915.85(c) requires that when a vessel's radar or communication system is operated, serviced, repaired, or tested, employers must ensure that no other work is in progress aloft, and no employee is closer to the system's antenna or transmitter than the manufacturer's "minimum safe distance" for the type, model, and power of the equipment. By requiring employers to follow manufacturer's specifications on safe distances, workers are provided greater protection since the safe distance will be specific to the design for the equipment installed.

1915.85(d) requires employers to ensure that no worker enters an area designated hazardous by the manufacturer's specifications while a radar or communication system is capable of emitting radiation. Requiring employers to keep all employees outside the area designated as hazardous by the manufacturer's specifications until the systems are rendered incapable of emitting radiation enhances worker protection.

1915.85(e) clarifies that the requirements of this section do not apply when a radar or communication system is incapable of emitting radiation at levels that could injure workers in the vicinity of the system, or when the radar or communication system is incapable of energizing in a manner that could injure employees working on or in the vicinity of the system.

1915.85 – Vessel radar and communication systems (Questions and Answers)

Question 1: Would a person working aloft be required to sign the tag, locking an antenna out, as part of a Lock-out/Tag-out Plus program (Authorized Person)?

Answer: An authorized employee is defined as:

- (i) *An employee who performs one or more of the following lockout/tags-plus responsibilities:*
- (A) *Executes the lockout/tags-plus procedures;*
 - (B) *Installs a lock or tags-plus system on machinery, equipment, or systems; or*
 - (C) *Services any machine, equipment, or system under lockout/tags-plus application.*
- (ii) *An affected employee becomes an authorized employee when the employer assigns the employee to service any machine, equipment, or system under a lockout/tags-plus application.*

Therefore, an employee performing servicing of machinery, equipment, or systems aloft would need to follow 1915.89 and would be required to apply a personal lockout/tags-plus system. Any other employee aloft, but not servicing machinery, equipment, or systems, would be considered an affected employee.

1915.86 – Lifeboats

1915.86(a) requires the employer to ensure that before employees work in or on a stowed or suspended lifeboat, the lifeboat is secured independently from the releasing gear to prevent it from falling or capsizing. This will prevent it from falling if the releasing gear is accidentally tripped or the davits move. It also prevents lifeboats that are stowed on chocks from capsizing.

1915.86(b) requires that employers prohibit employees from being inside a lifeboat while it is hoisted or lowered. There are two exceptions to this prohibition. Employees may be in a lifeboat that is being hoisted or lowered: (1) when the employer demonstrates that it is necessary to conduct operational tests or drills over water, or (2) in the event of an emergency. NOTE: OSHA recommends the use of “monkey lines” while conducting tests and drills over water.

1915.86(c) requires that employers prohibit employees from working on the outboard side of any lifeboat that is stowed on its chocks unless the lifeboat is secured to prevent it from swinging. If the lifeboat is not secured prior to employees working on its outboard side, the lifeboat could swing out and strike an employee, causing the employee to fall.

1915.87 – Medical services and first aid

1915.87 outlines the requirements for medical services, first aid, and lifesaving equipment. The provisions in 1910.151 apply to shipyards to the extent that those provisions address hazards and working conditions that 1915.87 does not (See [Appendix A](#) of this instruction).

1915.87(a) – General requirements – requires employers to ensure that emergency medical services and first aid for employees are readily accessible. The purpose of this provision is twofold.

- First, it establishes uniform criteria applicable to all of the first aid and medical services specified in 1915.87(a), ensuring that these services are available and close enough to the injured/ill employee so that appropriate intervention can be provided.
- Second, in the case of a serious or life-threatening injury/illness, it requires employers to have steps in place to ensure that additional emergency medical intervention is readily accessible. The provision also addresses concerns that first aid providers be able to reach injured employees quickly enough to render effective assistance.

Employers are required to deliver first aid or medical services in the event of illnesses as well as injuries. First aid and medical services may be required at a worksite to treat not just work-related injuries but also acute illnesses, such as asthma attacks, heart attacks, heat-related illnesses, or severe reactions to contaminants or fumes. Uniform criteria for all first aid and medical services are necessary because their components, primarily first aid providers and first aid supplies, are interrelated. They both must be readily accessible for intervention to be effective. It is not effective to require that first aid kits be situated at every worksite without a parallel requirement to have trained employees at the worksite who are capable of using those supplies. Conversely, onsite trained first aid providers cannot provide effective assistance if first aid supplies are too far away to be accessed quickly.

With regard to the second purpose, the provision requires employers to ensure that additional emergency medical services such as rescue squads and ambulances are readily accessible. This provision does not require shipyard employers to have on-site clinics, ambulances or rescue squads, but it does require employers to implement a system to ensure that emergency medical services such as local rescue squads or ambulance services are readily accessible when needed. To meet the requirements of 1915.87, the employer needs to factor in reasonably foreseeable delays, such as railroad tracks that could be blocked when rescue squads need to access injured/ill employees in the shipyard. Readily accessible is defined in 1915.80(b)(23) as capable of being reached quickly enough to ensure that medical services and first aid interventions are effective. Whether originating in the shipyard or provided by an outside service, medical services and first aid must be provided in a timeframe that will ensure their effectiveness in treating an injured or ill employee.

1915.87(b) – Advice and consultation – requires employers to ensure that healthcare professionals (See definitions) are readily available for advice and consultation to the employer on matters of workplace health. It is necessary for employers to fully understand what hazards are present in their workplace. For example, employers must understand that some materials that their employees work with may contain hazardous components. Although material safety data sheets (MSDSs) or safety data sheets (SDSs) provide the employer with an abundance of health-related information on various materials that employees may be working with, this provision ensures that if the employer has any questions that cannot be answered by MSDSs/SDSs or similar resources, they will have a healthcare professional at their disposal with whom to discuss specific workplace health issues. A “healthcare professional” is a physician or other licensed healthcare provider whose legally permitted scope of practice allows the provider to independently provide, or be delegated the responsibility to provide, some or all of the advice or consultation this subpart requires. This definition includes doctors, nurses, nurse practitioners, osteopaths, EMTs, or other health care providers whose license, registration, or certification authorizes them to provide such assistance and advice. A safety professional, unless he or she is also a licensed healthcare provider, would not meet the criteria set forth in this definition. Rather than impose prescriptive requirements on employers, 1915.87(b) allows employers to seek the information from the appropriate source in a timely manner, given the circumstances. For instance, if an employee complained about headaches and dizziness at the workplace while working with a chemical compound, and the MSDS/SDS sheet for that compound did not address the particular symptoms, the provision ensures that the employer would have a readily available healthcare professional to consult for additional advice. The employer should not wait until the need arises before beginning the search for a healthcare professional. A facility that has an on-site medical service staffed by a healthcare professional could consult with that individual. For facilities that do not have on-site healthcare providers, employers may consult with local physicians who have knowledge of workplace health issues, have them contact their insurance companies, or request assistance from organizations such as medical schools or state departments of health to locate a healthcare professional who is familiar with workplace health hazards. The employer should acquaint the healthcare professional with the conditions of the workplace, including the size of the facility, the types of materials being using, and potential health hazards.

1915.87(c) – First aid providers – sets forth the requirements for the number and availability of first aid providers including training and certification.

1915.87(c)(1) requires an adequate number of employees trained in first aid at each worksite on each workshift unless the employer either (a) has an on-site clinic or infirmary that is staffed with first aid providers during each shift, or (b) can demonstrate that outside first aid providers can reach the worksite within five minutes of a reported injury or illness. A “worksite” as defined in 1915.80(b)(38) is a general location where one or more employees are performing work, such as a shipyard, pier, barge, vessel or vessel section. The term does not mean a single “work area,” such as a machine shop, engineering space, or fabrication area where one or more employees are performing job tasks. A shipyard may have hundreds of work areas, with only one or a few employees working in any one of those areas. In a shipyard, “worksite” refers to a group of work areas that are in near proximity to each other. For instance,

all of the work areas in a small shipyard may constitute a single worksite, even though some areas may be located on a vessel and others land-side. By contrast, a large shipyard that has multiple piers, docks, large vessels, and land-side facilities that are spread across a wide area would be considered to have multiple worksites. In these shipyards, it is unlikely that a first aid provider located in one worksite would be able to reach all worksites within the shipyard quickly enough to provide effective intervention. Accordingly, each worksite must have an adequate number of first aid providers to ensure that timely intervention is provided to injured/ill employees working at a work area within that worksite. By comparison, a single work area distantly located from other work areas may, of necessity, be considered a worksite because first aid providers in other work areas would not be able to reach the area quickly enough to effectively aid an injured/ill employee.

This provision sets forth several objective factors for employers to consider in making a determination of how many trained first aid providers are needed at their worksite. These factors are:

- The size and location of each shipyard worksite;
- The number of employees at each worksite;
- The hazards present at each worksite; and
- The distance of each worksite from hospitals, clinics, and rescue squads.

NOTE: Accidents involving electrical shock resulting in heart or breath stoppage must be treated within a short time (optimally within three to five minutes) to increase the chances of a positive outcome. To the extent that these types of accident risks are present in shipyards, such as when servicing electrical systems where there is a risk of electrical shock, it is necessary to have first aid providers located at the worksite so cardiopulmonary resuscitation (CPR) can be started quickly. Similarly, when work tasks involve a risk of injury that could result in severe bleeding, first aid must be quickly administered to maximize the injured employee's survivability.

1915.87(c)(1)(i) permits the employer to have an on-site clinic or infirmary with first aid providers during each workshift as an alternative to the requirement to have an adequate number of employees trained in first aid.

1915.87(c)(1)(ii) permits employers to demonstrate that outside first aid providers can reach the worksite within five minutes of a report of injury/illness. The employer also is required to take appropriate steps to ascertain that emergency medical services will be readily available if an injury/illness occurs. These conditions are a shipyard employer's second alternative to ensuring an adequate number of first aid-trained employees. To allow for the occasional difficulty of reaching an injured/ill employee below deck or in a confined space, this provision sets a five-minute limit for off-site responders to reach the worksite, not the victim. This provision acknowledges that, even under the best of circumstances with an EMT service located within a few blocks of the shipyard, there are times when it would be impossible for the off-site service to reach an injured/ill employee within five minutes.

1915.87(c)(2) requires that employers ensure that a first aid provider is able to reach an injured employee within five minutes of a report of serious injury/illness, such as one involving cardiac arrest, acute breathing problems, uncontrolled bleeding, suffocation, electrocution, or amputation. Thus, if there is a possibility of a life-threatening injury/illness occurring somewhere in the shipyard, including aboard vessels, where the injured/ill employee could not be reached by an off-site responder or first aid providers from the employer's on-site infirmary within five minutes, the employer must ensure that another first aid responder could reach the victim within five minutes of the injury being reported to assist the victim until emergency personnel, who have more expertise in treating emergencies, arrive.

1915.87(c)(3) lists the factors that an employer must use in determining the number and location of employees who must have first aid training. These factors are:

- The size and location of each shipyard worksite;
- The number of employees at each worksite;
- The hazards present at each worksite; and
- The distance of each worksite from hospitals, clinics, and rescue squads.

1915.87(c)(4) and **1915.87(c)(5)** requires that first aid providers be trained to render first aid, including cardiopulmonary resuscitation (CPR), and maintain current first aid and CPR certification from the Red Cross, American Heart Association, or other equivalent organization. Although some shipyard employees may have received training in the past, appropriate and up-to-date training is necessary to ensure that injured employees receive correct intervention, since lack of training also can result in a lack of treatment when it is needed. These provisions give employers maximum flexibility in developing a first aid training program that is appropriate for the types of working conditions and hazards in their workplaces. With one exception, CPR training, the standard does not establish the specific content of the required first aid training program that employers must follow. As long as the certificate is issued by a responsible organization, such as the American Red Cross, the American Heart Association, or other equivalent organization that requires successful course completion as evidence of qualification, the requirements would be met. These provisions do not specify a frequency for first aid refresher training. The employer must comply with the frequency the certifying organization requires for retaining certification, usually two years.

1915.87(d)(1) – First aid supplies – requires employers to provide and maintain adequate first aid supplies that are readily accessible to each worksite. An employer’s on-site infirmary or clinic containing first aid supplies that are readily accessible to each worksite complies with this requirement. Because first aid needs can vary from worksite to worksite, an employer must determine what is needed at each worksite. For example, while a small first aid kit might be all that a small shipyard or vessel needs, it might be completely insufficient for a large facility. By requiring “adequate” supplies, employers have the flexibility of determining which first aid supplies they need for their particular worksites. Employers should use in-house medical services as a first resort if those services can be accessed in a timely manner, given the circumstances. However, there may be times when an employee is injured/ill at a shipyard when there is no on-site clinic, first aid providers are not readily available, or a first aid provider needs ready access to supplies. At such times, employees should have access to adequate first aid supplies. These supplies must be readily accessible to each worksite. This allows employers more flexibility and guidance about where first aid supplies need to be located. In addition, this provision clarifies that first aid supplies need to be located at all worksites throughout the shipyard, which include worksites on and near vessels, as well as those land-side. Employers who have on-site medical facilities have the choice to maintain all first aid supplies at the medical facility, or to place them throughout the worksite. Employers who rely solely on outside medical assistance are required to provide first aid supplies so they are readily accessible to each worksite. By requiring employers to provide first aid supplies through the worksite, employees have access to these supplies until a trained first aid provider or healthcare provider arrives to assist them.

1915.87(d)(2) lists four objective factors that will assist employers in meeting the requirements for placement, content, and amount of first aid supplies. These factors are identical to those factors specified for determining the number and location of first aid providers. The four factors include:

- The size and location of each shipyard worksite;
- The number of employees at each worksite;
- The hazards present at each worksite; and
- The distance of each worksite from hospitals, clinics, and rescue squads.

In addition to these four factors, non-mandatory Appendix A, *First aid kits and automated external defibrillators*, provides additional guidance, referencing recent consensus standards regarding first aid supplies, as well as providing information on assistance in purchasing or assembling first aid kits that would be adequate for small worksites, and employers with large or multiple operations, or unique needs. A performance-based approach on the contents of first aid kits gives employers flexibility in tailoring their first aid supplies to the conditions and hazards present in their workplace and to changing the supplies as warranted by new developments in first aid.

1915.87(d)(3) requires that first aid supplies be placed in a weatherproof container.

1915.87(d)(4) specifies that employers must maintain first aid supplies in a dry, sterile, and serviceable condition. Taken together, 1915.87(d)(3) and (d)(4) require that any first aid kit that may be used at any time outside a clinic-type setting must be protected from the elements. This is particularly important because some first aid supplies may degrade if exposed to the elements (sun, hot temperatures, extreme cold, and humidity), dirt, exhaust, grease, paint, solvents, and other contaminants common to shipyard work. For purposes of this provision, OSHA defines “serviceable condition” to mean the state or ability of supplies or goods to be used as intended by the manufacturer. Thus, if the first aid supplies contain instructions from the manufacturer on how to store them, the employer should comply with those instructions to ensure that the supplies remain effective for use.

1915.87(d)(5) requires the employer to replenish first aid supplies as necessary to ensure an adequate supply when needed. Employers have an obligation to replace supplies that are found to be deficient or missing.

1915.87(d)(6) requires employers to inspect first aid supplies at sufficient intervals to ensure that the supplies are adequate and in a serviceable condition. This provision gives employers the flexibility to determine what inspection procedures and at what interval would be most effective for ensuring that supplies remain in a serviceable condition and adequately replenished. Some employers may determine that daily inspection/replenishment is necessary, while others may only need weekly scheduling.

1915.87(e) – Quick-drenching and flushing facilities – requires employers to provide quick-drenching or flushing facilities when the potential exists for an employee to be splashed with a substance that could result in an acute or serious injury. Under this requirement, the employer must ensure that the quick-drenching or flushing facility is located in close proximity to the worksite for immediate emergency use. The requirement for quick-drenching and flushing facilities is limited to those instances when employees may potentially be splashed by substances that could cause an acute or serious injury. Thus, if paints or other materials used by the shipyard could not cause an acute or serious injury if splashed on an employee, this would eliminate the need to provide quick-drenching or flushing facilities. The use of PPE that is sufficient in removing the hazard of acute or serious injury is an appropriate alternative. However, if PPE is not worn, and any material being used could cause an acute or serious injury, the employer must provide a quick-drenching or flushing facility within close proximity to where the work involving the material is occurring. Furthermore, the facility must be available for immediate emergency use; that is, it should work as soon as it is activated and should not require replenishment of water at the time of the emergency. In work areas where it is impracticable to place permanent (for example, plumbed) quick-drenching facilities, such as confined spaces, the employer is required to provide portable facilities. Employers may use the ANSI Z358.1 standard to meet this requirement. It includes specifications for self-contained eyewash equipment, as well as personal quick-drenching equipment that could be used in such locations (ANSI Z358.1-2009, *Emergency Eyewash and Shower Equipment*).

1915.87(f) – Basket stretchers – requires that an adequate number of basket stretchers, or the equivalent, be readily accessible. It also requires that this equipment have permanent lifting bridles that enable the stretcher to be attached to hoisting gear that is capable of lifting at least 5,000 pounds. In addition, these basket stretchers must be capable of securely restraining the injured employee and must provide a blanket or other suitable covering. Finally, the basket stretchers must be stored in a clearly marked location, be protected from damage, and be inspected to ensure they remain in a safe and serviceable condition.

1915.87(f)(1) requires that employers provide an adequate number of basket stretchers, or the equivalent, that are readily accessible to locations where work is being performed on a vessel or vessel section. The requirement recognizes that, in some situations, having just one basket stretcher at a location where work is being performed on vessels or vessel sections may be adequate to ensure ready accessibility. When a shipyard crane mounted on rail tracks can move back and forth to hoist a basket stretcher from one of several vessels or vessel sections, one stretcher may be adequate to remove injured employees from any of those vessels or vessel sections. In other situations, however, one basket stretcher

may not be adequate. In large shipyards that have several work areas with hundreds, if not thousands, of employees working far apart on vessels and vessel sections, more than one basket stretcher may be needed to ensure that one is readily accessible to each work area. Having additional stretchers allows first aid providers to prepare other injured employees for removal while another employee is being lifted to shore. In some circumstances, basket stretchers must be provided even when fewer than 10 employees are working on a vessel. However, employers are given flexibility to tailor their efforts to the specific conditions and equipment present at the work area. A Sked® is considered an equivalent alternative to a basket stretcher; it can be used for confined space, high-angle, or technical rescue, or for land-side applications. An exception to 1915.87(f)(1) allows for employers to rely on emergency response service stretchers or equivalent that otherwise meet the requirements. This exception applies to both in-house responders and outside responders, so long as the basket stretchers or equivalents are “readily accessible.”

1915.87(f)(2)(i) requires that basket stretchers, or the equivalent, have permanent lifting bridles that enable the stretcher or equivalent to be attached to hoisting gear capable of lifting at least 5,000 pounds (2,270 kg).

1915.87(f)(2)(ii) requires that basket stretchers, or equivalent, have restraints that are capable of securely holding the injured/ill employee while the stretcher is lifted or moved. This is particularly important when lifting vertically through small deck hatches and scuttles.

1915.87(f)(2)(iii) requires that each basket stretcher or equivalent have a blanket or other suitable covering to cover an injured employee, thus protecting them from environmental conditions.

1915.87(f)(3) requires that basket stretchers, or the equivalent, and related equipment be stored in a clearly marked location in a manner that prevents damage and provides protection from environmental conditions. This provision has two goals: (1) Requiring storage areas to be clearly marked to ensure that stretchers are easy to locate when they are needed, and (2) storing stretchers so they are protected from damage and environmental conditions to prevent deterioration of the equipment. By requiring related equipment to be stored with the basket stretcher, deterioration or damage will be reduced significantly. For example, related equipment such as blankets and lifting bridles may deteriorate or become damaged if exposed to weather or impact.

1915.87(f)(4) requires the employer to inspect stretchers and related equipment at intervals that ensure this equipment remains in a safe and serviceable condition, but at least once a year. Although employers are given the flexibility to inspect stretchers and related equipment at intervals to ensure they are adequate in terms of safety and service, the one-year interval is necessary for basket stretchers since they are not used nearly as often as first aid kits. This requirement will ensure that, in the event of an emergency, all of this equipment will be in a serviceable condition and ready to be used.

Non-Mandatory Appendix

The **non-mandatory appendix** provides guidance to employers on the contents of first aid kits, assessing workplace risks, protecting first aid providers from possible exposure to bloodborne pathogens, and the use of AEDs. The appendix references ANSI standard Z308.1-2009, *Minimum Requirements for Workplace First Aid Kits*. The ANSI standard should be of assistance to employers seeking guidance on classification and performance of containers, appropriate contents, and recommendations and cautions regarding the use and maintenance of first aid kits.

The appendix also provides information and guidance to employers who are currently using AEDs, and those who are contemplating installing them (paragraph 4). AEDs restore normal heart rhythm with electrical shock (defibrillation). OSHA’s existing medical services and first aid standards do not require that AEDs be provided in workplaces or that employees be trained in their operation. However, many employers, concerned that local emergency services cannot respond quickly enough to medical emergencies, now equip their workplaces with AEDs and employees trained in their use. Since many employers, especially large and medium-sized shipyards, are currently using AEDs, the use of AEDs is addressed in the non-mandatory Appendix A. Employers should use the same objective criteria listed in

1915.87(c)(3) to determine if they need AEDs at their facility. Employers who have AEDs should designate who will use AEDs and provide training to those designated employees. Proper training will ensure that the designated employees use the AEDs correctly. In addition, AEDs should be located so they can be used within three to five minutes of a report of an accident or injury, and they should be used, inspected, tested, and maintained in accordance with manufacturers' specifications.

1915.87 – Medical services and first aid (Questions and Answers)

1915.87(e) – Quick-drenching and flushing facilities

Question 1: This paragraph addresses being splashed with a substance that results “in an acute or serious injury;” however, an acute injury is not defined. In the preamble, OSHA states that this paragraph of the standard should “not impose additional costs” as shipyard employers are already required to provide such facilities, pursuant to 1910.151(c), when employees may be injured by “corrosive materials.” This statement implies that there has been no expansion of the quick-drenching and flushing requirements from the previous standard. Are we correct in applying the quick-drenching and flushing requirements only to corrosives which cause acute and serious injuries? For example, are we required to have a quick-drenching facility when using substances that would cause a serious contact injury, or an acute but not-serious injury?

Answer: That is not correct. Quick-drenching facilities are required whenever employees could potentially be splashed by a substance that would cause a serious or acute injury. This includes all substances, not just corrosives. However, the requirement is eliminated when employees are protected by PPE, or when the substance would not cause a serious injury.

Question 2: Can we consider emergency eyewash bottles as quick-drenching and flushing facilities if they are considered to be an appropriate measure for the potential risk at hand?

Answer: Yes, provided that they meet the other requirements, including that they are available for immediate emergency use and are located in close proximity to where the work involving the hazardous substance is taking place.

1915.88 – Sanitation

Sanitation facilities include drinking water, toilets, handwashing facilities, showers, changing rooms, and eating and drinking areas. Also included in such facilities are the supplies needed, such as toilet paper, towels, soap, and waterless cleaning agents. 1915.88(a) also incorporates a series of general requirements on the accessibility, adequacy, and maintenance of sanitation facilities in shipyards. A sanitation facility cannot meet employees' health needs unless it is accessible, adequate, and properly maintained. For instance, if toilets are provided but are located far away from the worksite, employees may have to refrain from using the facilities or from drinking an adequate amount of liquids during the workshift. Also, employees may refrain from using toilets, particularly portable ones, that are dirty, not serviced regularly, or require a long wait. These actions can result in significant adverse health effects.

1915.88(a)(1) requires that sanitation facilities be adequate and readily accessible. Employers must provide sanitation facilities that meet both requirements in order to be considered in compliance with this paragraph.

Adequate sanitation facilities. 1915.88 specifies the general requirement regarding the minimum number of facilities that employers must provide (for example, 1 toilet for every 15 employees per sex, 1 shower for every 10 employees per sex, and handwashing facilities at each toilet facility). This requirement was included for several reasons:

1. Employers will be in compliance with the requirement to provide sanitation facilities only if they provide facilities that are adequate for the number of employees in the workplace.
2. Sanitation facilities include supplies for those facilities, such as toilet paper, towels, soap, and waterless cleaning agents. This reinforces the requirement that supplies for sanitation facilities also must be adequate.

3. Sanitation facilities must be clean and well maintained to be considered adequate for the use of workers.

Readily accessible. Ready access to sanitation facilities helps to protect employee health and reduce the risk of adverse health effects by increasing the likelihood that workers will use the facilities. For example, a lack of ready access to drinking water can result in dehydration, which can be fatal, especially in hot and humid working conditions. For sanitation facilities to be considered “readily accessible,” employees must be able to reach the facilities quickly without facing obstacles. Ready accessibility depends on the type of sanitation facility, the sizes and locations of worksites, and the physical characteristics of the shipyard. In small shipyards, sanitation facilities may be readily accessible if they are located in one area. However, in cases where worksites are large and spread out, sanitation facilities (for example, toilets, handwashing facilities, drinking water) located in only one location likely would not be considered readily accessible. Sanitation facilities also must be readily accessible to employees who work on vessels, as well as land-side. When employees work on small vessels, sanitation facilities may be readily accessible if they are located dockside. However, when employees work on a large vessel, they may not be able to get to facilities quickly enough if such facilities are located only on the dock. Sanitation facilities may need to be located on deck, or in various places throughout the vessel, to ensure that employees have ready access when they need to use them. When the ship’s toilet and handwashing facilities are not available to shipyard employees working on vessels (for example, the ship is being built or systems are turned off during repair), the employer needs to make other arrangements to ensure that such facilities are readily accessible. Determining whether sanitation facilities are readily accessible is also related to how frequently they must be used during a workshift. For example, changing rooms and eating areas that are used only once or twice during a workshift may not need to be as close to the work area. By contrast, drinking water should be located at or in close proximity to the employee’s immediate work area, especially during hot and humid weather. Employees who perform heavy manual labor, work with heat-producing equipment, or must spend time in spaces that are not well ventilated or air conditioned need to have enough drinking water close at hand to prevent dehydration. This performance-based approach will enable employers, who are in the best position to assess the needs of their particular worksites, to determine where to install sanitation facilities so that they are readily accessible. Thus, this provision does not specify a minimum time or distance to sanitation facilities.

1915.88(a)(2) requires that employers supply and maintain sanitation facilities at the worksite in a clean, sanitary, and serviceable condition. “Serviceable condition” is defined in 1915.80 as the state or ability of a device to operate as prescribed by the manufacturer. Obviously, toilets that do not flush, water faucets that do not turn on, and water fountains that do not dispense a suitable stream for drinking are examples of facilities that are not in a “serviceable condition.” 1915.88(a)(2) also requires employers to establish and implement a schedule for servicing, cleaning, and supplying each facility to ensure that it is maintained in a clean, sanitary, and serviceable condition. Sanitation facilities, especially toilet facilities, will become unsanitary if cleanings are spaced too far apart. Thus, employers need to ensure that they establish cleaning schedules sufficient to provide employees with clean and sanitary facilities. This requirement may mean adjusting schedules to add cleaning if the sanitation facility receives an increased level of usage. This non-prescriptive approach that permits each employer to determine the necessary cleaning schedule is entirely appropriate, given that employers are in the best position to know how often and to what degree their sanitation facilities are used and, thus, how often they need to be cleaned, whether by in-house staff or an outside janitorial service.

1915.88(b) – Potable water – requires that employers provide adequate potable water from sanitary dispensers at all worksites.

1915.88(b)(1) requires that employers provide potable water for all employee health and personal needs. In addition, the employer must ensure that only potable water is used for these purposes.

1915.88(b)(2) requires the employer to provide an adequate amount of potable water for all employees’ health and personal needs.

1915.88(b)(3) requires that employers dispense drinking water from a fountain, a covered container with single-use drinking cups stored in a sanitary receptacle, or single-use bottles. Further, the employer must not permit the use of shared drinking cups, dippers, or water bottles. Some employers provide bottled water in single-use size for employees who work in mobile crews or in areas where it is not possible to install water fountains, such as on vessels and vessel sections. Provided that bottles of water are not shared among employees, this method of dispensing water is at least as effective in preventing contamination as dispensing water from water fountains or covered containers. While water should be “suitably cool” for health and palatability reasons, there is not a specific requirement.

1915.88(c) – Non-potable water – allows employers to use non-potable water for certain functions that include firefighting and cleaning.

1915.88(c)(1) permits employers to use non-potable water for purposes such as firefighting and cleaning outdoor premises, so long as it does not contain chemicals, fecal matter, coliform, or other substances at levels that may create a hazard for employees.

NOTE: Contaminants may be found in water pumped from rivers and lakes and the use of PPE, in accordance with 29 CFR Part 1915 Subpart I, *Personal Protective Equipment*, would be a good safety and health practice that employers should adopt when working with non-potable water. Employees who use non-potable water may already be utilizing PPE. During firefighting activities, for example, firefighting gear offers protection from both heat and exposure to potentially hazardous substances in non-potable water used to extinguish fires. However, while the use of PPE may protect the employees using the non-potable water, there is no guarantee that other affected employees will be protected as well. Should water particles become airborne, such as during a fire response, or if there is residue from contaminated water used to clean a surface where employees will be working, the potential still exists for those employees to be exposed to a hazardous substance present in the non-potable water.

1915.88(c)(2) requires that the employer clearly mark non-potable water supplies and outlets as “not safe for health or personal use” to clearly indicate that the water is unsafe and is not to be used for drinking, cooking, or washing. This requirement is similar to some State and local laws that require the labeling of non-potable water. Marking non-potable water supplies and outlets as “not safe for health or personal use” is necessary to protect workers from inadvertent ingestion of or exposure to contaminants in non-potable water.

1915.88(d) – Toilets – requires that sewer and/or portable toilets be provided. These provisions were adopted from requirements in 1910.141(c)(1)(i) and (c)(1)(ii). A “**sewered toilet**” is defined as a fixture that is connected to a sanitary sewer, septic tank, holding tank, or on-site sewage disposal treatment facility, and that is flushed with water, while a “**portable toilet**” is a non-sewered portable facility that may be either flushable or non-flushable. The toilet requirements are separated into four paragraphs:

- **1915.88(d)(1)** includes the general requirements that will be applicable to both sewer and portable toilets.
- **1915.88(d)(2)** includes the requirements for the number of toilets.
- **1915.88(d)(3)** covers the requirements for portable toilets.
- **1915.88(d)(4)** includes an exception to provide toilets at normally unattended worksites.

1915.88(d)(1)(i) requires the employer to ensure that both sewer and portable toilets provide privacy at all times. When a toilet facility contains more than one toilet, each toilet shall occupy a separate compartment with a door and either walls or partitions that are high enough to ensure privacy.

1915.88(d)(1)(ii) requires that the toilets be separate for each sex, except as provided in (d)(1)(ii)(B).

1915.88(d)(1)(ii)(A) specifies that the number of toilets provided for each sex is based on the maximum number of employees of that sex present at the worksite at any one time during a workshift. A single-occupancy toilet room is counted as one toilet regardless of the number of toilets it contains.

1915.88(d)(1)(ii)(B) specifies that an employer does not have to provide separate toilets facilities for each sex if they will not be occupied by more than one employee at a time, can be locked from the inside, and contain at least one toilet.

1915.88(d)(1)(iii) requires each employer to set up and carry out a cleaning schedule to meet employees' health needs. Portable toilets that are not properly serviced can become unsanitary and foul, thereby exposing employees to contaminants or causing them to avoid using the facilities.

1915.88(d)(2) includes the requirements for the number of toilets and specifies, in Table F-2, the minimum number of toilets for each sex and allows for urinals to reduce the number of required toilets in men's facilities (See note to Table F-2). State and local plumbing codes may differ from OSHA requirements. If those codes are more stringent than OSHA's regulations, employers may have a duty to comply with the more stringent requirements. However, where State or local codes are silent on the issue of toilet ratios, or where these codes are less stringent than OSHA's 1:15 ratio, employers must comply with OSHA's requirements. Thus, employers will be required to follow Table F-2 in Subpart F to ensure that the minimum number of toilets is provided for employees. For men only, urinals may be provided instead of toilets; however, the number of toilets may not be reduced to less than two-thirds of the minimum required. Sewered toilets that are already installed, such as in facilities and shops, must be maintained as long as the worksite is still in operation. It is not the purpose of this provision to allow the employer to provide only portable toilets. In addition, shipyard employers should periodically reevaluate the number of employees using sewered toilets to determine if the number of toilets needs to be adjusted. For example, if employees on their way to a pier walk through a shop that has sewered toilets and use those facilities, the employer must accommodate any increased use of those toilets.

1915.88(d)(3) addresses the requirements for portable toilets and permits employers to provide portable toilets in addition to the requirements for sewered toilets in Table F-2.

1915.88(d)(3)(i) requires that anytime the employer demonstrates that it is infeasible to install sewered toilets, or when there is a temporary increase in the number of employees for a short duration, the employer provide portable toilets to meet the minimum number of required toilets listed in Table F-2 of this section. Such situations might arise when work is being performed at piers, on ships, in dry docks, or at remote work areas. Other circumstances might include when employers have an influx of temporary employees, where temporary employees are those employed for a limited time, or for a particular piece of work, usually of short duration. Allowing the use of portable toilets when an employer demonstrates that it is infeasible to install sewered toilets in shipyard employment will enhance employee health and well-being because these sanitation facilities will be more accessible and, thus, more likely to be used. This is particularly important in work areas on vessels, where a significant portion of shipyard employees work and where sewered facilities for workers may not be practicable.

1915.88(d)(3)(ii) requires that employers ensure that each portable toilet is vented and equipped, as necessary, with lighting. Lighting would be necessary during workshifts occurring at night, or in areas where there is not sufficient lighting. While the standard does not require exhaust fans in portable toilets, some venting (e.g., ceiling louvers and stovepipe vents) is necessary for employee comfort, health, and well-being.

1915.88(d)(4) provides an exemption for normally unattended worksites and mobile work crews. Employers are not required to provide toilet facilities at normally unattended worksites or for mobile work crews, as long as immediately available transportation to readily accessible sanitation facilities is provided. OSHA interprets the term "mobile crew" to be limited to employees who continually or frequently move from jobsite to jobsite on a daily or hourly basis, and to exclude employees who report to a single worksite for days, weeks, or longer (See OSHA letter of interpretation to [Nicolas Mertz, June 7, 2002](#)). For purposes of this exception, "immediately available transportation" means that the vehicle is already at the specific worksite or can be summoned quickly enough so employees are able to get to facilities quickly. Nearby toilets must be clean, sanitary, and in a serviceable condition, and adequate for the number of employees who need to use them. This exception is also extended to handwashing

facilities, which must be equipped with waterless cleaning agents or soap, water (hot and cold, or lukewarm), and hand towels or air blowers.

1915.88(e)(1) – Handwashing facilities – requires that handwashing facilities be located at or adjacent to each toilet facility, sewer and portable toilets alike. This provision is necessary to ensure that employees' health needs are met in those worksites with portable toilets. Some portable toilets are not equipped with handwashing facilities, and separate or stand-alone facilities are not always placed next to or close to portable toilets, particularly on vessels and vessel sections. Often, employees must go to land-side facilities, which may be located a significant distance from the work area, to clean their hands. As a result, employees may not be able to clean their hands when they are exposed to contaminants, after using a portable toilet, or before eating, drinking, or smoking, which puts them at risk of adverse health effects. In cases where piped water is not available, waterless cleaning agents are acceptable.

1915.88(e)(2)(i) requires employers to equip handwashing facilities with (1) soap and either hot and cold or lukewarm running water; or (2) waterless cleaning agents that can disinfect the skin or neutralize contaminants.

1915.88(e)(2)(ii) requires that if the handwashing facility is equipped with soap and water, the employer must provide clean, single-use hand towels. These towels must be stored in a sanitary container, and the employer must provide a sanitary means for disposing of them. Alternatively, the employer may supply clean individual sections of continuous cloth toweling or an air blower.

1915.88(e)(3) requires employers to inform each employee who is engaged in the application of paints or coatings, or in other operations in which hazardous or toxic substances can be ingested or absorbed, about the need for removing surface contaminants from their skin by thoroughly washing their hands and face at the end of the workshift and prior to eating, drinking, or smoking.

1915.88(f) – Showers – covers requirements for when the use of showers by employees is necessary. The requirements in this paragraph are identical to the general industry standard found at 29 CFR 1910.141(d)(3).

1915.88(f)(1) specifies that when showers are required by an OSHA standard, the employer must provide one shower for each 10, or fraction of 10, employees of each sex who are required to shower during the same workshift.

1915.88(f)(2) requires the employer to ensure that each shower is equipped with soap, hot and cold water, and clean towels for each employee using the shower.

1915.88(g) – Changing rooms – sets forth the requirements for changing rooms. When an employer provides protective clothing to employees to prevent exposure to hazardous or toxic substances, the employer must provide:

- A changing room that offers privacy for each sex (1915.88(g)(1)), and
- Storage facilities for street clothes, as well as separate storage facilities for protective clothes (1915.88(g)(2)).

1915.88(h) – Eating, drinking, and break areas – prohibits food, beverages, and tobacco products from being consumed or stored in any area where hazardous or toxic substances may be present. OSHA defines "hazardous substances" to mean a substance that may cause injury, illness, or disease, or otherwise harm an employee by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful. It is not the intent to prohibit employees from eating, drinking, or smoking in areas where unopened cans or containers of hazardous substances are present. However, employees should not be eating, drinking, or smoking in areas where they could consume, inhale, or otherwise ingest hazardous substances.

1915.88(i) – Waste disposal – addresses waste disposal, including the construction of receptacles, the number of required receptacles, and employees working around uncovered garbage.

1915.88(i)(1)(i) requires that the employer provide waste receptacles that are corrosion resistant, leak-proof, and easily cleaned or disposable.

1915.88(i)(1)(ii) requires employers to provide waste receptacles fitted with a solid, tight-fitting cover.

1915.88(i)(1)(iii) requires employers to provide waste receptacles throughout the worksite in numbers, sizes, and locations that promote their use.

1915.88(i)(1)(iv) requires employers to ensure that waste receptacles are emptied often enough to prevent overflowing, and in a manner that does not create a hazard for employees, with waste receptacles for food emptied at least daily unless the receptacles have not been used. Multi-employer worksites engaged in shipyard employment can vary widely in the categories of employers that may be present and the factors that may affect the responsibilities of various employers (such as whether contract provisions establish control over specific safety and health issues at the worksite). OSHA's Multi-Employer Citation Policy ([CPL 2-0.124](#)) directive includes examples and scenarios of various common workplace situations to help employers understand their multi-employer worksite responsibilities. These examples provide useful guidance for determining who is responsible for garbage cans on vessels in specific situations and specific multi-employer worksites.

1915.88(i)(2) requires employers to ensure that employees do not work in the immediate vicinity of uncovered garbage that could endanger their safety and health. This provision requires that when uncovered waste could endanger employees' safety and health, they should not work in the vicinity of the waste. If there is no dangerous substance in the receptacle, employees can work near the waste.

1915.88(i)(3) requires employers to ensure that employees working beneath or on the outboard side of a vessel are not contaminated by drainage or waste from overboard discharges. This provision protects employees working in dry docks, or on piers or decks, from overhead discharges.

1915.88(j) – Vermin control – OSHA revised the application of the general industry requirement, 1910.141(a)(5), on vermin control to make the provision more appropriate to shipyard employment.

1915.88(j)(1) requires the employer, to the extent reasonably practicably, to clean and maintain the workplace in a manner that prevents vermin infestation. This application is necessary to control vermin throughout the shipyard. Thus, to comply with this requirement, employers need to expand their vermin control efforts to include outdoor worksites. "Vermin" is defined in 1915.80 as "insects, birds, and other animals, such as rodents and feral cats, that may create safety and health hazards for employees." While many types of animals may be found on shipyard property, the concern is with animals that pose safety and health hazards. Employees working at outdoor worksites, as well as in enclosed spaces, need to be protected from the hazards associated with exposure to vermin. For example, employees working near water are at risk of disease from mosquito populations that are not adequately controlled. In addition, birds and rodents can transmit disease directly, as well as through their feces. Similar concerns are present when feral cats are present at a worksite; however, there have been very few cases documented, as these animals generally avoid human contact. It is recognized that it is not possible to prevent all vermin, especially birds and insects, from entering outdoor worksites. Therefore, the provision retains the existing requirement that employers take only those steps that are "reasonably practicable" to prevent vermin infestation.

1915.88(j)(2) requires the employer, where vermin are detected, to implement and maintain an effective vermin-control program. Such programs are necessary to protect workers from the health and safety hazards associated with uncontrolled vermin.

By these 1915.88(j) requirements, it is not the Agency's intent that employers eradicate types of vermin or use inhumane methods for removal. OSHA only requires that employers take steps that keep their workplace maintained in clean conditions to prevent the infestation of vermin. Further, should an infestation occur, employers need to implement a control program (i.e., relocation by a professional, or removal of the source of attraction).

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

See [Appendix D](#) of this instruction.

1915.90 – Safety color code for marking physical hazards

This section incorporates by reference 29 CFR 1910.144, the general industry standard on safety color-coding for marking physical hazards. The provisions of 1910.144 apply to shipyard employment both on shore and on vessels. Whenever the potential exists for employees to be exposed to a physical hazard employers are required to color code all physical hazards on shore and on vessels undergoing repair and maintenance. The standard gives employers flexibility in determining what methods or material they use to color code physical hazards. For example, employers would be free to color code hazards using tape, paint, ties, or other similar methods.

1915.91 – Accident prevention signs and tags

This section incorporates by reference the general industry standard on accident prevention signs and tags, 29 CFR 1910.145, which addresses the classification, design, and wording of accident prevention signs and tags. The provisions addressing accident prevention signs apply to shipyard employment on vessels and on shore (1910.145(a) through (e)). The general industry provisions also require that accident prevention tags be used when employees are exposed to potentially hazardous conditions, equipment, or operations that are “out of the ordinary, unexpected or not readily apparent” (1910.145(f)). Tags are required to be uniform for message, legibility, positioning/affixing, and comprehensibility. Shipyard employers are responsible for posting accident prevention signs and tags to identify hazards aboard vessels on which their employees perform repair or maintenance work. This includes the applying of accident prevention signs and tags to protect workers from identified hazards in their work and at the workplace, regardless of who owns the vessel on which they may be working. Therefore, whenever there is a potential for employees to be exposed to a hazard, either on a vessel or shoreside, the shipyard employer must post accident prevention signs and tags to prevent potential injury, illness, or fatality. The requirements for accident prevention tags provides needed protection since shipyard employment did not previously have comprehensive, uniform requirements for the application and use of such accident prevention signs and tags.

1915.92 Retention of DOT markings, placards, and labels

1915.92 retains, with minor changes, the previous provisions in 1915.100 on the retention of DOT markings, placards, and labels on hazardous materials the shipyard receives.

1915.92(a) and 1915.92(b) require that employers not remove labels and markings on any hazardous materials or freight containers, rail freight cars, motor vehicles, or transportation vehicles that the U.S. Department of Transportation regulations require to be marked, until the hazardous materials are removed, and that employers clean any residue and purge any vapors to prevent potential hazards. These requirements apply regardless of how the shipyard receives the hazardous material packages (for example, single packages, in bulk).

1915.92(c) requires that the markings, placards, and labels on the hazardous materials be maintained so that they are “readily visible.”

1915.92(d) provides that employers are considered in compliance with this section if the markings or labels on non-bulk packages that will not be reshipped are affixed in accordance with the *Hazard Communication* standard, 1910.1200.

1915.92(e) specifies that the definition of “hazardous materials” and other undefined terms have the same definition as the U.S. Department of Transportation Hazardous Materials Regulations (49 CFR parts 171 through 180).

1915.93 – Vehicle safety equipment, operation, and maintenance

This section addresses the hazards associated with the use of motor vehicles at worksites engaged in shipyard employment by setting forth requirements for motor vehicle safety equipment, and for the safe

operation and maintenance of motor vehicles. The term “motor vehicle” means any motor-driven vehicle operated by an employee that is used to transport employees, materials, or property. The definition of “motor vehicles” includes passenger cars, light trucks, vans, motorcycles, all-terrain vehicles, powered industrial trucks, small utility vehicles (Mules™) and other similar vehicles.

1915.93(a)(1) defines the scope to include any motor vehicle used to transport employees, materials, or property at worksites engaged in shipyard employment. The requirements in this section do not apply to the operation of motor vehicles on public streets and highways. Federal, State, and local laws and regulations, such as safety belt and vehicle inspection laws, already provide adequate protection on public roads. Thus, this section is directed to conditions where those laws and regulations may not apply to motor vehicles used in shipyard employment (for example, on shipyard property when transporting employees between work areas or worksites, or when moving materials or property).

1915.93(a)(2) limits most of the requirements of this section to motor vehicles the employer provides. However, because some employers allow employees to use their own motor vehicles to transport themselves, other employees, and materials within the shipyard, 1915.93(a)(2) extends coverage to employee-owned vehicles as well. It is required that:

- 1915.93(b)(2) – each worker riding in a motor vehicle use safety belts,
- 1915.93(b)(4) – motor vehicles have seats for each employee being transported, and
- 1915.93(c)(2) – tools and materials transported by motor vehicles be firmly secured.

These safety provisions are necessary to protect workers using or riding in motor vehicles during shipyard employment. The requirements ensure that employers are providing their workers with safe and serviceable motor vehicles. In addition, this section enhances the safety of workers using their own vehicles on the job by requiring employers to ensure safe driving practices while those employees are on shipyard property.

1915.93(a)(3) specifies that the motor vehicle safety equipment requirements in 1915.93(b)(1) through (b)(3) apply to the operation of powered industrial trucks (PITs) (such as forklifts) in shipyards. 1915.93(a)(3) also makes clear that employers must continue to comply with the maintenance, inspection, operation, and training requirements for PITs in 1910.178.

Specific to PITs

1915.93(b)(1) requires employers to ensure that PITs used in shipyard employment be equipped with safety belts.

1915.93(b)(2) requires employers to ensure that employees use safety belts while operating powered industrial trucks; however, the seating requirements do not apply to PITs that are manufactured to be operated in a standing position and are not equipped with seats.

1915.93(b)(3) requires employers to ensure that safety equipment is not removed from PITs. In addition, employers must replace safety equipment that is removed from any PIT.

NOTE: The OSHA *Powered industrial truck* standard was drawn from the ANSI standard on low-lift and high-lift trucks in effect at the time (ANSI B56.1-1969). The 1969 ANSI standard did not have a safety belt requirement, but when the ANSI standard was revised in 1993, provisions were added to it requiring that powered industrial trucks manufactured after 1992 be equipped with safety belts, and also requiring that operators use them. The current ANSI/ASME standard has the same requirements.

1915.93(b) – Motor vehicle safety equipment – requires employers to ensure that motor vehicles used in shipyard employment are equipped with motor vehicle safety equipment and that the safety equipment is used while motor vehicles are operated.

1915.93(b)(1) requires employers to ensure that each motor vehicle acquired or put into service for the first time by the employer, is equipped with a safety belt for each employee operating or riding in the vehicle. For those motor vehicles already in service prior to August 2011, that were not originally manufactured with seatbelts (such as buses), employers are relieved of the burden of retrofitting those

motor vehicles. However, if safety belts have been removed from any motor vehicle manufactured with them, the employer must replace the safety belts or remove the motor vehicle from service.

1915.93(b)(2) requires the employer to ensure that employees use safety belts at all times while operating or riding in a motor vehicle. This requirement applies to all motor vehicles used at shipyards, including powered industrial trucks and motor vehicles that workers provide. Forklift trucks, for example, are particularly susceptible to tip overs if they are operated on uneven ground, sand, or railways; hit potholes; turn corners sharply; or strike objects with their mast. These conditions are often found in shipyards. In contrast, in many cases when forklift operators were wearing safety belts, the injuries were limited. 1915.93(b)(2) also requires the employer to ensure that employees wear safety belts securely and tightly fastened at all times while operating or riding in motor vehicles. This language was necessary because, if the safety belt is not properly fastened, it may not hold or restrain the employee within the motor vehicle compartment in the event of an accident or tipover.

1915.93(b)(3) requires employers to ensure that motor vehicle safety equipment is not removed from employer-provided vehicles and, if such equipment is removed, the employer must replace it. Motor vehicle safety equipment is defined in 1915.80(b) to include items such as safety belts, airbags, headlights, tail lights, emergency/hazard lights, windshield wipers, defogging or defrosting devices, brakes, mirrors, horns, windshields and other windows, and locks. This provision must be read in conjunction with 1915.93(c)(1), discussed below, which requires that employers equip motor vehicles with safety equipment that is in a serviceable and safe operating condition.

1915.93(b)(4) requires that motor vehicles used to transport employees have a firmly secured seat for each employee being transported. It also requires the employer to ensure that employees use the seat when they are being transported. Some shipyards transport employees from one worksite to another in the back of pickup trucks that are not equipped with seats. Ensuring that employers use motor vehicles equipped with safe seating to transport workers in shipyards will protect employees from possible injury or death. Portable seating that is not firmly attached to the motor vehicle is not permitted as a means to comply with this provision.

1915.93(c) – Motor vehicle maintenance and operation – covers requirements for the maintenance and operation of motor vehicles used in shipyard employment.

1915.93(c)(1) requires employers to ensure that each vehicle is maintained in a “serviceable and safe operating condition.” Safe operating condition refers to the condition of equipment that directly affects the safe operation of the vehicle. For example safety belts, airbags, headlights, tail lights, emergency/hazard lights, windshield wipers, defogging or defrosting devices, brakes, mirrors, horns, windshields and other windows, and locks must be in safe working order. “Serviceable condition” is defined as the state or ability of a vehicle to operate as prescribed by the manufacturer. Accordingly, motor vehicles maintained and operated in accordance with manufacturers’ instructions and recommendations are considered to be in compliance with this provision. Also, this paragraph requires that motor vehicles be removed from service if they are not in a serviceable and safe operating condition. The motor vehicle may not be used for shipyard employment until the problem is resolved or the damage repaired. Properly functioning and maintained safety equipment in motor vehicles is essential to protect all workers. A vehicle that is not maintained in a serviceable and safe operating condition presents a danger to operators, passengers, bicyclists, pedestrians, and other vehicles.

1915.93(c)(2) requires that tools or equipment being transported in a motor vehicle, whether employer- or employee-provided, must be secured to prevent unsafe movement of the tools or equipment that could endanger employees. This provision will help to reduce the risk of injury due to heavy or sharp tools or equipment sliding into or hitting operators or passengers. It will also prevent tools and materials from falling or being thrown from a motor vehicle and striking nearby workers.

1915.93(c)(3) addresses the hazards associated with intermingling pedestrian, bicycle, and motor vehicle traffic in shipyard employment. When pedestrians, bicyclists, and motor vehicles share shipyard roadways, collisions may occur if motor vehicle operators do not see pedestrians or bicyclists in time to

avoid hitting them. Depending on the size and configuration of the shipyard employment work areas or worksites, there may be a significant mixture of motor vehicle, bicycle, and pedestrian traffic. Narrow or unmarked roads between work areas and worksites are likely to increase the risk of collision. With the intermingling of traffic in shipyards, it is important to ensure that employees riding bicycles and walking can be seen by motor vehicle operators so they will not be injured or killed. Employers must implement safety measures to ensure that motor vehicle operators are able to see, and avoid harming, pedestrians and bicyclists at shipyards. Some of these measures include:

1915.93(c)(3)(i), establishment of dedicated travel lanes for motor vehicles, bicyclists, and pedestrians;

1915.93(c)(3)(ii), installation of crosswalks and traffic control devices such as stop signs, mirrors at blind intersections, or physical barriers to separate travel lanes;

1915.93(c)(3)(iii), establishment of speed limits for all motor vehicles;

1915.93(c)(3)(iv), establishment of “no drive” times to allow for safe movement of pedestrians;

1915.93(c)(3)(v), providing reflective vests or other gear so pedestrians and bicyclists are clearly visible to motor vehicle operators;

1915.93(c)(3)(vi), ensuring that bicycles have reflectors, lights, or other equipment to maximize visibility of the bicyclist; and

1915.93(c)(3)(vii), other measures that the employer can demonstrate are as effective in protecting employees as those measures specified in 1915.93(c)(3)(i) through (vi).

The safety measures listed here are not an exhaustive list, but rather examples in support of a performance-based approach. Whether employers elect to use reflective vests or other apparel, they must ensure that motor vehicle operators are able to see and avoid pedestrians and bicyclists. This performance-based approach also means that employers may need to implement more than one type of safety measure to ensure that the required performance is met.

1915.94 – Servicing multi-piece and single-piece rim wheels

1915.94 incorporates the general industry standard and non-mandatory appendices on servicing multi-piece and single-piece rim wheels provided by 29 CFR 1910.177. The standard applies to servicing multi-piece and single-piece rim wheels on large vehicles such as trucks, tractors, trailers, buses, and off-road machines, all of which are used in shipyard employment. The standard does not apply to servicing rim wheels on automobiles, or on pick-up trucks or vans using either automobile or “LT” (light truck) tires (1910.177(a)(1)). The standard establishes requirements for the following four major areas:

- Training for all tire-servicing employees (1910.177(c));
- The use of proper equipment such as clip-on chucks, restraining devices, or barriers to retain the wheel components in the event of an incident during the inflation of tires (1910.177(d));
- The use of compatible components (1910.177(e)); and
- The use of safe operating procedures for servicing multi-piece and single-piece rim wheels (1910.177(f) and (g)).

NOTE: The 1910.177 general industry standard previously exempted shipyard employment. 1910.177 was amended to remove the shipyard employment exemption. Workers servicing multi-piece and single-piece rim wheels at shipyard facilities are now provided with the safety protections of the 1910.177 standard.