DEPARTMENT OF HOMELAND SECURITY

Coast Guard

46 CFR Parts 110, 111, 112, and 113

[Docket No. USCG–2020–0075]

RIN 1625–AC66

Update to Electrical Engineering Regulations

AGENCY: Coast Guard, DHS.

ACTION: Notice of proposed rulemaking.

SUMMARY: The Coast Guard proposes to update electrical engineering standards that are incorporated by reference and add acceptable alternative standards. This proposed rule would also eliminate several outdated or unnecessarily prescriptive electrical engineering regulations. This proposed regulatory action would be consistent with the standards currently used by industry and support the Coast Guard's maritime safety mission.

DATES: Comments and related material must be received by the Coast Guard on or before July 21, 2021.

ADDRESSES: You may submit comments identified by docket number USCG–2020–0075 using the Federal eRulemaking Portal at *https://www.regulations.gov.* See the ''Public Participation and Request for Comments'' portion of the **SUPPLEMENTARY INFORMATION** section for further instructions on submitting comments.

Viewing material proposed for incorporation by reference. Material incorporated by reference is available from the publishers identified in the proposed text of 46 CFR 110.10–1, including in this document. Alternatively, you may make arrangements to view this material by calling the person identified in the **FOR FURTHER INFORMATION CONTACT** section of this document.

FOR FURTHER INFORMATION CONTACT: For information about this document call or email Raymond Martin, Systems Engineering Division, Coast Guard; telephone 202–372–1384, email *Raymond.W.Martin@uscg.mil.*

SUPPLEMENTARY INFORMATION:

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I. Public Participation and Request for Comments

The Coast Guard views public participation as essential to effective rulemaking, and will consider all comments and material received during the comment period. Your comment can help shape the outcome of this proposed rulemaking. If you submit a comment, please include the docket number for this proposed rulemaking, indicate the specific section of this document to which each comment applies, and provide a reason for each suggestion or recommendation. Where possible, please provide any available data to support the reason for each suggestion or recommendation.

We encourage you to submit comments through the Federal eRulemaking Portal at *https://www.regulations.gov.* If your material cannot be submitted using *https://www.regulations.gov,* contact the person in the **FOR FURTHER INFORMATION CONTACT** section of this proposed rule for alternate instructions. Documents mentioned in this proposed rule, and all public comments, will be available in our online docket at *https://www.regulations.gov,* and can be viewed by following that website's instructions. Additionally, if you go to the online docket and sign up for email alerts, you will be notified when comments are posted or if a final rule is published.

We accept anonymous comments. All comments received will be posted without change to *https://www.regulations.gov* and will include any personal information you have provided. For more about privacy and submissions in response to this document, see DHS's eRulemaking System of Records notice (85 FR 14226, March 11, 2020).

We do not plan to hold a public meeting, but will consider doing so if our evaluation of public comments indicates that a meeting would be helpful. We would issue a separate **Federal Register** notice to announce the date, time, and location of such a meeting.

II. Abbreviations

ABS American Bureau of Shipping
AC Alternating current
ANSI American National Standards Institute
API American Petroleum Institute
ASME American Society of Mechanical Engineers
ASTM ASTM International
BLS Bureau of Labor Statistics
CAN Canadian National Standard
CFR Code of Federal Regulations
CSA Canadian Standards Association
DC Direct current
DHS Department of Homeland Security
EMC Electromagnetic compatibility
Ex Designation of explosion-protected electrical apparatus complying with IEC standards
FR Federal Register
HVSC High voltage shore connection
IBR Incorporated by Reference
IEC International Electrotechnical Commission
IECEx System IEC System for Certification to Standards relating to Equipment for use in Explosive Atmospheres
IEEE Institute of Electrical and Electronics Engineers
IMO International Maritime Organization
ISA International Society of Automation
ISO International Organization of Standardization
kV Kilovolt
kW Kilowatt
LED Light-emitting diode
MSC Marine Safety Center
MODU Mobile Offshore Drilling Unit
MOU Marine Offshore Unit
NAVSEA Naval Sea Systems Command
NEMA National Electrical Manufacturers Association
NFPA National Fire Protection Association
NPRM Notice of Proposed Rulemaking
NVIC Navigation and Vessel Inspection Circular
OCS Outer Continental Shelf
OMB Office of Management and Budget
OSV Offshore Supply Vessel
§ Section
SOLAS International Convention for Safety of Life at Sea, 1974
U.S.C. United States Code
V Volts

III. Executive Summary

When writing regulations that set technical standards, the Coast Guard relies as much as possible on existing industry consensus standards. Doing so minimizes proliferation of differing standards and complies with the National Technology Transfer and Advancement Act and OMB Circular A–119. The legal method of directing

regulated entities to follow separately published standards is called incorporation by reference (IBR). This notice of proposed rulemaking (NPRM) proposes to update prior incorporations by reference, add a limited number of alternative standards, and eliminate outdated or unnecessarily prescriptive regulations in title 46 of the Code of Federal Regulations (CFR) subchapter J.

This proposed rule would update the standards incorporated by reference (IBR) in both 46 CFR 110.10–1 and all of the sections in subchapter J that reference the updated IBR standards. More specifically, this proposed rule would incorporate the more recent editions of many standards, incorporate by reference additional standards for certain topics, and remove IBR standards that are no longer actively used by industry. Due to technological advances, it is necessary to update the current standards to ensure modern technologies are addressed in the regulations. In addition to updating the IBR standards, we propose the following four changes to subchapter J.

First, this proposed rule would eliminate the prescriptive requirements in 46 CFR 111.12–1(b) and (c) for generator prime movers. In accordance with 46 CFR 58.01–5, these generator prime movers would continue to be required to meet standards of the American Bureau of Shipping (ABS) Steel Vessel Rules.

Second, this proposed rule would simplify the electrical cable construction requirements in subpart 111.60 so they are similar to the classification society requirements currently accepted without supplement under the Coast Guard's Alternate Compliance Program.

Third, for classifications of hazardous locations in subpart 111.105, this proposed rule would accept the International Electrotechnical Commission's (IEC) 60092–502 as an alternative classification. This is an internationally accepted standard and we are not aware of any notable casualty history attributed to its use as compared to vessels complying with the current applicable U.S. regulations for classification of hazardous locations.

Fourth, this proposed rule would amend 46 CFR 112.05 to allow the use of an emergency generator in port. This optional capability to use emergency generators in port would be acceptable if a set of additional safeguards, approved by the International Maritime Organization (IMO) in 2005 are provided to ensure the availability of emergency power.

The following table provides an overview of the types of proposed changes and the affected sections.

TABLE 1—TITLE 46 CFR SECTIONS AFFECTED BY THE PROPOSED RULE

Category	Proposed changes	Affected title 46 CFR sections
Incorporated by Reference (IBR) Standards.	Editorial	§§ 110.15–1, 111.01–15, 111.05–9, 111.12–3, 111.12–5, 111.12–7, 111.20–15, 111.30–1, 111.30–5, 111.30–19, 111.33–3, 111.33–5, 111.33–11, 111.35–1, 111.40–1, 111.50–3, 111.50–5, 111.50–7, 111.50–9, 111.60–1, 111.60–2, 111.60–3, 111.60–6, 111.60–11, 111.60–13, 111.60–19, 111.60–21, 111.70–1, , 111.75–17, 111.75–20, 111.99–5, 111.105–7, 111.105–9, 111.105–11, 111.105–17, 111.105–19, 111.105–31, 111.105–35, 111.105–40, 111.105–41, 111.105–45, 111.106–3, 111.106–5, 111.106–7, 111.106–13, 111.106–15, 111.107–1, 111.108–1, 111.108–3, 112.50–1, 113.10–7, 113.20–1, 113.25–1, 113.30–25, 113.30–25, 113.30–25, 113.37–10, 113.40–10, 113.65–5.
	Updating to latest edition with changes in technical content.	§§ 110.15–1, 111.12–1, 111.12–7, 111.15–2, 111.51–5, 111.54–1, 111.55–1, 111.59–1, 111.60–5, 111.60–7, 111.60–11, 111.60–13, 111.60–23, 111.70–1, 1111.70–3, 111.75–18, 111.81–1, 111.105–7, 111.105–11, 111.105–33, 111.105–37, 111.105–39, 111.106–3, 111.107–1, 111.108–3, 113.05–7.
	Providing additional options	§§ 110.15–1, 111.01–9, 111.15–10, 111.20–15, 111.30–5, 111.30–19, 111.50–3, 111.53–1, 111.59–1, 111.60–1, 111.60–9, 111.60–13, 111.75–17, 111.75–20, 111.81–1, 111.83–7, 111.87–3, 111.105–7, 111.105–11, 111.105–17, 111.105–28, 111.105–29, 111.105–50, 111.106–3, 111.106–5, 111.108–3, 112.05–7, 113.05–7, 113.10–7, 113.20–1, 113.25–11, 113.30–25, 113.37–10, 113.40–10.
Generator prime mover alarms and shutdowns.	Removing unique Coast Guard requirements.	§ 111.12–1.
Electrical cable requirements	Proposing additional option	§ 111.60–1.
	Removing prescriptive requirements (existing sections).	§§ 111.60–1, 111.60–2, 111.60–3, 111.60–6, 111.105–50.
Classification of hazardous location	Proposing additional options	§§ 111.105–7, 111.105–17, 111.105–28.
	Editorial—Harmonizing requirements between subparts.	§§ 111.105–1, 111.105–3, 111.105–7, 111.105–9, 111.105–11, 111.105–15 (existing), 111.105–17, 111.105–31, 111.106–3, 111.108–3.
Emergency generator	Allowing use in port	§ 112.05–7.
	Revising alarms and shutdowns	§ 112.50–1.
Editorial changes (Other than IBR standards).		§§ 110.15–1, 110.25–1, 110.25–3, 111.05–3, 111.05–37, 111.10–1, 111.10–9, 111.12–11, 111.12–13, 111.15–25, 111.15–30, 111.30–5, 111.30–25, 111.30–27, 111.30–29, 111.33–1, 111.33–3, 111.33–5, 111.33–7, 111.33–9, 111.33–11, 111.50–3, 111.51–1, 111.51–2, 111.51–3, 111.51–6, 111.52, 111.60–7, 111.95–1, 111.99–3, 111.103, 111.105–1, 111.105–3, 111.105–5, 111.105–7, 111.107–1, 111.105–15, 111.105–32, 111.107–1, 112.01–20, 112.05–5, 112.15–1, 112.50–1.

IV. Basis and Purpose

The legal basis of this proposed rulemaking is section 1333(d) of Title 43, United States Code (U.S.C.), sections 3306 and 3703 of Title 46 U.S.C., and the Department of Homeland Security (DHS) Delegation No. 0170.1. The provisions of 43 U.S.C. 1333(d) grant the Secretary of the Department in which the Coast Guard is operating the authority to promulgate and enforce regulations with respect to lights and other warning devices, safety equipment, and other matters relating to the promotion of safety of life and property on artificial islands, installations, and other devices. Section 46 U.S.C. 3306(a)(1) authorizes the Secretary to prescribe regulations for the design, construction, alteration, repair, and operation of vessels subject to inspection, including equipment, appliances, propulsion machinery, auxiliary machinery, boilers, unfired pressure vessels, piping, and electric installations. Additionally, 46 U.S.C. 3703 grants the Secretary authority to regulate the construction, alteration, repair, maintenance, operation, and equipping of vessels, that may be necessary for increased protection against hazards to life and property, for navigation and vessel safety, and for enhanced protection of the marine environment. These authorities have been delegated to the Coast Guard by the DHS Security Delegation No. 0170.1(II)(92)(b).

The purpose of this proposed rulemaking is to update the standards that are incorporated by reference in 46 CFR subchapter J, which provide detailed specifications for electrical equipment used by vessels. Newly published editions of the international standards referenced in subchapter J address new technologies and changes in best practices. The Office of Management and Budget (OMB) Circular A–119 states agencies should undertake a review of the standards incorporated by reference every 3 to 5 years to remain current with technological changes. OMB encourages reducing reliance on unique government standards when an existing voluntary consensus standard would suffice. This proposed rule follows the Circular by incorporating newer editions of industry standards and reducing the reliance on unique Coast Guard standards where industry standards are sufficient.

V. Background

Title 46 CFR subchapter J contains the electrical engineering regulations and standards applicable to vessels and required shipboard systems regulated under subchapters D, H, I, I–A, K, L, O, Q, R, T, U, and W of Title 46. A key component of subchapter J is the standards that are incorporated by reference (IBR) in 46 CFR 110.10–1 and cross-referenced throughout parts 110, 111, 112, and 113. The IBR section in subchapter J was last amended by the 2015 final rule titled ''Electrical Equipment in Hazardous Locations'' (80 FR 16980, Mar. 31, 2015), but because of its limited scope, that rule did not update all of the standards to reflect newer editions. Many of the IBR standards have not been updated since 2008 when the Coast Guard issued the final rule titled ''Review and Update of Standards for Marine Equipment'' (73 FR 65156, Oct. 31, 2008).

Furthermore, the interim rule titled ''Offshore Supply Vessels of at Least 6,000 GT ITC'' (79 FR 48893, Aug. 18, 2014) and the ''Electrical Equipment in Hazardous Locations'' final rule (80 FR 16980, Mar. 31, 2015) amended subchapter J by adding the hazardous location regulations in subparts 111.106 and 111.108 for types of vessels and facilities not covered under subpart 111.105. Vessels and facilities regulated under 111.106 and 111.108 have a broader and more current selection of IBR standards because there were more recent standards to include with those rulemakings. This proposed rule would amend subparts 111.105, 111.106 and 111.108 to ensure all vessel types are offered the broadest and most current selection of IBR explosion protection standards.

Shipboard electrical systems are becoming increasingly complex due to the development of power electronics and computer control systems. In response, many of the standards incorporated by reference have been superseded by newer editions to address the newer electrical equipment. In some cases, the later editions reflect more modern technologies, terminology, and practices that are already in use by industry. Adopting newer versions of these standards would reduce the number of equivalency requests from industry to the Coast Guard, which is expected to produce cost savings. The incorporation of more recent editions also ensures the latest industry practices and advancements in technology are addressed in regulations.

VI. Discussion of Proposed Rule

A. Proposed Revisions to § 110.10–1 Incorporation by Reference

Currently, all of the standards that are incorporated by reference in subchapter J are listed in § 110.10–1. Within this section, the Coast Guard proposes to update the technical standards to reflect the more recent editions of the standards available to the public. We encourage the use of these updated standards because they reflect the best available technologies, practices, and procedures that are recommended by consensus bodies and other groups with experience in the industry. As the baseline upon which other standards, rules, and equivalency requests are evaluated, it is important that subchapter J incorporates up-to-date references.

The class rules of the American Bureau of Shipping (ABS), in particular, are incorporated by reference in multiple locations within subchapter J and throughout 46 CFR Chapter I. It is important to note that while these rules set the regulatory baseline or standard for specific engineering systems and equipment, the Coast Guard also designated several other authorized classification societies in accordance with 46 CFR part 8. These classification societies are listed on the Coast Guard website.[1] The Coast Guard authorized the listed classification societies to perform certain functions and certifications using their respective class rules on vessels enrolled in the Alternate Compliance Program. Vessels not enrolled in the Alternate Compliance Program may propose using the class rules of an authorized classification society as an alternative to the ABS class rules incorporated by reference for particular engineering systems and equipment in accordance with § 110.20–1.

Throughout § 110.10–1, we also propose additional standards to provide alternative compliance options, remove outdated standards, and clarify existing requirements. Where applicable, this proposed rule would also update the naming format, mailing addresses, phone numbers, and URL addresses for the standards already incorporated by reference. These updates will ensure that the standards are reasonably accessible to the public.

Following this paragraph, we list the standards we propose to update, add, or delete in § 110.10–1. Within each standard listed, we describe the topics covered by the standard, the proposed changes to the standard, any differences between currently incorporated IBR standards, and a list of the subparts or sections that reference the IBR standard. If this proposed rule does not propose any changes to a standard that is

[1] *See https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Inspections-Compliance-CG-5PC-/Commercial-Vessel-Compliance/Flag-State-Control-Division/ClassSocAuth/.*

currently incorporated by reference, the standard will not be discussed in the proposed revisions to § 110.10–1. However, it will be included, without change, in the proposed regulatory text that appears at the end of this document.

• *ABS Rules for Building and Classing Marine Vessels (ABS Marine Vessel Rules), 2020.* The ABS is a vessel classification society that develops and publishes rules for the construction and maintenance of ships and offshore facilities. Subchapter J references these rules in numerous sections as an option for the design of certain systems including generators, semiconductor rectifiers, and electric propulsion systems. Specifically, we currently reference the 2003 edition in §§ 110.15–1(b), 111.01–9(b), 111.12–3, 111.12–5, 111.12–7, 111.33–11, 111.35–1, 111.70–1(a), 111.105–31(n), 111.105–39(a), 111.105–40, and 113.05–7(a). In 2020, ABS transitioned from the ABS Steel Vessel Rules to the ABS Marine Vessel Rules. This allowed ABS to consolidate several rules into one foundational rule. We propose to incorporate by reference the 2020 ABS Marine Vessel Rules in the aforementioned sections and additionally in the new proposed § 112.05–7(c) related to use of emergency generators in port. The ABS Marine Vessel Rules undergo an annual review and approval process by ABS technical committees. The Coast Guard participates on these committees, which are comprised of international experts with relevant experience. Several of the sections of the ABS Marine Vessel Rules that we propose to incorporate by reference have been individually updated. For example:

○ ABS Marine Vessel Rules 4–8–3/Table 2: This table specifies minimum degrees of protection for electrical equipment. This updated table contains several technical updates since 2003 edition, including additional notes concerning areas protected by fixed water-spray or water mist fire extinguishing systems, and equipment subject to water splash.

○ ABS Marine Vessel Rules 4–8–3: We reference this section for generator construction requirements. The updated edition contains technical updates to account for changes in technology since the 2003 edition.

○ ABS Marine Vessel Rules 4–8–5/5.17.9: This section regarding semiconductor rectifiers now requires a high temperature alarm.

○ ABS Marine Vessel Rules 4–8–5/5.5: This edition contains updates to propulsion generator requirements.

○ ABS Marine Vessel Rules 4–8–2/9.17: This edition updates the requirements for protection of motor circuits to address athwartship thruster motor load alarms and more clearly defines the systems requiring undervoltage release.

○ ABS Marine Vessel Rules 4–8–3/5: This updated section regarding switchboards and motor controllers contains additional cable connection requirements, optional alternative creepage and clearance distances, and additional requirements on battery and uninterruptible power systems based on advancements in technology.

○ ABS Marine Vessel Rules 5–10–4/3: This section regarding roll-on/roll-off cargo spaces is now titled 5C–10–4/3. The new edition made updates to ventilation requirements and to the tables of dangerous goods.

○ ABS Marine Vessel Rules 4–9–7/Table 9: This table regarding equipment testing is now titled 4–9–8/Table 1. The updates to this table reflect changes in technology and industry testing practices.

• *ABS Rules for Building and Classing Mobile Offshore Units (ABS MOU Rules), Part 4 Machinery and Systems, 2020.* ABS also develops and publishes rules for the construction and maintenance of mobile offshore drilling units. Subchapter J references these rules in numerous sections as an option for design of certain systems including generator, semiconductor rectifier, and electric propulsion systems. Specifically, we currently reference the 2001 edition in §§ 111.12–1(a), 111.12–3, 111.12–5, 111.12–7(c), 111.33–11, 111.35–1, and 111.70–1(a). In 2020, ABS transitioned from the ABS Mobile Offshore Drilling Units Rules to the ABS MOU Rules. This allowed ABS to consolidate several rules into one foundational rule. We propose to incorporate by reference the 2020 ABS MOU Rules. Like the ABS Marine Vessel Rules, the ABS MOU Rules will undergo a regular review and approval process by the ABS technical committees comprised of international experts with relevant experience. ABS updated and changed the title of several of the ABS MOU rules incorporated by reference in these sections. For example:

○ ABS MOU Rules 4–3–4 (renamed ABS MOU Rules 6–1–7): We reference this section regarding generator construction requirements. ABS made several technical updates since the 2001 edition to account for changes in technology.

○ ABS MOU Rules 4–3–4/3.5.3 (renamed 6–1–7/12): We reference this section, for semiconductor converters requirements. ABS made several updates to the standard due to changes in technology.

○ ABS MOU Rules 4–3–4/7.1 (renamed 6–1–7/9.9): We reference this section regarding bus bars and wiring requirements. ABS made several updates to the section since the 2001 edition.

• *American National Standards Institute (ANSI) and Institute of Electrical and Electronic Engineers (IEEE) ANSI/IEEE C37.12–1991—American National Standard for Alternating Current (AC) High-Voltage Circuit Breakers Rated on a Symmetrical Current Basis-Specifications Guide.* We propose to remove this standard from § 111.54–1 because IEEE changed the title and republished it with updates in 2008 as IEEE C37.12–2008—IEEE Guide for Specifications of High-Voltage Circuit Breakers (over 1,000 Volts), 2008. This represented a complete technical revision of the standard. IEEE subsequently revised it again in 2018. We are proposing to incorporate by reference IEEE C37.12–2018 in § 111.54–1 and further discuss this standard with the other IEEE standards incorporated by reference.

• *ANSI/IEEE C37.27–1987 (IEEE 331)—Application Guide for Low-Voltage AC Nonintegrally Fused Power Circuitbreakers (Using Separately Mounted Current-Limiting Fuses).* We are proposing to remove the reference to this standard in § 111.54–1 because this guide was replaced by IEEE C37.27–2015—IEEE Guide for Low-Voltage AC (635 V and below) Power Circuit Breakers Applied with Separately-Mounted Current-Limiting Fuses, 2015. We discuss this standard, IEEE C37.27–2015, with the other IEEE standards incorporated by reference.

• *ANSI/International Society of Automation (ISA) 12.12.01–2015—Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Divisions 1 and 2 Hazardous (Classified) Locations.* The purpose of this standard is to provide minimum requirements for the design, construction, and marking of electrical equipment or parts of such equipment for use in Class I and Class II, Division 2 and Class III, Divisions 1 and 2 hazardous (classified) locations. This newer edition of the standard would replace ANSI/ISA 12.12.01–2012 which the Coast Guard recently added to § 111.108–3(b) as part of a separate rulemaking titled ''Electrical Equipment in Hazardous Locations'' (80 FR 16980, Mar. 31, 2015). Additionally, we propose to include ANSI/ISA 12.12.01–2015 in §§ 111.105–7(a) and 111.106–3(b) as another certification option for electrical equipment in hazardous location. The 2015 edition contains

minor technical changes from the 2012 edition.

• *ANSI/ISA–60079–18—Explosive atmospheres—Part 18: Equipment protection by encapsulation ''m'', Third Edition, 2012.* This standard gives the specific requirements for the construction, testing, and marking of electrical equipment and parts of electrical equipment, and for the designation of explosion-protected electrical apparatus complying with IEC standards (Ex) components (which is part of an electrical equipment module found in the European hazardous area scheme) with the type of protection encapsulation ''m'' intended for use in explosive gas atmospheres or explosive dust atmospheres. We currently reference the 2009 edition of this standard in § 111.106–3(d), and the 2012 edition in § 111.108–3(e). This proposed rule would remove the ANSI/ISA–60079–18 references in §§ 111.106–3(d) and 111.108–3(e) because it has been withdrawn and replaced by UL 60079–18, a substantively similar standard. We propose replacing the ANSI/ISA standard with UL 60079–18 in § 111.106–3(d) and 111.108–3(e).

• *American Petroleum Institute (API) Recommended Practice API RP 14F—Recommended Practice for Design, Installation, and Maintenance of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class 1, Division 1 and Division 2 Locations, Sixth Edition, October 2018.* This document recommends minimum requirements and guidelines for the design, installation, and maintenance of electrical systems on fixed and floating petroleum facilities located offshore. We propose to reference clause 6.8 of the document in § 111.105–17. This clause provides guidance on use of conduit, cable seals, and sealing methods. The incorporation of this standard would add another wiring option in hazardous locations.

• *API RP 14FZ—Recommended Practice for Design, Installation, and Maintenance of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Zone 0, Zone 1 and Zone 2 Locations, Second Edition, May 2013.* This document recommends minimum requirements and guidelines for the design, installation, and maintenance of electrical systems on fixed and floating petroleum facilities located offshore. We propose to reference clause 6.8 of the document in § 111.105–17. This clause provides guidance on use of conduit, cable seals, and sealing methods. The incorporation of this standard would add another wiring option in hazardous locations.

• *API RP 500—Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2, Third Edition, December 2012.* This recommended practice provides guidelines for classifying locations at petroleum facilities as Class I, Division 1 and Class I, Division 2 locations for the selection and installation of electrical equipment. We currently reference the second edition (1997) of this standard in §§ 111.106–7(a) and 111.106–13(b). We propose to reference the more recent, third edition (2012) in those sections. The 2012 edition contains editorial changes, but the technical content has not changed.

• *API RP 505—Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1, and Zone 2, Second Edition, August 2018.* The purpose of this recommended practice is to provide guidelines for classifying locations Class I, Zone 0, Zone 1, and Zone 2 at petroleum facilities for the selection and installation of electrical equipment. We currently reference the first edition, which was published in 1997 and reaffirmed in 2013, in § 111.106–7(a) and 111.106–13(b). We propose to reference the more recent, second edition (2018) in those sections. This will not substantively change to the requirements of those sections.

• *American Society of Mechanical Engineers (ASME) A17.1–2016/CSA B44–16—Safety Code for Elevators and Escalators, 2016.* This code covers the design, construction, operation, inspection, testing, maintenance, alteration, and repair of elevators, hoists, escalators and their associated parts, rooms, and spaces. We currently reference the sixteenth edition (2000) in § 111.91–1. We propose to reference the more recent, twenty-first edition (2016) in that section. ASME updated this standard based on changes in technology. The updated standard addresses new types of elevators being used in the industry, specifically wind turbine elevators and outside emergency elevators. In addition, the standard contains new requirements to address a new feature called ''Elevator Evacuation Operation'' that allows for the use of elevators for occupant evacuation. Moreover, there are several major changes to the standard that include seismic requirements, updated maintenance control program requirements, and revisions regarding qualifications for elevator inspectors. ASME A17 has been an industry accepted standard since 1921. Although many of the changes to the presently incorporated edition of the standard do not apply to shipboard elevators, it is important that shipboard elevators meet the updated provisions that do apply.

• *ASTM International (ASTM) B117–19—Standard Practice for Operating Salt Spray (Fog) Apparatus, 2019.* This practice covers the apparatus, procedure, and conditions required to create and maintain the salt spray (fog) test environment. Where the Coast Guard's regulations require material to be corrosion resistant it must meet the testing requirements of this ASTM standard practice. We currently reference the 1997 edition in § 110.15–1(b). We propose to reference the current 2019 edition. The 1997 edition has been superseded by several subsequent editions. The testing specifications in the 2011 edition are similar to those in the 1997 edition, but the 2011 edition is more detailed. For example, the impurity restrictions are more detailed in section 8, the air supply requirements are more specific in section 9, and the conditions in the salt chamber are more precisely described in section 10. The 2016 edition added a warning about the impact of water conductivity in section 4 while the 2019 edition added several minor but non-substantive explanatory sections. Overall, the 2019 edition of this testing standard practice for operating salt spray apparatus is very similar to the 1997 edition currently incorporated, with minor improvements in the specifications to ensure testing consistency and precision.

• *ASTM F2876–10—Standard Practice for Thermal Rating and Installation of Internal Combustion Engine Packages for use in Hazardous Locations in Marine Applications, Reapproved 2015.* This practice covers the method of testing, rating and installing internal combustion engine packages for use in hazardous areas in marine applications. We currently reference the 2010 edition of this standard in §§ 111.106–3(h) and 111.108–3(g). We also propose to reference the 2010 edition in newly proposed § 111.105–28 regarding internal combustion engines. This will ensure a consistent standard for these installations on all vessel and facility types.

• *Canadian Standards Association (CSA) C22.2 No. 30–M1986—Explosion-proof enclosures for use in class I hazardous locations, Reaffirmed 2016.* This standard covers the details of construction and tests for explosion-proof enclosures for electrical

equipment to be used in Class I, Division 1, Groups A, B, C, and D hazardous locations and in gaseous mines. We currently reference the 1986 edition of this standard in §§ 111.106–3(b) and 111.108–3(b) and propose to incorporate the reaffirmed version therein. The two versions are not substantively different. We propose to also reference this reaffirmed standard in § 111.105–7(a), regarding approved equipment, as an additional compliance option. This will afford the broadest and most current selection of IBR explosion protection standards for all vessel and facility types.

• *CSA C22.2 No. 213–16—Nonincendive electrical equipment for use in class I, division 2 hazardous locations, May 2016.* This standard applies to electrical equipment for use in Class I and II, Division 2 and Class III, Division 1 and 2 hazardous locations. We currently reference the 1987 edition in §§ 111.106–3(b) and 111.108–3(b). We propose to reference the 2016 edition in these sections and also reference it in § 111.105–7(a) concerning approved equipment. This standard received a major revision since the 1987 edition based on advances in technology and changes to related standards. It is an accepted national standard and one of several available standards for nonincendive electrical equipment. Our incorporation of this updated edition ensures use of latest industry practices and including it in § 111.105–7 will ensure that standards are consistent for electrical installations on all vessel and facility types.

• *CSA–C22.2 No. 0–10—General requirements—Canadian Electrical Code, Part II, Reaffirmed 2015.* This standard covers definitions, construction requirements, marking, and tests of a general nature that applies to all or several of the individual standards of the Canadian Electrical Code. We currently reference the ninth edition of this standard in §§ 111.106–3(b) and 111.108–3(b). We propose to reference the tenth edition, reaffirmed in 2015, in these sections and in § 111.105–7(a) concerning approved equipment. The tenth edition includes new requirements for equipment containing lasers or lithium batteries, criteria for the use of adhesives in the construction of electrical equipment, surface temperature limits, attachment plug loading, and the maximum temperature of equipment in contact with gypsum. Additionally, it incorporates a comprehensive list of definitions for use in standards for electrical products and outlines the relationship between this standard and electrical product standards. We propose incorporating the more recent edition in subpart 111.105 to ensure that standards are consistent for electrical installations on all vessel and facility types.

• *Canadian National Standard (CAN)/CSA–C22.2 No. 157–92—Intrinsically safe and nonincendive equipment for use in hazardous locations, reaffirmed 2016.* This standard specifies the testing of nonincendive electrical equipment and the details of construction and tests for intrinsically safe electrical equipment for use in hazardous locations. We currently reference the 1992 edition of this standard in §§ 111.106–3(b) and 111.108–3(b). We propose to reference the reaffirmed 1992 edition in those sections as well as § 111.105–7(a) concerning approved equipment. The two editions of the standard are not substantively different and incorporating it into § 111.105–7 would provide an additional option for vessels and facilities.

• *MIL–DTL–24640C with Supplement 1—Detail Specification Cables, Lightweight, Low Smoke, Electric, for Shipboard Use, General Specification for, Nov. 18, 2011.* This specification covers lightweight, low smoke, electric cables for Navy shipboard applications. MIL–DTL–24640C is already incorporated by reference and approved for § 111.106–5(a). However, MIL–DTL–24640C supersedes MIL–C–24640A (1996), currently referenced in §§ 111.60–1 and 111.60–3. We propose to incorporate the updated edition, MIL–DTL–24640C (2011), into § 111.60–1 only, because this proposed rule would delete § 111.60–3. The updated edition, published in 2011, incorporates the latest developments in marine cable materials and performance enhancements but will not substantively change requirements.

• *MIL–DTL–24643C with Supplement 1A—Detail Specification Cables, Electric, Low Smoke Halogen-Free, for Shipboard Use, General Specification for, Oct. 1, 2009 (including Supplement 1A dated Dec. 13, 2011).* This specification is already incorporated by reference in § 111.106–5(a) and covers low smoke halogen-free electric cable for Navy shipboard applications. This specification supersedes the currently referenced MIL–C–24643A (1996) incorporated by reference in §§ 111.60–1 and 111.60–3. We propose to delete MIL–C–24643A (1996) and incorporate the latest standard MIL–DTL–24643C (2011) into § 111.60–1 only, because this proposed rule would delete § 111.60–3. This updated edition, published in 2011, incorporates the latest developments in marine cable materials and performance enhancements.

• *MIL–DTL–76E—Military Specification Wire and Cable, Hookup, Electrical, Insulated, General Specification for, Nov. 3, 2016.* This specification covers single-conductor, synthetic-resin insulated, electrical hookup wire and cable for use in the internal wiring of electrical and electronic equipment. We currently reference MIL–W–76D in 111.60–11. In 2016 the standard was revised and renamed MIL–DTL–76E. This edition has formatting changes and minor updates based on current technology. We propose to incorporate this revised standard as one of several available standards for wire.

• *EN 14744—Inland navigation vessels and sea-going vessels—Navigation light, August 2005.* This standard, developed by the European Committee for Standardization, applies to their testing. We propose it as an acceptable alternate standard for navigation lights in § 111.75–17(d)(2).

• *FM Approvals Class Number 3600—Approval Standard for Electric Equipment for use in Hazardous (Classified) Locations—General Requirements, 2018.* This standard identifies the basis for approval of electrical equipment in hazardous (classified) locations. It is used in conjunction with the other FM Approvals standards referenced in subchapter J. We currently reference the 1998 edition of this standard in §§ 111.106–3(b) and 111.108–3(b). We propose the more recent 2018 edition for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). This edition includes transitioning from ISA series of standards to UL standards, an expanded list of normative references, and more specificity regarding the required quality control system. The incorporation of this more recent edition ensures use of the latest industry practices and including it in § 111.105–7(a) regarding approved equipment will ensure that standards are consistent for electrical installations on all vessel and facility types.

• *FM Approvals Class Number 3610—Approval Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations, January 2018.* This standard provides requirements for the construction and testing of electrical apparatus, or parts of such apparatus, whose circuits are incapable of causing ignition in Classes I, II, and III, Division 1 hazardous (classified) locations. We currently reference the 2004 edition of this standard in §§ 111.106–3(b) and

111.108–3(b). We are proposing to incorporate the more recent 2018 edition in §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). The incorporation of this more recent edition ensures use of latest industry practices and including it in § 111.105–7(a) regarding approved equipment will ensure that standards are consistent for electrical installations on all vessel and facility types.

• *FM Approvals Class Number 3611—Approval Standard for Nonincendive Electrical Equipment for Use in Class I and II, Division 2, and Class III, Divisions 1 and 2, Hazardous (Classified) Locations, January 2018.* This standard provides requirements for the construction and testing of electrical apparatus, or parts of such apparatus, whose circuits are incapable of causing ignition in Class I and II, Division 2, and Class III, Divisions 1 and 2 hazardous (classified) locations. This standard is currently referenced in §§ 111.106–3(b) and 111.108–3(b). We propose to add this as an alternative standard in § 111.105–7(a) concerning approved equipment. This will ensure that standards are consistent for electrical installations on all vessel and facility types.

• *FM Approvals Class Number 3615—Approval Standard for Explosionproof Electrical Equipment General Requirements, January 2018.* This standard contains the basic requirements for the construction and testing of explosion proof electrical apparatus. This standard is currently referenced in §§ 111.106–3(b) and 111.108–3(b). We propose to add this as an alternative standard in § 111.105–7(a) regarding approved equipment. This will ensure that standards are consistent for electrical installations on all vessel and facility types.

• *FM Approvals Class Number 3620—Approval Standard for Purged and Pressurized Electrical Equipment for Hazardous (Classified) Locations, January 2018.* This standard contains the basic requirements for the construction and testing of purged and pressurized electrical equipment. We currently reference the 2000 edition of this standard in §§ 111.106–3(b) and 111.108–3(b). We propose to reference the 2018 edition in §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). The two editions of the standard are not substantively different and adding it to § 111.105–7(a) will ensure consistent standards for electrical installations on all vessel and facility types.

• *IEEE C37.04–2018—IEEE Standard for Ratings and Requirements for AC High-Voltage Circuit Breakers with Rated Maximum Voltage above 1000 V, 2018.* This document establishes a rating structure, preferred ratings, construction and functional component requirements for high-voltage AC circuit breakers. We currently reference the 1999 edition of this standard in § 111.54–1. We propose to adopt the more recent, 2016 edition in § 111.54–1. This edition contains updates that reflect current circuit breaker manufacturing technology.

• *IEEE C37.010–2016—IEEE Application Guide for AC High-Voltage Circuit Breakers > 1000 Vac Rated on a Symmetrical Current Basis, 2016.* This document provides guidance for the application of high-voltage circuit breakers. We currently reference the 1999 edition of this standard in § 111.54–1. We propose to adopt the more recent 2016 edition in § 111.54–1. This edition contains updates that reflect current circuit breaker manufacturing technology.

• *IEEE C37.12–2018—IEEE Guide for Specifications of High-Voltage Circuit Breakers (over 1000 V), 2018.* These specifications apply to all indoor and outdoor types of AC high-voltage circuit breakers rate above 1000 volts (V). It replaces ANSI/IEEE C37.12–1991. IEEE C37.12–2018 represents a nearly complete rewrite of 1991 edition to reflect present circuit breaker manufacturing technology. The 2018 edition of this standard would be one of several acceptable circuit breaker standards listed in § 111.54–1.

• *IEEE C37.13–2015—IEEE Standard for Low-Voltage AC Power Circuit Breakers Used in Enclosures, 5 Dec. 2015.* This standard establishes minimal functional requirements, establishes preferred rating structure, and provides preferred ratings enclosed low-voltage AC power circuit breakers. We currently reference the 2000 edition of this standard in § 111.54–1. We propose to reference the more recent 2015 edition in § 111.54–1. This edition has many technical updates to address advancements in technology, including an increase in nominal voltages, new testing techniques, and removal of information on direct current (DC) circuit-breakers (now located in IEEE C37.14). This standard is one of several acceptable circuit-breaker standards in § 111.54–1.

• *IEEE C37.14–2015—IEEE Standard for DC (3200 V and below) Power Circuit Breakers Used in Enclosures, 26 Mar. 2015.* This standard covers the preferred ratings and testing requirements of enclosed DC power circuit breakers. We currently reference the 2003 edition of this standard § 111.54–1. We propose to reference the more recent 2015 edition in § 111.54–1, which contains many technical changes to reflect present circuit breaker manufacturing technology and advancements in technology.

• *IEEE C37.27–2015—IEEE Guide for Low-Voltage AC (635 V and below) Power Circuit Breakers Applied with Separately-Mounted Current-Limiting Fuses, 2015.* This guide sets forth recommendations for the selection of current-limiting fuses for use in combination with low-voltage AC power circuit breakers. This guide replaces ANSI/IEEE C37.27–1987 which we currently reference in § 111.54–1. IEEE C37.27–2015 contains many technical updates to address advancements in circuit breaker manufacturing technology, which would provide the public with more accurate and applicable standards for modern circuit breakers than the previous 1987 edition. We propose incorporating this guide as one of several acceptable circuit breaker standards listed in § 111.54–1.

• *IEEE 45–1998—IEEE Recommended Practice for Electric Installations on Shipboard—1998.* IEEE 45–2002 superseded the subject 1998 edition, but in some instances the Coast Guard previously found the 1998 edition preferable and continued to reference it. Because the 1998 edition is no longer supported by IEEE and other acceptable standards exist where it is referenced, we propose to delete all references to this standard, which includes §§ 111.30–19, 111.105–3, 111.105–31, and 111.105–41.

• *IEEE 45–2002—IEEE Recommended Practice for Electrical Installations On Shipboard—2002.* We currently reference this edition of IEEE 45 in the following sections in subchapter J: §§ 111.05–7, 111.15–2, 111.30–1, 111.30–5, 111.33–3, 111.33–5, 111.40–1, 111.60–1, 111.60–3, 111.60–5, 111.60–11, 111.60–13, 111.60–19, 1111.60–21, 111.60–23, 111.75–5, and 113.65–5. IEEE has developed the IEEE 45 Series which comprises nine recommended practices addressing electrical installations on ships and marine platforms. We propose to replace references to IEEE 45–2002 with newer IEEE 45 Series recommended practices individually discussed below, and remove all references to the IEEE 45–2002.

• *IEEE 45.1–2017—IEEE Recommended Practice for Electrical Installations On Shipboard—Design, 23 Mar. 2017.* This recommended practice provides guidance for electrical power generation, distribution, and electric propulsion system design. These recommendations reflect the present-day technologies, engineering methods, and engineering practices. We propose

to reference these standards in §§ 111.15–2, 111.40–1, 111.75–5, and 113.65–5. The technical content is similar to IEEE 45–2002, which we propose to delete from these sections. We also propose to add reference to this standard in § 111.105–41 concerning battery rooms.

• *IEEE 45.2–2011—IEEE Recommended Practice for Electrical Installations On Shipboard—Controls and Automation, 1 Dec. 2011.* This recommended practice provides guidance for shipboard controls, control applications, control apparatus, and automation. These recommendations reflect present-day technologies, engineering methods, and engineering practices. We propose to reference this document in §§ 111.33–3 and 111.33–5. The technical content is similar to IEEE 45–2002, which we propose to delete from these sections.

• *IEEE 45.6–2016—IEEE Recommended Practice for Electrical Installations on Shipboard—Electrical Testing, 7 Dec. 2016.* This recommended practice provides guidance for electrical testing for power generation, distribution, and electric propulsion systems. These recommendations reflect the present day technologies, engineering methods, and engineering practices. We propose to reference this document in § 111.60–21. Its technical content is similar to IEEE 45–2002, which we propose to delete from this section.

• *IEEE 45.7–2012—IEEE Recommended Practice for Electrical Installations On Shipboard—AC Switchboards, 29 Mar. 2012.* This recommended practice supplements the design, installation, and testing recommendations in IEEE 45–2002. This recommended practice provides new technologies and design practices for generator control panels and switchboards to aid marine electrical engineers in the design, application and installation of this equipment on ships and other marine installations. We propose to reference this document in §§ 111.30–1, 111.30–5, and 111.30–19. The technical content of IEEE 45.7–2012 is similar to IEEE 45–2002, but more detailed. It also references other industry standards, many of which we have incorporated by reference elsewhere in Subchapter J, rather than using prescriptive requirements.

• *IEEE 45.8–2016—IEEE Recommended Practice for Electrical Installations On Shipboard—Cable Systems, 29 Jan. 2016.* This document provides recommendations for selection, application, and installation of electrical power, signal, control, data, and specialty marine cable systems on shipboard systems. These recommendations include the present day technologies, engineering methods, and engineering practices. We propose to replace references to IEEE 45–2002 in §§ 111.05–7, 111.60–5, 111.60–11, 111.60–13, and 111.106–19 with IEEE 45.8–2016. The technical content of IEEE 45.8–2016 is similar to IEEE 45–2002, but more detailed.

• *IEEE 1202–2006—IEEE Standard for Flame-Propagation Testing of Wire and Cable with Corrigendum 1 (21 Nov. 2012), 2006.* This standard provides a protocol for exposing cable samples to a theoretical 20 kilowatt (kW) [(70,000 British thermal units per hour (Btu/hr)] flaming ignition source for a 20 minute test duration. The test determines the flame propagation tendency of single conductor and multi-conductor cables intended for use in cable trays. We currently reference the 1991 edition in §§ 111.60–6 and 111.107–1(c). We propose to reference the more recent 2006 edition in § 111.107–1(c), but not in § 111.60–6, because we are proposing to delete that section on fiber optic cable. In the 2006 edition, the normative references have been updated, the temperature at which cables are conditioned has been raised from 18 °C to 25 °C, and minor refinements to the test procedure have been made.

• *IEEE 1580–2010—IEEE Recommended Practice for Marine Cable for Use on Shipboard and Fixed or Floating Platforms, 2 Mar. 2011.* This recommended practice contains the requirements for single or multiconductor cables, with or without metal armor or jacket, and rated 300 V to 35 kilovolts (kV), intended to be installed aboard marine vessels, and fixed and floating offshore facilities. The 2001 edition is currently referenced in §§ 111.60–1, 111.60–2, 111.60–3, and 111.106–5(a). We propose to reference the more recent 2010 edition only in §§ 111.60–1 and 111.106–5(a), because we propose to delete §§ 111.60–2 and 111.60–3 in this proposed rule. The 2010 edition has been updated to incorporate the latest developments in marine cable materials and performance enhancements.

• *IEC 60068–2–52:2017—Environmental testing Part 2–52: Tests—Test Kb: Salt mist, cyclic (sodium chloride solution), Edition 3.0, 2017–11.* This standard specifies the application of the cyclic salt mist test to components or equipment designed to withstand a salt-laden atmosphere as salt can degrade the performance of parts manufactured using metallic or non-metallic materials. The second edition is referenced in § 110.15–1. We propose to incorporate the third edition. In this more recent edition the standard has been updated to ensure consistency with International Organization for Standardization (ISO) 9227—Corrosion tests in artificial atmospheres—Salt spray tests.

• *IEC 60079–0—Electrical apparatus for Explosive Gas Atmospheres—Part 0: General Requirements, Edition 3.1, 2000.* This part of the IEC 60079 series of standards specifies the general requirements for construction, testing and marking of electrical equipment and Ex components intended for use in explosive atmospheres. This standard was referenced in §§ 111.105–1, 111.105–3, 111.105–5, 111.105–7 and 111.105–17. We propose reformatting of subpart 111.105 to be consistent with subparts 111.106 and 111.108. Consequently, we propose to no longer specifically reference IEC 60079–0.

• *IEC 60079–1:2014—Explosive atmospheres—Part 1: Equipment protection by flameproof enclosures ''d'', Edition 7.0, 2014–06.* This part of the IEC 60079 series of standards contains specific requirements for the construction and testing of electrical equipment with the type of protection flameproof enclosure ''d'', which are intended for use in explosive gas atmospheres. We currently reference the fourth edition (2001) of this standard in §§ 111.105–1, 111.105–3, 111.105–5, 111.105–7, 111.105–9, and 111.105–17 while the sixth edition (2007) is referenced in §§ 111.106–3(b) and 111.108–3(b). We propose to replace all references to the fourth and sixth editions of this standard with the more recent edition 7.0 (2014) in §§ 111.105–7, 111.106–3(b), and 111.108–3(b). The updated standard reflects advances in technology, including:

○ Addition of material limitations of enclosures of equipment and enclosures of Ex components for external mounting;

○ Addition of power factor requirement for evaluating the ability of a plug and socket; to remain flameproof during the arc-quenching period while opening a test circuit; and

○ Addition of marking requirements for Ex component enclosures, in addition to the requirements for marking of Ex components given in IEC 60079–0.

• *IEC 60079–2:2014—Explosive atmospheres—Part 2: Equipment protection by pressurized enclosures ''p'', Edition 6.0, 2014–07.* This part of the IEC 60079 series of standards contains specific requirements for the construction and testing of electrical equipment with pressurized enclosures, of type of protection ''p'', intended for use in explosive gas atmospheres or

explosive dust atmospheres. It also includes the requirements for pressurized enclosures containing a limited release of a flammable substance. We currently reference the fourth edition (2001) of this standard in §§ 111.105–1, 111.105–3, 111.105–5, 111.105–7, and 111.105–17, while the fifth edition (2007) is referenced in §§ 111.106–3(b) and 111.108–3(b). We propose to delete all references to the fourth and fifth edition. The more recent edition 6.0 (2014), is being proposed for incorporation in §§ 111.105–7(a), 111.105–17, 111.106–3(b), and 111.108–3(b). The updated standard now covers combustible dust, cells and batteries, and backup protective gas. The incorporation of the more recent edition ensures consistent, up-to-date standards for electrical installations on all vessel and facility types.

• *IEC 60079–5:2015—Explosive atmospheres—Part 5: Equipment protection by powder filling ''q'', Edition 4.0, 2015–02.* This part of the IEC 60079 series of standards contains specific requirements for the construction, testing, and marking of electrical equipment, parts of electrical equipment, and Ex components in the type of protection powder filling ''q'', intended for use in explosive gas atmospheres. We currently reference the second edition (1997) of this standard in §§ 111.105–1, 111.105–3, 111.105–5, 111.105–7, 111.105–15, and 111.105–17, while the third edition (2007) is referenced in §§ 111.106–3(b) and 111.108–3(b). We propose to delete all references to the second and third edition. The more recent edition 4.0 (2015), containing minor technical revisions and clarifications, is proposed for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). This will ensure consistent, up-to-date standards for electrical installations on all vessel and facility types but will not result in a substantive change to the current requirements.

• *IEC 60079–6:2015—Explosive atmospheres—Part 6: Equipment protection by liquid immersion ''o'', Edition 4.0, 2015–02.* This part of the IEC 60079 series of standards specifies the requirements for the design, construction, testing and marking of Ex equipment and Ex components with type of protection liquid immersion ''o'' intended for use in explosive gas atmospheres. We currently reference the second edition (1995) of this standard in §§ 111.105–1, 111.105–3, 111.105–5, 111.105–7, 111.105–15, and 111.105–17, while the third edition (2007) is referenced in §§ 111.106–3(b) and 111.108–3(b). We propose to delete all references to the second and third edition. The more recent edition, 4.0 (2015), is being proposed for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). The incorporation of the latest edition ensures consistent, up-to-date standards for electrical installations on all vessel and facility types. The latest edition represents a major technical revision of the requirements for oil immersion ''o''. These revisions include:

○ The redefinition of the requirements for oil immersion ''o'' into liquid immersion levels of protection ''ob'' and ''oc'';

○ The addition of the ability to protect sparking contacts to both ''ob'' and ''oc''; and

○ The introduction of additional requirements for the protective liquid.

• *IEC 60079–7:2017—Explosive atmospheres—Part 7: Equipment protection by increased safety ''e'', Edition 5.1, 2017–08.* This part of the IEC 60079 series of standards specifies requirements for the design, construction, testing, and marking of electrical equipment and Ex components with type of protection increased safety ''e'' intended for use in explosive gas atmospheres. We currently reference the third edition (2001) of this standard in §§ 111.105–1, 111.105–3, 111.105–5, 111.105–7, 111.105–15, and 111.105–17, while the fourth edition (2006) is referenced in § 111.106–3(b) and 111.108–3(b). This proposed rule would remove all references to the third and fourth editions of this standard. The more recent edition 5.1 (2017) edition is being proposed for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). The standard contains updates including the addition of terminal installation tests, the addition of solid insulating material requirements based on thermal stability, and the revision of the requirements for soldered connections. The incorporation of the more recent edition ensures consistent, up-to-date standards for electrical installations.

• *IEC 60079–11:2011—Explosive atmospheres—Part 11: Equipment protection by intrinsic safety ''i'' with Corrigendum 1 (January 2012), Edition 6.0, 2011–06.* This part of the IEC 60079 series of standards specifies the construction and testing of intrinsically safe apparatus intended for use in an explosive atmosphere and for associated apparatus, which is intended for connection to intrinsically safe circuits that enter such atmospheres. This type of protection applies to electrical equipment in which the electrical circuits themselves are incapable of causing an explosion in the surrounding explosive atmospheres. We currently reference the fourth edition (1999) of this standard in §§ 111.105–1, 111.105–3, 111.105–5, 111.105–7, 111.105–11, and 111.105–17. The fifth edition (2006) referenced in § 111.106–3(b), and the more recent IEC 60079–11:2011, Edition 6.0, is referenced in § 111.108–3(b). We propose the more recent edition 6.0 for §§ 111.105–7(a) and 111.106–3(b), and would continue to be referenced in § 111.108–3(b). The changes with respect to the previous editions are as follows:

○ Inclusion of non-edition specific references to IEC 60079–0;

○ Merging of the apparatus requirements for the Fieldbus Intrinsically Safe Concept (FISCO) from IEC 60079–27;

○ Merging of the requirements for combustible dust atmospheres from IEC 61241–11;

○ Clarification of the requirements for accessories connected to intrinsically safe apparatus (such as chargers and data loggers);

○ Addition of new test requirements for opto-isolators; and

○ Introduction of Annex H about ignition testing of semiconductor limiting power supply circuits.

The incorporation of the more recent edition ensures consistent, up-to-date standards for electrical installations.

• *IEC 60079–13:2017—Explosive atmospheres—Part 13: Equipment protection by pressurized room ''p'' and artificially ventilated room ''v'', Edition 2.0, 2017–05.* This part of the IEC 60079 series of standards gives requirements for the design, construction, assessment and testing, and marking of rooms protected by pressurization. We currently reference Edition 1.0 (2010) of this standard in §§ 111.106–3(b) and 111.108–3(b). We are proposing referencing Edition 2.0 (2017), the more recent edition, in §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). This standard contains the following changes:

○ Modification of the title to include artificially ventilated room ''v'' in addition to pressurized room ''p'';

○ Addition of protection types (''pb'', ''pc'', and ''vc'');

○ Removal of protection types (''px'', ''py'', ''pz'' and ''pv'');

○ Definition of the differences between pressurization and artificial ventilation types of protection;

○ Removal of protection of rooms with an inert gas or a flammable gas from the scope of standard; and

○ Addition of an informative annex to include examples of applications where types of protection pressurization or artificial ventilation or pressurization

and artificial ventilation can be used and associated guidelines.

The incorporation of the more recent edition ensures consistent, up-to-date standards for electrical installations.

• *IEC 60079–15:2017—Explosive atmospheres—Part 15: Equipment protection by type of protection ''n'', Edition 5.0, 2017–12.* This part of the IEC 60079 series of standards specifies requirements for the construction, testing, and marking for Group II electrical equipment with type of protection ''n'' intended for use in explosive gas atmospheres. This standard applies to non-sparking electrical equipment and also to electrical equipment with parts or circuits producing arcs or sparks or having hot surfaces which, if not protected in one of the ways specified in this standard, could be capable of igniting a surrounding explosive gas atmosphere. We currently reference the second edition (2001) of this standard in §§ 111.105–1, 111.105–3, 111.105–5, 111.105–7, 111.105–15, and 111.105–17, while the edition 4.0 (2010) is referenced in §§ 111.106–3(b) and 111.108–3(b). We are proposing to incorporate by reference the more recent edition 5.0 (2017) in §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). This standard contains numerous technical changes from the previous version, which reflect changes in industry practices and technology.

• *IEC 60079–18:2017—Explosive atmospheres—Part 18: Equipment protection by encapsulation ''m'', Edition 4.1, 2017–08.* This part of the IEC 60079 series of standards gives specific requirements for the construction, testing, and marking of electrical equipment, parts of electrical equipment, and Ex components with the type of protection encapsulation ''m'' intended for use in explosive gas atmospheres or explosive dust atmospheres. We currently reference the first edition (1992) of this standard in §§ 111.105–1, 111.105–3, 111.105–5, 111.105–7, 111.105–15, and 111.105–17, while the edition 3.0 (2009) is referenced in §§ 111.106–3(b), 111.106–3(d), 111.108–3(b), and 111.108–3(e). We propose the more recent edition 4.1 (2017) for §§ 111.105–7(a), 111.106–3(b), 111.106–3(d), 111.108–3(b) and 111.108–3(e). There have been a few minor technical revisions to the standard including modified and additional requirements for cells and batteries as well as revised testing guidance. The incorporation of the more recent edition ensures consistent, up-to-date standards for electrical installations.

• *IEC 60079–25:2010—Explosive atmospheres—Part 25: Intrinsically safe electrical systems, Edition 2.0, 2010–02.* This part of the IEC 60079 series of standards contains specific requirements for construction and assessment of intrinsically safe electrical systems, type of protection ''i'', intended for use, as a whole or in part, in locations in which the use of Group I, II, or III apparatus is required. We currently reference the Edition 2.0 (2010) in §§ 111.106–3(b) and 111.108–3(b). We propose to also reference this standard in § 111.105–7(a) concerning approved equipment. This will ensure that standards are consistent on electrical installations.

• *IEC 60079–30–1 Part 30–1: Electrical resistance trace heating—General and testing requirements, First edition, 2007–01.* This part of the IEC 60079 series of standards specifies general and testing requirements for electrical resistance trace heaters for application in explosive gas atmospheres. This standard covers trace heaters that may be either factory- or field- (work-site) assembled units, which may be series heating cables, parallel heating cables, or heating pads and heating panels that have been assembled or terminated in accordance with the manufacturer's instructions. We propose to reference this newly incorporated standard in §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). Given the increased interest in marine operations in the polar regions, this standard provides requirements for surface heating in hazardous locations.

• *IEC 60092–101:2018—Electrical installations in ships—Part 101: Definitions and general requirements, Edition 5.0, 2018–10.* The Edition 4.0 (2002) is referenced in §§ 110.15–1 and 111.81–1. We propose to reference the more recent Edition 5.0 (2018) of this standard. This edition contains many changes including the following:

○ The applicability of the standard has been changed to 1000 V AC and 1500 V DC;

○ The table for design temperature has been simplified;

○ The clause regarding power supply system characteristics has been rewritten; and

○ Information regarding pollution degree has been added in the clause regarding clearance.

• *IEC 60092–201:2019—Electrical installations in ships—Part 201: System design-General, Edition 5.0, 2019–09.* We currently reference fourth edition in §§ 111.70–3 and 111.81–1. We propose to reference the more recent Edition 5.0 (2019) of this standard. This edition contains many changes including the following:

○ Adding a new subclause regarding studies and calculations;

○ Adding a new subclause regarding documentation;

○ Revising the clause regarding distribution systems;

○ Adding a new clause regarding system earthing;

○ Revising the clause regarding sources of electrical power;

○ Revising the clause regarding distribution system requirements;

○ Deleting the clause regarding cables and transferring it to IEC 60092–401; and

○ Adding a new subclause regarding electric and electrohydraulic steering gear.

• *IEC 60092–202:2016—Electrical installations in ships—Part 202: System design-Protection, Edition 5.0, 2016–09.* This standard covers electrical protective system design. We currently reference the fourth edition in §§ 111.12–7, 111.50–3, 111.53–1, and 111.54–1. We propose to reference the more recent edition 5.0 (2016) in those sections. This edition contains substantial technical updates on electrical load studies, short-circuit current calculations, and protection discrimination studies. The incorporation of this edition ensures consistent, up-to-date standards.

• *IEC 60092–301:1980—Electrical installations in ships—Part 301: Equipment—Generators and motors, Third Edition with Amendment 1 (1994–05) and Amendment 2, 1995–04.* This current edition is referenced in §§ 111.12, 111.25, and 111.70. This proposed rule would make formatting changes to the standard's title for consistency with the titles of all other referenced IEC standards, but does not alter the edition incorporated by reference.

• *IEC 60092–302:1997—Electrical installations in ships—Part 302: Low-voltage switchgear and controlgear assemblies, Fourth Edition, 1997–05.* This current edition is referenced in § 111.30. This proposed rule would make formatting changes to the standard's title for consistency with the titles of all other referenced IEC standards, but does not alter the edition incorporated by reference.

• *IEC 60092–303:1980—Electrical installations in ships—Part 303: Equipment—Transformers for power and lighting, Third Edition with amendment 1, 1997–09.* This edition is referenced in § 111.20–15. This proposed rule would make formatting changes to the standard's title for consistency with the titles of all other

referenced IEC standards, but does not alter the edition incorporated by reference.

- *IEC 60092–304:1980—Electrical installations in ships—Part 304: Equipment—Semiconductor convertors, Third Edition with Amendment 1, 1995–04.* This edition is referenced in §§ 111.33–3 and 111.33–5. This proposed rule would make formatting changes to the standard's title for consistency with the titles of all other referenced IEC standards, but does not alter the edition incorporated by reference.
- *IEC 60092–306:2009—Electrical installations in ships—Part 306: Equipment—Luminaires and lighting accessories, Edition 4.0, 2009–11.* This standard applies to luminaires and lighting accessories for use in ships. It applies primarily to luminaires for illumination purposes. This standard also applies to lighting accessories associated with the wiring and current-consuming appliance of an installation. This standard does not apply to portable luminaires, navigation lights, search lights, daylight signaling lamps, signal lights including the relevant control and monitoring equipment and other lights used for navigation in channels, harbors, etc. We currently reference the third edition (1980) of this standard in §§ 111.75–20 and 111.81–1. The Coast Guard is proposing to reference the most recent edition 4.0 (2009) of this standard in §§ 111.75–20 and 111.81–1. The IEC made the following changes to the standard since the 1980 edition:
  - The title was amended;
  - The scope was stated more precisely;
  - Mechanical design and material requirements were amended and stated more precisely;
  - Table 2—Standard types of lamp holders, was amended;
  - Environmental tests, especially regarding shock and vibration, were added;
  - Requirements and tests concerning special chemical and physical attributes were added; and
  - The standard was editorially revised.
- *IEC 60092–350:2014—Electrical installations in ships—Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications, Edition 4.0, 2014–08.* This part of the IEC 60092 series of standards provides the general construction requirements and test methods for use in the manufacture of electric power, control and instrumentation cables with copper conductors intended for fixed electrical systems at voltages up to and including 18/30(36) kV on board ships and offshore (mobile and fixed) units. We currently reference Edition 3.0 (2008) of this standard in § 111.106–5(a). We propose to reference the more recent edition, 4.0 (2014), of this standard in § 111.106–5(a) to ensure the latest industry practices based on changes in technology are addressed. The Coast Guard is proposing to amend subpart 111.60 to align with recognized classification society rules and industry practice. In support of this effort, this proposed rule would include IEC 60092–350:2014 in § 111.60–1(a) concerning construction and testing of cable. The 4.0 edition includes the following technical changes as compared to the previous edition:
  - The standard includes a reference to IEC 60092–360 for both the insulating and sheathing compounds;
  - The standard includes partial discharge tests, which were transferred from IEC 60092–354 to align them with IEC 60092–353;
  - The IEC transferred the requirements for oil and drilling-fluid resistance (former Annexes F and G) to IEC 60092–360;
  - The standard contains improved requirements for cold bending and shocks; and
  - The document reflects the changes of material types that were introduced during development of IEC 60092–353 and IEC 60092–360.
- *IEC 60092–352:2005—Electrical installations in ships—Part 352: Choice and Installation of electrical cables, Third Edition, 2005–09.* This part of the IEC 60092 series of standards provides the basic requirements for the choice and installation of cables intended for fixed electrical systems on board ships at voltages up to and including 15 kV. We currently reference the second edition (1997) of this standard in §§ 111.60–3, 111.60–5 and 111.81–1. Because of proposed revisions to subpart 111.60, we propose to reference the more recent third edition (2005) of this standard in § 111.60–1 and 111.60–5. Additionally, IEC 60092–352:2005 would replace the previous 1997 edition referenced in § 111.81–1. The 2005 edition has several minor updates including changes to:
  - Sizes of earth continuity conductors and equipment earthing connections;
  - Bending radii for cables rated at 3,6/6,0 (7,2) kV and above;
  - Current carrying capacities in amperes at core temperatures of 70 °C and 90 °C; and
  - Tabulated current carrying capacities—defined installations.

To ensure we address the latest technologies and industry practices, we are proposing to incorporate the more recent edition of this standard.

- *IEC 60092–353:2016—Electrical installations in ships—Part 353: Power cables for rated voltages 1 kV and 3 kV, Edition 4.0, 2016–09.* This part of the IEC 60092 series of standards provides manufacturing requirements and characteristics of such cables directly or indirectly bearing on safety and specifies test methods for checking conformity with those requirements. We currently reference the second edition (1995) of this standard in §§ 111.60–1, 111.60–3, and 111.60–5 while the third edition (2011) is referenced in § 111.106–5(a). We propose to reference the more recent edition 4.0 (2016) only in §§ 111.60–1(a) and 111.106–5(a), but not § 111.60–3 because we propose to revise subpart 111.60 regarding cable construction. The 2016 edition of this standard includes updates for advancements in insulation and sheathing materials, construction methods, and test methods. Its incorporation ensures consistent, up-to-date standards for electrical cable installations.
- *IEC 60092–354:2014—Electrical installations in ships—Part 354: Single- and three-core power cables with extruded solid insulation for rated voltages 6 kV (U_m=7.2 kV) up to 30 kV (U_m=36 kV), Edition 3.0, 2014–08.* This part of the IEC 60092 series of standards provides manufacturing requirements and characteristics of such cables directly or in directly bearing on safety and specifies test methods for checking conformity with those requirements. We propose to reference this standard in § 111.60–1(a). This will align Coast Guard requirements with those of recognized classification society rules and industry practice.
- *IEC 60092–360:2014—Electrical installations in ships—Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables, Edition 1.0, 2014–04.* This part of the IEC 60092 series of standards specifies the requirements for electrical, mechanical and particular characteristics of insulating and sheathing materials intended for use in shipboard and fixed and mobile offshore unit power, control, instrumentation, and telecommunication cables. We propose to reference this standard in § 111.60–1(a). This will align Coast Guard requirements with those of recognized classification society rules and industry practice.

• *IEC 60092–376:2017—Electrical installations in ships—Part 376: Cables for control and instrumentation circuits 150/250 V (300 V), Third Edition, 2017–05.* This part of the IEC 60092 series of standards provides manufacturing requirements and characteristics of such cables directly or in directly bearing on safety and specifies test methods for checking conformity with those requirements. We propose to reference this standard in § 111.60–1(a). This will align Coast Guard requirements with those of recognized classification society rules and industry practice.

• *IEC 60092–401:1980—Electrical installations in ships—Part 401: Installation and test of completed Installation, Third Edition with Amendment 1 (1987–02) and Amendment 2 (1995–04).* We currently reference the 1980 edition in §§ 111.05–9 and 111.81–1(d). This proposed rule would make formatting changes to the standard's title for consistency with the titles of all other referenced IEC standards, but does not alter the edition incorporated by reference.

• *IEC 60092–502:1999—Electrical installations in ships—Part 502: Tankers—Special features, Fifth Edition, 1999–02.* This part of the IEC 60092 series of standards deals with the electrical installations in tankers carrying liquids which are flammable, either inherently, or due to their reaction with other substances, or flammable liquefied gases. The standard details the zonal concept for hazardous area classification. We currently reference the 1992 edition in §§ 111.81–1, 111.105–31, 111.106–3(b), 111.106–5(c), 111.106–15(a), and 111.108–3(b). We propose to remove reference to this standard in § 111.105–31 and add it into §§ 111.105–1, 111.105–3(b), 111.105–7(a), 111.105–11(b), 111.105–17(b), 111.105–50(c). This proposed rule would make formatting changes to the standard's title for consistency with the titles of all other referenced IEC standards, but does not alter the edition incorporated by reference. Additionally, we propose to allow classification of hazardous locations based on this document. That proposal is described in more detail in section VI.D later in this discussion of the proposed rule.

• *IEC 60092–503:2007—Electrical installations in ships—Part 503: Special features—A.C. supply systems with voltages in the range of above 1kV up to and including 15 kV, Second edition, 2007–06.* This part of the IEC 60092 series of standards covers the design and installation requirements for AC supply systems with voltages in the range of above 1 kV. We currently reference the first edition (1975) of this standard in § 111.30–5(a). We propose to reference the more recent second edition (2007) of this standard. The second edition covers a greater range of voltages and has updated technical requirements.

• *IEC 60331–11:2009—Tests for electric cables under fire conditions—Circuit integrity—Part 11: Apparatus—Fire alone at a flame temperature of at least 750 °C, Edition 1.1, 2009–07.* This part of IEC 60331 specifies the test apparatus to be used for testing cables required to maintain circuit integrity when subject to fire. We currently reference the first edition (1999) of this standard in § 113.30–25. We propose to reference the more recent 1.1 edition (2009) of this standard, which includes minor technical updating, to ensure the latest industry practices based on changes in technology are addressed.

• *IEC 60331–21:1999—Tests for electric cables under fire conditions—Circuit integrity—Part 21: Procedures and requirements—Cables of rated voltage up to and including 0.6/1.0 kV, First Edition, 1999–04.* We currently reference this 1999 edition in § 113.30–25(j). This proposed rule would make formatting changes to the standard's title for consistency with the titles of all other referenced IEC standards, but does not alter the edition incorporated by reference.

• *IEC 60332–1–1:2015—Tests on electric and optical fibre cables under fire conditions—Part 1–1: Test for vertical flame propagation for a single insulated wire or cable—Apparatus, First Edition with Amendment 1 (2015–07), 2004–07.* This part of IEC 60332 specifies the apparatus for testing the resistance to vertical flame propagation for a single vertical electrical insulated conductor or cable, or optical cable, under fire conditions. This standard, along with IEC 60332–1–2:2015, supersedes IEC 60332–1:1993 currently referenced in § 111.30–19(b). We propose to replace the superseded 1993 standard in 111.30–19(b) with IEC 60332–1–1:2015 and IEC 60332–1–2:2015. IEC 60332–1–1:2015 covers the test apparatus and IEC 60332–1–2:2015 covers the testing procedure. The technical content is similar to the 1993 edition, but has been updated with greater specificity regarding the ignition source, test sample size, and positioning of the test flame.

• *IEC 60332–1–2:2015—Tests on electric and optical fibre cables under fire conditions—Part 1–2: Test for vertical flame propagation for a single insulated wire or cable—Procedure for 1kW pre-mixed flame, First Edition with Amendment 1, 2015–07.* This part of IEC 60332 specifies the procedure for testing the resistance to vertical flame propagation for a single vertical electrical insulated conductor or cable, or optical cable, under fire conditions. This standard, along with IEC 60332–1–1:2015, supersedes IEC 60332–1:1993, which we currently reference in § 111.30–19(b). We propose to reference IEC 60332–1–2:2015, regarding the testing procedure, in § 111.30–19(b). The technical content is similar to the 1993 edition, but the updates in the standard provide greater specificity regarding the ignition source, test sample size, and positioning of the test flame.

• *IEC 60332–3–21:2018—Tests on electric and optical fibre cables under fire conditions—Part 3–21: Test for vertical flame spread of vertically-mounted bunched wires or cables—Category A F/R, Edition 2.0, 2018–07.* This part of IEC 60332–3 specifies the procedure for testing the resistance to vertical flame propagation for vertically-mounted bunched wires or cables, under defined conditions. Edition 2.0 (2018–7) retains and updates pre-existing categories of tests, adds a new category (category D) for testing at very low non-metallic volumes, and emphasizes that it applies to optical fibre cables as well as metallic conductor cables. We propose this standard for incorporation in §§ 111.60–1(b) and 111.107–1(c).

• *IEC 60332–3–22:2018—Tests on electric cables under fire conditions—Part 3–22: Test for vertical flame spread of vertically-mounted bunched wires or cables—Category A, Edition 2.0, 2018–07.* This part of IEC 60332–3 specifies methods of test for assessment of vertical flame spread of vertically-mounted bunched wires or cables, electrical or optical, under defined conditions. We propose to remove references to the superseded first edition (2000) of this standard in §§ 111.60–1, 111.60–2, 111.60–6, and 111.107–1. Because § 111.60–6 does not need to reference this test, we propose to delete § 111.60–2 and to reference the more recent edition 2.0 (2018) of this standard only in §§ 111.60–1 and 111.107–1(c). This more recent edition retains and updates the pre-existing categories of tests, adds a new category (category D) for testing at very low non-metallic volumes, and emphasizes that it applies to optical fibre cables as well as metallic conductor cables.

• *IEC 60529:2013—Degrees of protection provided by enclosures (IP Code), Edition 2.2, 2013–08.* This standard describes a system for classifying the degrees of protection provided by the enclosures of electrical equipment as well as the requirements

for these degrees of protection and tests to verify the requirements. We currently reference Edition 2.1 (2001) of this standard in §§ 110.15–1, 111.01–9, 113.10–7, 113.20–3, 113.25–11, 113.30–25, 113.37–10, 113.40–10, and 113.50–5. In these sections, we propose to reference the more recent edition 2.2 (2013) of this standard. Edition 2.2 (2013) is a minor technical update to the standard.

- *IEC 60533:2015—Electrical and electronic installations in ships—Electromagnetic compatibility—Ships with a metallic hull, Edition 3.0, 2015–08.* This standard specifies minimum requirements for emission, immunity, and performance criteria regarding electromagnetic compatibility (EMC) of electrical and electronic equipment for ships with metallic hull. We currently reference the second edition (1999) of this standard in § 113.05–7(a). We propose to reference the more recent edition 3.0 (2015) of this standard. This edition includes the following technical changes with respect to the previous edition:
  - The scope and title have been modified to limit the application of the standard to installations in ships with metallic hulls only;
  - The normative references have been updated;
  - Further explanation for in-situ testing has been given in section 5.1;
  - Cable routing requirements in Annex B have been amended; and
  - A new Annex C EMC test report has been added.
- *IEC 60947–2:2019—Low-voltage switchgear and controlgear—Part 2: Circuit-breakers, Edition 5.1, 2019–07.* This standard provides circuit-breaker construction and testing requirements. We currently reference the third edition (2003) of this standard in § 111.54–1(b). We propose to reference the more recent edition 5.1 (2019) of this standard. The 2019 edition of this standard contains numerous technical updates addressing technical advancements, including circuit-breaker testing, instantaneous trip circuit-breakers, and electromagnetic compatibility.
- *IEC 61363–1:1998—Electrical installations of ships and mobile and fixed offshore units—Part 1: Procedures for calculating short-circuit currents in three-phase a.c., first edition, 1998–02.* This proposed rule would make formatting changes to the standard's title for consistency with the titles of all other referenced IEC standards, but does not alter the edition currently incorporated by reference. We currently reference this 1998 edition in § 111.52–5. This proposed rule would move the standard to the new § 111.51–4(b) because we propose combining the requirements of subparts 111.51 and 111.52 into a single subpart 111.51 (Calculation of Short-Circuit Currents and Coordination of Overcurrent Protective Devices).
- *IEC 61439–6: 2012—Low-voltage switchgear and controlgear assemblies—Part 6: Busbar trunking systems (busways), Edition 1.0, 2012–05.* This standard states busbar service conditions, construction requirements, technical characteristics and verification requirements for low voltage busbar trunking systems. We propose to add it to the revised § 111.59–1 concerning general requirements for busways.
- *IEC 61660–1:1997—Short-circuit currents in d.c. auxiliary installations in power plants and substations—Part 1: Calculation of short-circuit currents, First Edition, 1997–06.* This standard describes a method for calculating short-circuit currents in DC auxiliary systems in power plants and substations. We propose to include it in the revised § 111.51–4(b) as an alternative for short-circuit analysis.
- *IEC 61892–7:2019—Mobile and fixed offshore units—Electrical installations—Part 7: Hazardous areas, Edition 4.0, 2019–04.* This standard contains provisions for hazardous areas classification and choice of electrical installation in hazardous areas in mobile and fixed offshore units, including pipelines, pumping or ''pigging'' stations, compressor stations and exposed location single buoy moorings, used in the offshore petroleum industry for drilling, processing, and for storage purposes. We currently reference Edition 2.0 (2007) of this standard in § 111.108–3(b). We propose to update the reference in § 111.108–3(b) to the more recent edition 4.0 (2019) and to insert new references to this standard in §§ 111.105–1, 111.105–3(b), 111.105–7, and 111.105–17(b). The standard has been completely rewritten. The Explosion Protection Level concept has been introduced as an alternative risk-based classification method and the requirements for installations in hazardous conditions reference IEC 60079–14 and other relevant standards, as appropriate. The incorporation of this standard into subpart 111.105 will provide an alternate standard for classifications for hazardous locations.
- *IEC 62271–100:2017—High-voltage switchgear and controlgear—Part 100: Alternating-current circuit-breakers, Edition 2.2, 2017–06.* This standard provides construction and testing requirements for circuit-breakers having voltages above 1000 V. We currently reference Edition 1.1 (2003) of this standard in § 111.54–1(c). We propose to reference the more recent edition 2.2 (2017) of this standard. There have been numerous technical updates to address technical advancements in switchgear. To ensure we address the latest technologies and industry practices, we are proposing to incorporate the more recent edition of this standard.
- *IEC–TR 60092–370:2009—Technical Report—Electrical installations in ships—Part 370: Guidance on the selection of cables for telecommunication and data transfer including radio-frequency cables, Edition 1.0, 2009–07.* This technical report gives guidance and basic recommendations for the selection and installation of shipboard and offshore unit cables intended for electrical systems used in both essential and non-essential analogue or digital signal communication, transmission, and control networks, including types suitable for high-frequency signals (*i.e.,* signals with a frequency of more than 10^5 Hertz). We propose to reference this new standard in § 111.60–1. This will align our requirements with those of recognized classification society rules and industry practice.
- *IEC/IEEE 80005–1:2019—Utility connections in port—Part 1: High voltage shore connection (HVSC) systems—General requirements, Edition 2.0, 2019–03.* This standard describes the design, installation, and testing of HVSC systems, on board the ship and on shore, to supply the ship with electrical power from shore. Ships may be required by state or local laws to connect to high voltage shore power (over 1000 V) rather than running their onboard generators. We propose in § 111.83–7 that these ships meet the requirements of this standard.
- *International Convention for the Safety of Life at Sea (SOLAS), Consolidated Text of the International Convention for the Safety of Life at Sea, 1974, and its Protocol of 1988: Article, Annexes and Certificates. (Incorporating all amendments in effect from 1 July 2014), 2014.* SOLAS provides requirements for vessel construction, arrangement, and management on international voyages. We reference SOLAS 2001 requirements in §§ 111.99–5, 112.15–1, and 113.25–6 and propose to incorporate the latest 2014 edition of SOLAS. While the applicable sections of SOLAS referenced in these requirements have not changed, for completeness we are incorporating the latest SOLAS amendments because industry is likely to use the more recent edition.
- *International Maritime Organization Resolution A.1023(26)—*

Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009. We propose nonsubstantive formatting change to the listing of this resolution in § 110–10–1(b). Chapter 6 of this resolution is referenced in § 111.108–3(b). The resolution provides requirements for machinery and electrical installations in hazardous areas of mobile offshore drilling units.

• *International Society of Automation (ISA) RP 12.6—Wiring Practices for Hazardous (Classified) Locations Instrumentation Part I: Intrinsic Safety, 1995.* We are proposing to delete this standard from reference in § 111.105–11. It has been withdrawn by ISA, is no longer supported by ISA, and is not available at *www.isa.org.* Instead, we propose to reference NFPA 70 and IEC 60092–502:1999 for the intrinsically safe system requirements in § 111.105–11.

• *ISO* 25861—*Ships and marine technology—Navigation—Daylight signaling lamps, first edition, Dec, 1, 2007.* We are proposing to reference this standard in § 111.75–18 regarding daylight signaling lamps. This standard provides performance requirements for daylight signaling lamps pursuant to chapter V of SOLAS, 1974, as amended, and chapter 8 of the International Code for Safety for High-Speed Craft. The performance standards for daylight signaling lamps currently in § 111.75–18 are based on the international requirements in place in 1996. These requirements have been superseded by the requirements contained in ISO 25861.

• *Lloyd's Register Type Approval System-Test Specification Number 1, March 2019.* This specification details performance and environmental testing required for products used in marine applications. We currently reference the 2002 edition of this standard in § 113.05–7(a). We propose to reference the more recent 2019 edition. It has been updated several times to keep pace with changes in environmental testing.

• *National Electrical Manufacturers Association (NEMA) Standards Publication ICS 2–2000 (R2005)—Industrial Control and Systems Controllers, Contactors, and Overload Relays, Rated 600 Volts, 2000.* This edition is referenced in § 111.70–3. NEMA reaffirmed the edition without change in 2005. We propose to reference the reaffirmed date in the standard's title, which would result in no substantive changes.

• *NEMA Standards Publication ICS 2.3–1995—Instructions for the Handling, Installation, Operation, and Maintenance of Motor Control Centers Rated not More Than 600 Volts, 1995 (R2008).* This edition is referenced in § 111.70–3. NEMA reaffirmed the edition without change in 2008. We propose to reference the reaffirmed date in the standard's title, which would result in no substantive changes.

• *NEMA Standards Publication No. ICS 2.4–2003 (R2102)—NEMA and IEC Devices for Motor Service—a Guide for Understanding the Differences, 2003.* This edition is referenced in § 111.70–3. NEMA reaffirmed the edition without change in 2012. We propose to reference the reaffirmed date in the standard's title, which would result in no substantive changes.

• *NEMA Standards Publication No. ANSI/NEMA 250–2018—Enclosures for Electrical Equipment (1000 Volts Maximum), Edition 14, 2018.* This standard covers classification of enclosures for electrical equipment as well as the requirements for these enclosures and tests to demonstrate conformance with the requirements. We currently reference the 1997 edition of this standard in §§ 110.15–1, 111.01–9, 113.10–7, 113.20–3, 113.25–11(a), 113.30–25(e), 113.37–10(b), 113.40–10(b), and 113.50–5(g). We propose to reference the more recent 2014 edition in these sections. The 2014 edition added several new enclosure types as well as several minor construction details.

• *NEMA Standards Publication No. WC–3–1992—Rubber Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy, Revision 1, Feb. 1994.* This is one of many options listed as a standard for allowable current-carrying capacity. We propose to delete it from § 111.60–13(c) because NEMA rescinded the standard.

• *ANSI/NEMA WC–70 ICEA S–95–658—Power Cables Rated 2000 V or Less for the Distribution of Electrical Energy, Feb. 23, 2009.* This standard applies to materials, constructions, and testing of 2000 V and less thermoplastic, cross-linked polyethylene, and cross-linked rubber insulated wires and cables which are used for the transmission and distribution of electrical energy for normal conditions of installation and service, either indoors, outdoors, aerial, underground, or submarine. We currently reference the 1999 edition of this standard, NEMA WC–70ICEA S–95–658, in § 111.60. We propose to reference the more recent 2009 edition with the updated naming convention. The 2009 standard contains updates based on advancements in technology including new cable jacket types and updated testing methods.

• *National Fire Protection Association (NFPA) 70—National Electrical Code, 2017 Edition.* This code is referenced in many sections of subchapter J and is the basis for electrical regulations worldwide. Currently, both the 2002 and 2014 editions of the code are incorporated by reference in §§ 111.05–33, 111.20–15, 111.50–3, 111.50–7(a), 111.50–9, 111.53–1(a), 111.54–1(a), 111.55–1(a), 111.59–1, 111.60–7, 111.60–13, 111.60–23, 111.81–1(d), 111.105–1, 111.105–3, 111.105–7(a), 111.105–11, 111.105–17(b), 111.106–3(b), 111.106–5(c), 111.107–1(b) and 111.108–3(b)(1) and (2). We propose to reference the 2017 edition in all the aforementioned sections where the NFPA 70 code is referenced. We also propose to include § 110.15–1 in the list of sections referencing NFPA 70 because NFPA 70 is currently used in the definition of ''Special Division 1''. Substantive changes to the NFPA 70 articles between the previous editions include the following:

○ Article 240—This article on overcurrent protection raised the threshold for high voltage overcurrent protection from 600 V to 1000 V. Additionally, it addresses arc energy reduction of fuses rated at 1200A or higher.

○ Article 250.119—Section 250.119 details the identification requirements for equipment grounding conductors. The 2017 and 2002 editions are similar, but the 2017 edition contains greater specificity for specific installations and prohibits other cables to be covered in manner that could confuse them with equipment grounding conductors.

○ Article 250.122—Section 250.122 details requirements for the size of equipment grounding conductors. The content in the two editions is similar, but the 2017 edition adds requirements for multi-conductor cable, consideration of instantaneous-trip circuit breakers or motor short-circuit protectors, and greater specificity for flexible cord and fixture wire.

○ Article 250—This article on grounding conductors has been updated based on changes in technology and has added requirements for conductors in raceways and multiconductor cable.

○ Article 314—This article on outlet or junction boxes has several minor updates based on changes in technology or industry practices.

○ Article 368—This article on busways was reformatted and the threshold for high voltage busways was raised from 600 V to 1000 V. Additionally it provides more detailed wiring requirements.

○ Article 400—This article on flexible cords and cable provides several additional types of flexible cords as well as conductor sizes, but the allowable

ampacities for the existing types of flexible cords and cables have not changed. Additionally, it requires that the maximum operating temperature be added to the required markings.

- Article 404—It has been clarified that this article on switches in <1000 V systems and several additional switch types have been added.
- Article 430—This article on motors now raises the threshold for motors requiring additional protective measures from 600 V to 1000 V. Part X has been added to provide greater detail on adjustable-speed drive systems. Additionally a variety of minor technical updates made as well as referencing the latest standards.
- Article 450—This article on transformers raised the transformer threshold for high voltage transformers from 600 V to 1000 V. Additionally minor editorial changes were made. For example, in several sections the word ''sufficient'' was replaced with ''not less than'' to ensure the intent was clear.
- Article 504—Sections 504.10, 504.30, 504.50 and 504.60 on intrinsically safe system design are proposed to be added in § 111.105–11 because ISA RP 12.6 has been withdrawn by ISA. The requirements are similar and NFPA is the authoritative standard for electrical engineering design.

• *NFPA 77—Recommended Practice on Static Electricity, 2019 Edition.* This recommended practice applies to the identification, assessment, and control of static electricity for purposes of preventing fires and explosions. We currently reference the 2000 edition of this standard in § 111.105–27(b). We propose to reference the more recent, 2019 edition, which has been completely reorganized but the technical content is very similar. However, the 2019 editions contains changes regarding the characterization of combustible dust.

• *NFPA 99—Health Care Facilities Code, 2018.* This code provides information on health care facilities related to medical gas and vacuum systems, electrical systems, electrical equipment, and gas equipment. We currently reference the 2005 edition of this standard in § 111.105–37. We propose to reference the more recent 2018 edition. The 2018 standard contains extensive updates and is the authoritative reference for flammable anesthetics.

• *NFPA 496—Standard for Purged and Pressurized Enclosures for Electrical Equipment, 2017 Edition.* This standard applies to purging and pressurizing for electrical equipment in hazardous locations, electrical equipment containing sources of flammable vapors, control rooms or buildings in hazardous locations, and analyzer rooms containing sources of flammable vapors or gases and located in hazardous locations. We currently reference the 2003 edition of this standard in § 111.105–7, the 2008 edition is currently referenced in § 111.106–3(c), and the 2013 edition is currently referenced in § 111.108–3(d). We propose to update the reference to the more recent 2017 edition in §§ 111.105–7, 111.106–3(c), and 111.108–3(d). The standard was revised to ensure correlation with the 2011 edition of NFPA 70. The definitions of ''energized'' and ''identified'' are extracted from NFPA 70. Equipment is required to be identified for use in a classified area, and the requirements for determining the suitability of identified equipment have been clarified. NFPA 496 clarified the definitions of Type X, Type Y, and Type Z pressurizing to more clearly define their usage. NFPA 496 has been an industry standard for purged and pressurized enclosures since 1971. Further, the newer edition no longer includes unspecific language such as ''near'', ''close to'', and ''significant portion.'' Such terms cannot be quantified in the design or evaluation of an installation designed to the standard.

• *Naval Sea Systems Command (NAVSEA) DDS 300–2—A.C. Fault Current Calculations, 1988.* We propose to remove this standard from Subchapter J because it is no longer supported or available. This is one of four options for fault calculations in § 111.52–5. We propose to reorganize the requirements for short-circuit calculations for systems 1500 kilowatts or above in § 111.52–5 into new § 111.51–4. The other three options would be included in the new § 111.51–4.

• *MIL–HDBK–299(SH), 1991—Military Handbook Cable Comparison Handbook Data Pertaining to Electric Shipboard Cable Notice 1–1991.* This document provides basic information on, and listings of, shipboard cables and also provides guidance for their design, handling, installation, and maintenance. This current edition is referenced in § 111.60–3 regarding cable applications. We propose to delete this standard because we are also proposing to delete § 111.60–3, which we discuss in section VI.C of this preamble as being unnecessarily prescriptive.

• *UL 44—Standard for Safety Thermoset-Insulated Wire and Cable, 2018.* This standard specifies the requirements for single-conductor and multiple-conductor thermoset-insulated wires and cables rated 600 V, 1000 V, 2000 V, and 5000 V. We currently reference the fifteenth edition (1999) of this standard in § 111.60–11(c). We propose to reference the nineteenth edition (2018). The standard has been completely updated based on changes in technology and now addresses wires and cables up to 5000 V. The 2002 edition only went to 2000 V. Additionally, new wire types and maximum voltage ratings are addressed

• *UL 50—Standard for Safety Enclosures for Electrical Equipment, 2013.* This standard covers the non-environmental construction and performance requirements for enclosures to protect personnel against incidental contact with the enclosed equipment. We currently reference the eleventh edition (1995) of this standard in § 111.81–1(d). We propose to reference the more recent thirteenth edition (2013). The updated standard addresses the following additional items:

- Addition of environmental Type ratings 3X, 3RX, and 3SX;
- Sharp edges on electrical equipment;
- Requirements for slot and tab fastenings;
- Clarification of types of cast metal suitable for use as an enclosure;
- Equipment door opening 90 degrees from the closed position;
- Certification Requirement Decision for nonmetallic-sheathed cable clamps; and
- Revision to requirement of cover and flange overlap for cabinets used as panelboards.

• *UL 62—Standard for Safety Flexible Cords and Cables, 2018.* This standard specifies the requirements for flexible cords, elevator cables, electric vehicle cables, and hoistway cables rated 600 V maximum. We currently reference the sixteenth edition (1997) of this standard in § 111.60–13(a). We propose to reference the more recent twentieth edition (2018). This standard has been updated based on advancements in technology to address new cable types, jacket types, and testing techniques. To ensure we address the latest technologies and industry practices, we are proposing to incorporate the more recent edition of this standard.

• *UL 83—Standard for Safety Thermoplastic-Insulated Wires and Cables, 2017.* This Standard specifies the requirements for 600 V, single-conductor, thermoplastic-insulated wires and cables. We currently reference the twelfth edition (1998) of this standard in § 111.60–11(c). We propose to reference the sixteenth edition (2017). The standard has been completely

updated based on changes in technology. For example, it now addresses many new types of wire, wire sizes, and updated testing requirements.

- *UL 484—Standard for Safety Room Air Conditioners, 2014.* This standard provides requirements for room air conditioners rated not more than 600 V AC. We currently reference the seventh edition (1993) of this standard in § 111.87–3(a). We propose to reference the more recent, ninth edition (2014). The standard has been updated to account for current technology and environmental testing. In addition, sections dealing with smart air conditioners and air conditioners using flammable refrigerants have been added. To ensure we address the latest technologies and industry practices, we are proposing to incorporate the more recent edition of this standard.
- *UL 489—Standard for Safety Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures, 2016.* This standard provides requirements for molded-case circuit breakers, circuit breaker and ground-fault circuit-interrupters, fused circuit breakers, high-fault protectors, and high-fault modules. These circuit breakers are specifically intended to provide service entrance, feeder, and branch circuit protection. We currently reference the ninth edition (1996) of this standard in §§ 111.01–15(c) and 111.54–1(b). We propose to reference the thirteenth edition (2016). There have been numerous technical updates to the standard. The scope has been increased to address component testing, programmable components, electronic overprotection, and electromagnetic compatibility. To ensure we address the latest technologies and industry practices, we are proposing to incorporate the more recent edition of this standard.
- *UL 514A—Standard for Safety Metallic Outlet Boxes, 2013.* This standard provides requirements for metallic outlet boxes including those intended for marine applications. We currently reference the ninth edition (1996) of this standard in § 111.81–1(d). We propose to reference the more recent, eleventh edition (2013). UL 514A has been revised and updated to account for advancements outlet box construction. It has been an industry standard for metallic outlet boxes since 1928.
- *UL 514B—Standard for Safety Conduit, Tubing, and Cable Fittings, 2012.* This standard provides requirements for fittings for use with cable and conduit. We currently reference the fourth edition (1997) of this standard in § 111.81–1(d). We propose to reference the more recent, sixth edition (2012). UL 514B has been updated to account for advancements in conduit, tubing, and cable fitting construction, as well as testing techniques. To ensure we address the latest technologies and industry practices, we are proposing to incorporate the more recent edition of this standard.
- *UL 514C—Standard for Safety Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers, 2014.* This standard provides requirements for nonmetallic outlet boxes, conduit bodies, flush-device boxes, extension rings, and covers. We currently reference the second edition (1988) of this standard in § 111.81–1(d). We propose to reference the more recent, fourth edition (2014). UL 514C has been updated to align with advancements in nonmetallic outlet boxes and alignment with requirements in similar standards. To ensure we address the latest technologies and industry practices, we are proposing to incorporate the more recent edition of this standard.
- *UL 674—Standard for Safety: Electric Motors and Generators for Use in Hazardous (Classified) Locations, 2011.* This standard provides requirements for electric motors and generators or submersible and nonsubmersible sewage pumps and systems suitable for use in hazardous (classified) locations. We currently reference the fourth edition (2003) of this standard in § 111.106–3(b) and the fifth edition (2011) is referenced in § 111.108–3(b). We propose to reference the more recent, fifth edition (2011) in §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). This ensures consistent, up-to-date standards for electrical installations on all vessel and facility types.
- *UL 823—Electric Heaters for Use in Hazardous (Classified) Locations, 2006.* This standard provides requirements for electric heaters suitable for use in hazardous (classified) locations. We currently reference the ninth edition (2006) of this standard in §§ 111.106–3(b) and 111.108–3(b). We propose to reference the ninth edition (2006) in § 111.105–7(a), as well. This ensures that standards are consistent for electrical installations on all vessel and facility types.
- *UL 844—Standard for Safety: Luminaires for Use in Hazardous (Classified) Locations, 2012.* This standard provides requirements for fixed and portable luminaires for installation and use in hazardous (classified) locations. We currently reference the twelfth edition (2006) of this standard in § 111.106–3(b) and the thirteenth edition (2012) is referenced in § 111.108–3(b). We propose to reference the more recent, thirteenth edition (2012), in §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). This latest edition includes the following minor technical revisions:
  - Revisions for test paint for spray booth luminaires;
  - Revisions for temperature tests at elevated ambient temperatures; and
  - Clarification of required number of as-received samples of polymeric enclosure materials.
- *UL 913—Standard for Safety: Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous Locations, Eighth Edition, 2013.* This standard provides requirements for apparatus or parts of apparatus intended for installation in hazardous locations. We currently reference the sixth edition (2002) of this standard in § 111.105–7(a) and the seventh edition (2006) is referenced in §§ 111.106–3(b) and 111.108–3(b). We propose to reference the more recent eighth edition (2013) in §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). This latest edition includes the following technical revisions:
  - Revisions to reference the latest 2013 editions of UL 60079–0 and UL 60079–11;
  - Deletion of redundant references to applicable ordinary locations requirements;
  - Revisions to address the equivalent installation and use of Class I, Division 1 and Class II, Division 1 intrinsically safe and associated apparatus in Class I, Zone 0 and Zone 20 hazardous (classified) locations respectively; and
  - Revisions to dust-tight enclosures for Class II Intrinsically Safe Apparatus.
- *UL 1042—Standard for Safety Electric Baseboard Heating Equipment, 2009.* This standard provides requirements for portable and fixed electric baseboard heating equipment rated at 600 V or less. We currently reference the third edition (1994) of this standard in § 111.87–3. We propose to reference the more recent, fifth edition (2009). This latest edition includes the following technical revisions:
  - Revisions requiring portable heater power supply cords to meet UL 817.
  - Revisions requiring electric connections to meet established UL standards, UL 310, UL 486A–486B, UL 886C, UL 486E, or UL 1977.
  - Revisions to equipment grounding provisions.
  - Update to the leakage current test.
- *UL 1072—Standard for Safety Medium-Voltage Power Cables, 2006.* This standard provides requirements for

shielded and nonshielded medium-voltage power cables. We currently reference the third edition (2001) of this standard in § 111.60–1(a). We propose to reference the more recent fourth edition (2006). The fourth edition contains revised supplemental jacket thicknesses. Because supplemental jackets are only required for cables intended to be buried in the ground, this revision has no substantive impact on UL 1072 cables intended for use on vessels.

• *UL 1104—Standard for Marine Navigation Lights, Second Edition, 1998.* This standard provides construction and testing requirements for navigation lights. This standard is referenced in § 111.75–17(f). The only changes proposed to this standard are to align the naming convention in the regulatory text with that of other UL standards and to specifically cite paragraph (f).

• *UL 1203—Standard for Safety: Explosion-Proof and Dust-Ignition Proof Electrical Equipment for Use in Hazardous (Classified) Locations, 2013.* This standard covers explosion-proof and dust-ignition-proof electrical equipment for installation and use in hazardous locations. We currently reference the third edition (2000) of this standard in § 111.105–9 and the fourth edition (2006) in §§ 111.106–3(b) and 111.108–3(b). We propose to reference the more recent fifth edition (2013) in § 111.105–7(a) instead of § 111.105–9 due to editorial reformatting of §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). The more recent edition has relatively minor technical clarifications with minimal substantive changes.

• *UL 1309—Standard for Safety Marine Shipboard Cables, 2017.* This standard provides requirements for distribution (power) cables, and control and signal cables, for installation aboard marine vessels, fixed and floating offshore petroleum facilities, and Marine Offshore Drilling Units (MODUs). We currently reference the first edition (1995) of this standard in §§ 111.60–1, 111.60–3, and 111.106–5(a). We propose to reference the more recent, third edition (2017) only in §§ 111.60–1 and 111.106–5(a), because we are proposing to delete § 111.60–3. The standard has received updates to its construction, performance, ratings, and markings requirements.

• *UL 1581—Standard for Safety Reference Standard for Electrical Wires, Cables, and Flexible Cords, 2001.* We propose to delete references to this standard in §§ 111.30–19, 111.60–2, and 111.60–6 because the referenced test in this standard, VW–1, has been moved to UL 2556.

• *UL 1598—Standard for Safety Luminaires, 2018.* This standard provides requirements for luminaires for use in nonhazardous locations that are intended for installation on branch circuits of 600 V nominal or less. We currently reference the first edition (2000) of this standard in § 111.75–20. We propose to reference the more recent fourth edition (2018), which has been extensively updated based on changes in technology and construction techniques. This edition includes added requirements for placement and construction of light-emitting diode (LED) luminaires as well as LED test methods. The standard also includes LED components and subassemblies, and other LED requirements.

• *UL 1598A—Standard for Safety Supplemental Requirements for Luminaires for Installation on Marine Vessels, First Edition (with revisions through Apr. 17, 2015), Dec. 4, 2000.* The First Edition, December 4, 2000, is currently incorporated by reference in § 111.75–20. We propose to incorporate the First Edition with revisions through April 17, 2015 in this section. UL 1598A provides additional requirements for luminaires meeting UL 1598 and intended for vessels to ensure these luminaires are suitable for marine and shipboard environments. The revisions to the First Edition include non-substantive updates necessary due to changes in to clauses of standards referenced within UL 1598A that occurred since publication of the First Edition.

• *UL 1604—Electrical Equipment for use in Class I and II, Division 2 and Class III Hazardous (Classified) Locations, 1994.* We propose to delete this standard from § 111.108–3(b) because UL withdrew it and it is no longer an active standard. This is one of many options in § 111.108–3(b) for standards on electrical equipment in hazardous locations.

• *UL 2021—Standard for Safety Fixed and Location-Dedicated Electric Room Heaters, 2015.* We propose to reference this standard in § 111.87–3(a). This standard provides requirements for electric air heaters. It will be an additional standard regulated entities may choose for electric air heaters. We have previously accepted it on a case-by-case basis as equivalent to the existing standards in § 111.87–3(a).

• *UL 2225—Standard for Safety: Cables and Cable-Fittings for use in Hazardous (Classified) Locations, 2013.* We currently reference the second edition (2005) of this standard in § 111.106–3(b) and the third edition (2011) of this standard in § 111.108–3(b). We propose to reference the more recent fourth edition (2013) in §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b). The latest edition includes the addition of Type TC–ER–HL cable for use in Class I, Zone 1 as permitted by the 2014 National Electrical Code to the scope, editorial revisions, and error corrections sections of the standard. The incorporation of this edition into all three sections ensures consistent, up-to-date standards for electrical installations on all vessel and facility types.

• *UL 2556—Wire and Cable Test Methods, 2015.* This standard describes the apparatus, test methods, and formulas to be used in carrying out the tests and calculations required by wire and cable standards. The flame retardant test VW–1, formerly of UL 1581, has been moved to this standard and is now called FV–2/VW–1. We propose to replace the UL 1581 with UL 2556 in § 111.30–19(b).

• *UL 60079–18—Standard for Safety Explosive Atmospheres—Part 18: Equipment Protection by Encapsulation ''m'', 2017.* We propose this standard as a replacement for the ANSI/ISA 60079–18, which was withdrawn. UL 60079–18 is not substantively different than ANSI/ISA 60079–18. This standard gives the specific requirements for the construction, testing and marking of electrical equipment, parts of electrical equipment and Ex components with the type of protection encapsulation ''m'' intended for use in explosive gas atmospheres or explosive dust atmospheres. We propose to reference this standard in §§ 111.105–7(e), 111.106–3(d), and 111.108–3(e).

B. Generator Prime Movers

We propose to delete the requirements in §§ 111.12–1(b) and (c) for each generator prime mover to have an independent overspeed device and a loss of lubricating oil pressure to the generator bearing oil pressure shutdown. The ABS Steel Vessel Rules, which are already incorporated by reference in § 58.01–5, require these same safeguards on all but small, generator prime movers. The independent overspeed device is required for each engine driving a generator of 220 kW (295 hp) and above, while the oil pressure shutdown is required for generators of 100 kW (135 hp) and above. This sufficiently addresses the concerns that § 111.12–1(b) and (c) were intended to address. The Coast Guard has required generator prime movers to meet ABS rules since 1965. We propose to incorporate the ABS Steel Vessel Rules for generator

prime movers without modification to reduce reliance on government-unique standards where an existing voluntary standard will suffice, as advocated in OMB Circular A–119.

C. Electrical Cable

We propose to update and amend subpart 111.60 (Wiring Materials and Methods) to align it more closely with the standards accepted internationally by vessel classification societies and foreign administrations. Vessels participating in the Coast Guard's Alternate Compliance Program are constructed and operated in accordance with classification society rules and are not required to meet all of the requirements in subpart 111.60. We are not aware of any casualties as a result of this.

We propose to add several additional cable construction standards to § 111.60–1, thus creating a broader list of acceptable standards. This has allowed us to propose removing many of the more prescriptive cable requirements in §§ 111.60–2, 111.60–3, 111.60–4, and 111.60–6 because of the availability of widely accepted additional standards. For example, cable for communication and radio frequency applications, and fiber optic cable, are available to meet the standards of § 111.60–1 and therefore §§ 111.60–2 and 111.60–6 are no longer necessary.

We also propose deleting the cable application regulations in § 111.60–3 as they are unnecessarily prescriptive. Instead, entities would consult the current and proposed cable construction standards in proposed § 111.60–1 for the application of specific types of cable. We propose to adopt these industry standards in lieu of our own prescriptive standards.

In § 111.60–5(a), the Coast Guard currently requires that cable installations meet the recommended practices contained in IEEE 45–2002, and we excluded the section concerning cable splices. Now we propose to update the edition to IEEE 45.8–2016 and remove the exclusion for the section on cable splices because it is inconsistent with other regulations to exclude them. The existing and proposed regulations regarding cable splices in § 111.60–19 refer to IEEE 45's recommendations for cable splices.

Additionally, in Table 111.60–7—Demand Loads, we propose minor edits to make ''bus-tie'' and ''feeder'' plural where they appear in the table. As previously mentioned in the IBR updates to § 110.10–1, we would also update the NFPA NEC 2002 standard to its newer edition NFPA 70, where it appears in the table.

D. IEC 60092–502 Electrical Installations in Ships—Part 502: Tankers—Special Features

We propose to accept IEC 60092–502:1999 as an option for classification of hazardous locations (areas) in the new § 111.105–50(a). Section 111.105–50(a) would contain alternative standards for the classification of hazardous locations requirements in §§ 111.105–29, 111.105–31, 111.105–32, 111.106–9 and 111.106–11 of this subchapter. This IEC standard is referenced in *SOLAS II–1/45.11, the International Code of the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk section 10.1.1, the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk section 10.1.2.1,* and all major classification societies' rules. Allowing this option will provide system designers with the flexibility to classify and specify equipment for hazardous locations using the same scheme used internationally.

IEC 60092–502:1999 is currently accepted for use by vessels in the Coast Guard's Alternate Compliance Program when supplemented with ''USCG Supplemental Requirements for use of IEC 60092–502:1999 for application of SOLAS regulation II–1/45.11 to U.S.-flag vessels.'' [2] The Coast Guard developed these supplemental requirements to ensure an equivalent level of safety as the requirements of subpart 111.105. In this rulemaking, we propose to accept IEC 60092–502:1999 without the supplement. This edition of the standard has been published for over 15 years and we are not aware of any casualty history attributed to its use as compared to vessels complying with the applicable U.S. regulations. For these reasons, we propose it as an option for U.S. vessels.

In § 111.105–50(c), we propose to add that if IEC 60092–502:1999 is used for hazardous locations classifications, then the applicable ventilation requirements for cargo handling rooms on tank vessels in subchapter D would apply. This is not a new requirement, but it is placed here to ensure system designers do not assume that compliance with the ventilation standards in IEC 60092–502:1999 is sufficient.

[2] *See* Commercial Vessel Inspection Alternatives and Delegated Functions available at *https://www.dco.uscg.mil/Our-Organization/Assistant-Commandant-for-Prevention-Policy-CG-5P/Commercial-Regulations-standards-CG-5PS/Office-of-Standards-Evaluation-and-Development/US-Coast-Guard-Regulatory-Development-Program-RDP-/Alternate-Compliance-Program/.*

E. Emergency Generator in Port

We propose in the new § 112.05–7 to allow the emergency generator to be used in port, provided supplemental safety standards are in place. The current regulations in § 112.05–1 requires that the emergency source of power must be dependable, independent, and dedicated. The purpose of these requirements in § 112.05–1 is that emergency power must be immediately and dependably available in the event of a loss of the ship's service power. For decades this has been achieved by installation of a dedicated and independent emergency generator.

In the late 1990s, the International Association of Classification Societies proposed a unified interpretation to the IMO in light of improvements in automation and potential environmental benefits. That proposal incorporated a set of additional safety standards in order to allow the use of an emergency generator during lay time in port. This interpretation, with the supplemental safety standards, would encourage the use of a more appropriately sized generator for lay time loads instead of an overly large ship service generator while simultaneously assuring the availability of emergency power. Predicated on the premise that this proposal provided an equivalent level of safety, it was subsequently adopted by the IMO in 2005, promulgated in IMO circular MSC/Circ.1176 dated 25 May 2005 and updated in IMO circular MSC.1/Circ. 1464/Rev.1 dated 24 Oct. 2013. Since then, most classification societies and flag States have harmonized their rules to align with this interpretation.

Similar to the determination made by the IMO, we propose to allow use of emergency power systems that incorporate a generator with the additional safeguards similar to those prescribed by the IMO. The additional safeguards provide an equivalent level of safety as the existing requirements in part 112 as well as other potential operational benefits. With respect to providing a dependable source of emergency power, operation of the emergency generator in port does not decrease the dependability of the emergency power system. On the contrary, regular operation of the generator with the associated planned maintenance scheme required by MSC.1/Circ.1464/Rev.1 will result in increased dependability and crew familiarity and an improved readiness of the system should an emergency situation occur. Further, the additional requirements related to load shedding,

fuel and lubrication oil systems, generator and switchboard construction, power management, and operational instructions will ensure the dedicated and independent operation of this system in an emergent situation and solely provide service to the emergency power system. Overall, this system will deliver additional flexibility to the crew while ensuring the availability of a dedicated source of power in the event of an emergency. The proposed arrangements will result in improved performance, better fuel economy, lower emissions, and higher reliability than less integrated systems.

For these reasons, we propose to allow the emergency generator to be used in port provided that supplemental safety standards are in place. The supplemental safety standards proposed in § 112.05–7 are similar to those prescribed in MSC.1/Circ.1464/Rev.1 as well as section 4–8–2/5.17 of the ABS Marine Vessel Rules.

F. Description of Additional Proposed Changes Within Subchapter J

Section 110.15–1 Definitions

We propose a more descriptive definition of ''deadship'' that aligns with 4–1–1/1.9.6 of the ABS Marine Vessel Rules and IEC 60092–201:2019.

The definition of a ship's service loads and drilling loads would be moved from § 111.10–1(a) to § 110.15–1 so all definitions are in one location.

Section 110.25–1 Plans and Information Required for New Construction.

We propose to consolidate the hazardous locations plan submittal requirements of the existing § 110.25–1(i), (p), and (q) into a single section. The Offshore Supply Vessels of at Least 6,000 GT ITC interim rule (79 FR 48893, Aug. 18, 2014) and the Electrical Equipment in Hazardous Locations final rule (80 FR 16980, Mar. 31, 2015) included plan submittal requirements, §§ 110.25–1(p) and (q), respectively. As explained in Section V, we propose to offer all types of vessels and facilities the same selection of explosion protection standards. Therefore, the plan submittal requirements are identical and three separate sections are no longer required.

Section 111.05–3 Design, Construction, and Installation; General

In § 111.05–3(c), the grounding requirements for appliances and tools would be clarified so that they are consistent with current industry practice.

Section 111.10–9 Ship's Service Supply Transformers; Two Required

The note to § 111.10–9 has been revised to clarify that transformers located downstream of the ship's service switchboard are not required to be provided in duplicate. This is an item regularly misunderstood and is explained on page 16 of the Navigation and Vessel Inspection Circular (NVIC) 2–89, ''Guide for Electrical Installations on Merchant Vessels and Mobile Offshore Drilling Units'', dated Aug. 14, 1989.[3]

Section 111.12–11 Generator Protection

In this section and many other sections, the term ''semiconductor rectifier (SCR)'' has been replaced with ''semiconductor converter'', a term now more commonly used in industry.

Section 111.12–13 Propulsion Generator Protection

This section on propulsion generator protection would be deleted because it is simply a reference to § 111.35–1. This cross reference is not necessary.

Section 111.15–10 Ventilation

In § 111.15–10(b)(2)(i), the IEC equivalent classification of Class I, Division 1, Group B would be added as an alternate standard.

Section 111.25–5 Marking

We propose to delete this section because the requirements for motor markings are sufficiently addressed by the referenced ABS Marine Vessel Rules.

Section 111.30 Switchboards

The requirements for switchboards contained in IEEE 45 2002 would be replaced with requirements from the recently published IEEE 45.7 (2012).

This proposed rule would add a note to § 111.30–5 warning that the interchangeability and compatibility of components complying with both IEEE and IEC cannot be assumed, to address the growing use of components meeting IEC standards on U.S. vessels.

The flame retardant test standard IEC 332–1 has been superseded by IEC 60332–1–1:2015 and IEC 60332–1–2:2015. We propose to update the standards for the flame retardant test in § 111.30–19(b)(4) regarding buses and wiring.

The term ''pilot light'' would be replaced with the more commonly used term ''indicator light.''

Subpart 111.33 Power Semiconductor Rectifier Systems

The requirements for semiconductor converters contained in IEEE 45 2002 are being replaced with requirements from the recently published of IEEE 45.2 (2012).

Section 111.50–3 Protection of Conductors

In § 111.50–3(b)(2), the requirements for steering gear circuits is being changed from subchapter F to a more specific cite of § 58.25. Reference to IEC 92–202 has been removed from § 111.50–3(c). This standard does not address standard ratings for fuses or circuit breakers.

Subpart 111.51 Calculation of Short-Circuit Currents and Subpart 111.52 Coordination of Overcurrent Protective Devices

We propose to combine subparts 111.51 and 111.52 into new subpart 111.51 to more clearly and concisely present the requirements for coordination of overcurrent protection devices and calculation of short-circuit currents. The general discussion contained in current § 111.51–1 is based on IEC 60092–202:2016.

The short-circuit calculations requirements of proposed § 111.51–2(a) are from the existing § 111.52–1. The proposed § 111.51–2(b) would clarify that the calculations must be performed to select suitably rated equipment and protective devices. The short-circuit calculations requirements of the proposed §§ 111.51–3 and 111.51–5 are from the existing §§ 111.52–3 and 111.52–5, respectively.

NAVSEA DDS 300–2 is proposed for deletion because it is no longer available. IEC 61660–1:1997 would be added as a standard for DC systems.

The requirements for the protection of vital equipment, § 111.51–6, is from the existing § 111.51–3.

Section 111.54–1 Circuit Breakers

In § 111.54–1(c)(2), the maximum voltage for direct-current circuit breakers meeting IEC 60947–2:2013 has been identified as 1500 V. This is in accordance with that standard.

Section 111.75–17 Navigation Lights

In § 111.75–17(a), we propose to remove the requirement that the navigation light indicator panel be supplied by a feeder directly from the emergency switchboard. The panel will still be required to be supplied from the

[3] NVIC 2–89 ''Guide for Electrical Installations on Merchant Vessels and Mobile Offshore Drilling Units'' is available at *https://www.dco.uscg.mil/Portals/9/DCO%20Documents/5p/5ps/NVIC/1989/n2-89.pdf.*

emergency switchboard but this change allows for the common practice of suppling the navigation lights from an emergency lighting panel rather being directly fed from the switchboard. This is consistent with industry practice and vessel classification society rules. As part of this change we are also proposing to delete § 112.43–13 which provided details on the navigation light panel feeder.

In § 111.75–17(d)(2), we propose to offer EN 14744 as an alternative for certification of navigation lights. UL 1104 is the other acceptable standard, but it has not been updated in over 20 years and addresses neither LED light sources nor EMC testing. The other construction and testing requirements of EN 14744 are not identical to UL 1104, but it is accepted worldwide. It addresses LED lights and EMC testing and has been published for 15 years. We are unaware of any safety concerns related to it. For these reasons, we feel it is an acceptable option for certification of navigation lights. Navigation lights constructed and tested to the requirements of EN 14744 have been accepted by the Coast Guard on a case-by-case basis subject to the additional requirements of the USCG Marine Safety Center's Marine Technical Note 01–18, Guidance for Establishing Equivalency to UL 1104 Navigation Lights.[4] We propose to accept EN 14744 without these additional requirements.

Additionally in § 111.75–17(d)(2), the requirements for battery powered navigation lights have been clarified. The existing text has been misinterpreted on occasion. These lights must be certified by an independent laboratory to the applicable requirements of UL 1104 or EN 14744, as must all navigation lights. This ensures they meet the applicable requirements of the International Regulations for Preventing Collisions at Sea, 1972 (72 COLREGS) and the Inland Navigation Rules (33 CFR 83).

We propose deleting the requirements for a flashing light in the existing § 111.75–17(d)(4), because these requirements are contained in section 22.11 of UL 1104 and section 4.4 of EN 14744.

Section 111.75–18 Signaling Lights

We propose deleting the outdated, prescriptive requirements on signaling lights in this section that were based on the applicable international requirements in 1996 and incorporating by reference ISO 25861. This standard provides performance requirements for daylight signaling lamps pursuant to chapter V of SOLAS, 1974, as amended and chapter 8 of the International Code for Safety for High-Speed Craft. Further, since 2002, navigation equipment required by chapter V of SOLAS, including signaling lamps (or lights), have been required to be type approved by the administration.

Section 111.75–20 Luminaires (Lighting Fixtures)

Throughout this section, we propose replacing the term ''lighting fixture'' with the internationally used term ''luminaire'' and we propose removing the prescriptive requirements contained in this section. Lighting fixtures meeting the standards incorporated by reference in this section, UL 1598A, or IEC 60092–306:2009, are suitable for use on vessels. Further, this rule would specify the clauses of UL 1598A applicable to nonemergency and inside-type decorative luminaires.

Section 111.83–7 High Voltage Shore Connection

We propose adding in this new section a standard for high voltage shore connection systems, IEC/IEEE 80005–1:2019, applicable to ships required by state or local law to connect to shore power. The Coast Guard has actively participated with state and local stakeholders, shoreside and marine industry representatives, and equipment manufacturers to develop a standard to safely connect to high voltage shore connections. This standard is offered as an option for compliance with state or local law.

Section 111.99–3 Definitions

We propose removing this section of definitions. Fire door holding and release systems, if fitted, must meet SOLAS II–2/9.4.1.1.5.3. This reference has been updated based on the reorganization of SOLAS Chapter II–2. These definitions are no longer necessary.

Section 111.103 Remote Stopping Systems

The wording of 46 CFR 111.103 has caused confusion due to the order of the subsection with readers inferring that machinery space ventilation is a separate category from the ventilation referred to by 46 CFR 111.103–7. We propose editorial changes to this section to clarify its intent.

Subpart 111.105 Hazardous Locations

The Coast Guard has completed two recent rulemaking projects related to hazardous locations, the ''Offshore Supply Vessels of at Least 6,000 GT ITC'' interim rule (79 FR 48893, Aug. 18, 2014) and the ''Electrical Equipment in Hazardous Locations'' final rule (80 FR 16980, Mar. 31, 2015). We propose to revise subpart 111.105 (Hazardous Locations) to be consistent with these two sets of regulations. This would expand the list of acceptable national and international explosion protection standards, providing more options for operators.

We propose adding the internationally accepted independent third-party certification system, the International Electrotechnical Commission System for Certification to Standards relating to Equipment for use in Explosive Atmospheres (IECEx), as an accepted method of testing and certifying electrical equipment intended for use in hazardous locations. Existing § 111.108–1(b) allows owners and operators of existing U.S. MODUs, floating Outer Continental Shelf (OCS) facilities, vessels other than Offshore Supply Vessels (OSVs), and U.S. tank vessels that carry flammable or combustible cargoes, the option of using the same expanded list of standards and the IECEx System. In amending subpart 111.105, we propose incorporating these standards so that they are available to all vessels and facilities that must comply with subchapter J.

In § 111.105–17(a)(1)(i), we propose adding three new standards for equipment in hazardous locations, UL 783, ANSI/ISA 12.12.01, and ANSI/UL 2062. See section VI.A for further explanation of each standard.

In § 111.105–17(b), we propose adding additional, acceptable standards for the use of conduit, IEC 61892–7:2019, IEC 60092–502:1999, API RP 14, and API RP 14FZ. See section VI.A for further explanation of each standard.

In the new § 111.105–28, we propose adding ASTM F2876–10 to address internal combustion engines in hazardous locations. Under the proposed section, internal combustion engines installed in Class I Divisions 1 and 2 would be required to meet the provisions of ASTM F2876–10. Like the expanded list of standards for electrical equipment in hazardous locations, this standard in subparts 111.106 and 111.108 is the result of previous rulemaking projects and would be added to § 111.105–28. This will ensure a consistent standard for these installations on all vessel and facility types.

In § 111.105–31(e), we propose providing the option for submerged cargo pumps that do not meet § 111.105–31(d) to receive concept

[4] *See https://www.dco.uscg.mil/Portals/9/MSC/MTN/MTN.01-18.07.16.18.LEDandEUNavigationLights.pdf.*

approval by the Commandant (CG–ENG) and plan approval by the Commanding Officer, MSC. This is consistent with the existing §§ 111.106–3(f) and 111.108–3(f).

In § 111.105–31(f), we propose deleting reference to IEEE 45 1998 and IEC 60092–502:1999 because these do not provide any additional information on classification of cargo tanks beyond what is currently in subchapter J.

In § 111.105–31(o), we propose clarifying the requirements for systems installed in duct keels.

In §§ 111.105–35 and 111.105–45, we propose updating the IEC classification notation in accordance with IEC 60079–10–2:2015.

In § 111.105–41, we propose removing the reference to IEEE 45 1998 because the standard has been superseded.

Subpart 111.106 Hazardous Locations on OSVs

In § 111.106–3(b)(1)(i), we propose to add three new standards for equipment in hazardous locations, UL 783, ANSI/ISA 12.12.01, and ANSI/UL 2062. See section VI.A for further explanation of each standard.

Section 111.107–1 Industrial Systems

In § 111.107–1(b), we propose to clarify the standards for switchgear. Currently § 111.107–1(b)(1) refers to an unnecessarily broad range of standards. We propose to simplify this section by cross referencing the specific sections of the existing regulations in subpart 111.30 that apply to switchgears.

Subpart 111.108 Hazardous Locations Requirements on U.S. and Foreign MODUs, Floating OCS Facilities, Vessels Conducting OCS Activities, and U.S. Vessels That Carry Flammable and Combustible Cargo

We propose to remove paragraph (b) from § 111.108–1. Paragraph (b) of this section is a cross-reference to the expanded list of standards and the IECEx System in subpart 111.105; the paragraph is directed to owners and operators of existing U.S. MODUs, floating OCS facilities, vessels other than OSVs, and U.S. tank vessels that carry flammable or combustible cargoes. This cross reference to subpart 111.105 would no longer be necessary because we propose to include the same standards and systems in § 111.108–3 (General requirements).

In § 111.108–3(b)(1)(i), we are adding three new standards for equipment in hazardous locations: UL 783, ANSI/ISA 12.12.01, and ANSI/UL 2062. See section VI.A for further explanation of each standard.

Section 112.01–20 Final Emergency Power Source

We propose to clarify the description of the final emergency power source. For the convenience of the reader, we also propose cross-referencing § 112.15–5, which specifies the existing regulations for final emergency power sources.

Section 112.05–5 Emergency Power Source

In § 112.05–5(a), we are clarifying that the emergency power source must be sized using a unity (1.0) service factor on all loads required by Table 112.05–5(a). This section currently states that the emergency power source must simultaneously supply these loads. When sizing the emergency power source to meet this requirement the loads in Table 112.05–5(a) must have a service factor of unity, 1.0 or 100%. This is also referred to as a load factor. This is not a change to the existing requirement but only a clarification of the requirement that the emergency power source will be appropriately sized to accomplish this task.

Section 112.15–1 Temporary Emergency Loads

In § 112.15–1(s), we propose to add the engineer's assistance-needed alarm to the list of loads that must be powered by the temporary emergency power source. This is consistent with the requirement in § 113.27–1(c) that states it must be powered from the same source as the general alarm.

Section 112.43–13 Navigation Light Indicator Panel Supply

We propose to delete this requirement because the navigation light indicator panel supply is proposed to no longer be required by § 111.75–1(a) to be directly supplied by a feeder from the emergency generator but can be supplied by an electrical panel, such as an emergency lighting panel, which is supplied by the emergency switchboard.

Section 112.50–1 General

In § 112.50–1(g), we propose to delete the requirement that emergency generators automatically shut down upon loss of lubricating oil pressure. This section would continue to require that generators be set to shut down automatically upon overspeed or operation of a fixed fire extinguishing system in the emergency generator. Removing the requirement for emergency generators to automatically shut down in case of loss of lubricating oil pressure is consistent with classification society rules and allows the crew to decide in an emergency situation if the emergency generator should be shut down. We also propose to reformat § 112.50–1(g) to clarify the remaining regulations for emergency generator set shut downs.

In addition, we propose to revise the format of paragraph (h) to clarify that the alarms are required for all of the listed conditions in each section, not just one of the two conditions listed in each section. This is a nonsubstantive formatting edit that would not affect the existing alarm regulations for emergency generators in § 112.50–1(h).

VII. Incorporation by Reference

Material proposed for incorporation by reference appears in § 110.10–1, and is summarized and discussed in section VI.A of this preamble. Copies of the material are available from the sources listed in § 110.10–1, and we believe they are generally available to or already in use by the class of persons potentially affected by this proposed rule. The standards we are proposing to incorporate by reference are available either at the publisher's web address included in the proposed regulatory text of § 110.10–1 or by contacting the publisher listed in the standard. With this proposed rule, we also reviewed and updated all the publisher's web addresses listed in proposed § 110.10–1 to ensure they are current. The following list of publishers offer some of the more recent standards we propose to incorporate at no cost to the public: ABS, FM Approvals, IMO, Lloyd's Register, NFPA, DDS/Military Handbook, and UL. Based on the volume of equivalency requests the Coast Guard receives asking us to confirm that the latest edition is equivalent or better than the edition currently incorporated, we believe industry already has access to and uses these more recent standards. The affected industry typically obtains the more recent editions of standards in the course of their business, in order to address advancements in technology.

You may also contact the person in the **FOR FURTHER INFORMATION CONTACT** section for additional direction on how to obtain access to electronic copies of the materials. Before publishing a binding rule, we will submit this material to the Director of the Federal Register for approval of the incorporation by reference.

VIII. Regulatory Analyses

We developed this proposed rule after considering numerous statutes and Executive orders related to rulemaking. A summary of our analyses based on these statutes or Executive orders follows.

A. Regulatory Planning and Review

Executive Orders 12866 (Regulatory Planning and Review) and 13563 (Improving Regulation and Regulatory Review) direct agencies to assess the costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility.

The Office of Management and Budget (OMB) has not designated this proposed rule a significant regulatory action under section 3(f) of Executive Order 12866. Accordingly, OMB has not reviewed this proposed rule. Details on the estimated cost savings of this rule can be found in the rule's regulatory analysis (RA) that follows.

The Coast Guard proposes to update subchapter J of title 46 of the CFR. This proposed rule would align the standards, which govern electrical equipment and installations on U.S.-flagged vessels, with current industry practices to ensure that the standards are consistent on all vessel types that we reference in subchapter J. The provisions of this proposed rule would update existing standards through incorporation by reference, provide options to use alternative standards, eliminate obsolete standards, and clarify the existing requirements. The majority of the updates would simply incorporate by reference the more recent versions of the same standards with little or no substantive change. The more recent editions reflect more modern technologies, terminology, and practices. By updating standards, we expect the proposed rule to generate cost savings to industry and the Federal Government of approximately $204,695 over a 5-year period of analysis in 2019 dollars, using a 7-percent discount rate (we are using a 5-year period of analysis because we anticipate this proposed rule would not produce cost savings beyond this time period). We estimate annualized cost savings to be approximately $49,923, using a 7-percent discount rate. The cost savings are a result of industry submitting fewer equivalency requests to the Coast Guard, which we base this cost savings analysis upon. We also expect the proposed rule to generate unquantified benefits because incorporating these standards would simplify regulatory compliance, reduce confusion, and provide industry flexibility. Table 2 provides a summary of the impacts of the proposed rule.

TABLE 2—SUMMARY OF IMPACTS OF THE PROPOSED RULE

Category	Summary
Applicability	Incorporate by reference (IBR) electrical engineering standards or update existing standards through IBR in subchapter J of Title 46 CFR.
Affected Population	• Cost savings based on an 80% reduction of equivalency requests from owners and operators of 210 new U.S.-flagged vessels that entered service over the past 5 years. • Standards used by approximately 5,570 U.S.-flagged vessels (affected population varies by CFR part and subpart, see table 3).
Benefits	Cost Savings ($2019, 7-percent discount rate): 5-year period of analysis: $204,695. Annualized: $49,923. Provide flexibility by offering options or alternatives for IBR and non-IBR provisions; remove regulatory redundancy and confusion by updating standards and simplifying regulatory text through editorial changes.

Affected Population

There are numerous provisions of this proposed rule that affect four parts in subchapter J of title 46 of the CFR (110, 111, 112, and 113), as well as multiple subparts within each part. Subchapter J applies to vessels covered by subchapters D, H, I, I–A, K, L, O, R, and U.[5]

This proposed rule would affect approximately 5,570 existing, inspected U.S.-flagged vessels. We obtained the affected population of this proposed rule from our Marine Information for Safety and Law Enforcement (MISLE) database. For standards we are incorporating by reference in this proposed rule, we expect all U.S.-flagged vessel owners and operators to use the most recent incorporated standards, some of which were updated as recently as last year. For construction standards, we expect all U.S.-flagged vessel owners and operators to use the most recent incorporated standards that are in place at the time of construction or modification of a vessel and for vessels to meet the most recent incorporated standards when they enter service.

For the purpose of the cost savings analysis, we use a subset of the total affected population because only owners and operators of new U.S.-flagged vessels entering service annually would generate cost savings by submitting fewer equivalency requests to the Coast Guard. Included in the total population of 5,570 vessels are 1,051 new U.S.-flagged vessels that entered service in the last 5 years, from 2014–2018. We divided 1,051 by 5 years to obtain an average of approximately 210 new U.S.-flagged vessels annually. See table 3 below. We based the cost savings analysis on the past number of equivalency requests owners and operators of new U.S.-flagged vessels submitted to the Coast Guard over the past 18 months, or from September 2018 to February 2020. The number of equivalency requests the Coast Guard received from owners and operators of the 210 vessels during this period was 10 annually. Prior to this time period, the Coast Guard did not collect data on equivalency requests.

We expect this proposed rule would reduce the baseline number of equivalency requests the Coast Guard would receive from industry by 80 percent.[6] Although this rulemaking will update standards, we expect a certain number of standards to be out of date

[5] Title 46 CFR subchapter J lists two other subchapters, Q and W. Subchapter Q does not contain vessels; it applies to vessels in the other subchapters regarding equipment, construction, and materials for specifications and approval. Similarly, subchapter W does not contain vessels but applies to vessels that have lifesaving appliances and arrangements in one of the subchapters previously listed. Subchapter O contains tank barges and freight barges.

[6] Generally, standards get updated every 5 years. We therefore assume that 20 percent of the standards become outdated each year as time elapses, so 100 percent/5 years = 20 percent annually (outdated standards). So, the remaining 80 percent (100 percent − 20 percent) would generate the cost savings.

each year because standards organizations are continuously revising them for safety concerns in addition to maintaining pace with the technological advancements within the industry. Meaning, this proposed rule would reduce the number of equivalency requests by 80 percent annually. This in turn, would leave about 20 percent of the public who still may have questions about the standards they are using annually during the 5-year period. Alternatively stated, we do not expect this proposed rule or any updates to standards to eliminate the public's questions altogether. So we expect the number of equivalency requests that we receive from the public to be about 20 percent annually. The Coast Guard makes a determination in the year we receive a question (equivalency request) from the public; therefore, the questions would not accumulate from one year to the next. For example, if we characterize the number of questions in the first year as 100 percent of the total amount, we expect this proposed rule to reduce the number of questions by 80 percent in this year, which produces the cost savings. As a result, the balance of 20 percent is the amount that remains, which comprises the number of questions in the first year. In the second year, the public generates additional questions based on the standards they are using, which do not add to the number of questions in the first year. Again, we treat the number of questions in the second year as 100 percent of the total amount and we expect this proposed rule to reduce the number of requests by 80 percent in this year, as we explained above. This again, leaves an amount of 20 percent, which comprises the number of questions in the second year. Essentially, the number of questions in a subsequent year replaces the number of questions the Coast Guard resolves in the preceding year. This process continues through to the fifth year of the analysis period when standards organizations, again, create updates to existing standards.

Specifically, we expect owners and operators of new U.S.-flagged vessels that enter service to submit two equivalency requests annually, or a reduction of eight equivalency requests annually. Owners and operators of new U.S.-flagged vessels submit equivalency requests to the Coast Guard to ask for approval to use a standard that is not in regulation but may be equivalently safe. Equivalency requests are explained in greater detail in the Cost Savings Analysis portion of this analysis.

TABLE 3—AFFECTED U.S.-FLAGGED VESSEL POPULATION THAT COMPLIES WITH 46 CFR SUBCHAPTER J

Subchapter J vessels	Description	Population
D	Tank Vessels	950
H	Passenger Vessels (≥100 gross tons)	57
I	Cargo and Miscellaneous Vessels	577
I–A	Mobile Offshore Drilling Units (MODU)	46
L	Offshore Supply Vessels (OSV)	343
O (tank barge)	Certain Bulk Dangerous Cargoes	6
R	Nautical Schools	20
U	Oceanographic Research Vessels	6
O–I (tank barge)	Combination Bulk Cargo	149
O–D (tank barge or freight barge)	Combination Bulk Cargo-including chemicals	3,416
Total		5,570
Average number of new U.S.-flagged vessels entering service annually.	Includes all subchapters listed above (average of the population for the period 2014–2018).	*210

Note: There are 859 unmanned tank barges in the subchapter D population, 168 unmanned freight barges and 3 unmanned tank barges in the subchapter I population in addition to the subchapter O, O–I, and O–D populations. With these populations combined, there is a total of 4,601 unmanned and non-self-propelled vessels.

*Represents the average number of new U.S.-flagged vessels entering service annually.

As indicated in the section V of the preamble, this proposed rule continues the Coast Guard's response to the Presidential Regulatory Reform Initiative of Mar. 4, 1995, and directives including Executive Orders 12866 and 13563 that are intended to improve regulation and the regulatory process. The provisions of this proposed rule would remove obsolete regulations, revise current regulatory text, substitute performance-based options for regulatory compliance as opposed to conventional prescriptive solutions, and incorporate by reference more recent national and international industry standards into the CFR. The Coast Guard recognizes the significant technological advances in electrical engineering equipment, systems, and devices carried on vessels. As a result, this proposed rule would encourage the use of newer equipment and promote adherence to modern standards in the industry. Industry also would not realize cost savings from not having to send equivalency requests to the Coast Guard. See table 4 for how parts of the CFR would be affected by this proposed rule along with the anticipated impacts.

Benefits of the Proposed Rule

Cost Savings Analysis

We divided all of the changes of the proposed rule into three categories, which we present in table 4: (1) Editorial changes to the CFR; (2) Updates to IBRs with technical changes; and (3) IBRs with proposed options or alternative options.

First, we propose to make editorial changes to subchapter J that include such items as the removal of outdated terminology and the consolidation of text in different paragraphs into one paragraph, which includes regulatory provisions in 46 CFR parts 110, 111, 112, 113; we expect these changes to be a no cost change.

Second, we propose updates to IBRs that have technical changes, which includes regulatory provisions in numerous subparts of 46 CFR parts 110, 111, and 113. It is standard practice in vessel manufacturing to follow the most recent editions of standards developed by representative groups of experts using a consensus-based process, because most manufacturers also supply materials to vessels not required to comply with 46 CFR subchapter J. Manufacturers of certain types of electrical equipment carried on vessels are currently producing equipment to the more recent standards, most of which have been published for at least

several years and all of which have been developed by standard-based development organizations. These more recent standards, which this proposed rule would codify, provide clarity and specificity to outdated technical standards they are replacing; therefore, we expect these changes to be a no cost change.

Thirdly, for IBR standards that are one of several available standards as referenced in subchapter J, we propose to update standards with their more recent edition (these would be alternative options) and add standards as new options to the several other available standards for vessel owners and operators, and manufacturers of certain types of electrical equipment. These options combined would provide industry the opportunity to remove overly prescriptive requirements, would simplify regulatory compliance, and provide regulatory flexibility. Many of the options, some of which are alternative options and others new, would be IBR items that affect multiple subparts of 46 CFR parts 110, 111, and 113. The remaining options would not be IBR items and would affect multiple subparts of 46 CFR parts 111 and 112. The options we propose to incorporate by reference would apply to the same population of 5,570 vessels. We assume industry would use the more recent national and international standards referenced in the proposed rule. We expect adding a revised or new standard as an additional option to the exisiting standards would be a no cost change because the new or revised standard does not have to be chosen. See table 4.

Specifically, we propose the following four changes to subchapter J, related to generator prime movers, electrical cable construction, hazardous locations, and emergency generators, in order to eliminate outdated or unnecessarily prescriptive electrical engineering regulations and add a limited number of alternative standards. Of the four items listed in the following text, the generator prime mover falls into the second (IBRs with technical changes), electrical cable construction, emergency generator, and hazardous locations fall primarily into the third category (IBRs with proposed and alternative options), which we listed previously.

Generator Prime Mover

The proposed rule would eliminate the regulatory requirements in § 111.12–1(b) and (c) for each generator prime mover to have an independent overspeed device and a loss of lubricating oil pressure to the generator bearing shutdown. The ABS rules, already incorporated by reference in § 111.12–1(a) since 1965, require these same safeguards on all but small generator prime movers. We also propose to incorporate by reference the ABS Steel Vessel Rules for generator prime movers without modification. Industry has been using these rules for many years and the removal of these requirements would not affect the performance of the generator prime mover. We expect this to be a no cost change.

Electrical Cable Construction

For electrical cable construction requirements in subpart 111.60, the proposed rule would incorporate by reference the more recent editions of the 2017 IEC standards and 2017 editions of ANSI standards to ensure alignment with current technological trends and to eliminate several unnecessary prescriptive requirements. This proposed rule would align electrical cable standards in subpart 111.60 with standards accepted internationally by vessel classification societies and foreign administrations. This proposed rule would remove unnecessary, prescriptive requirements developed by the Coast Guard, which in turn, would simplify compliance. We expect this to be a no cost change because electrical cables are readily available that meet the standards that we would incorporate by reference with this proposed rule.

Hazardous Locations

The proposed rule would amend subpart 111.105 by incorporating by reference the IEC standard 60092–502 as an alternative standard for classification of hazardous locations. This IEC standard, published in 1999, is referenced in international standards and codes as well as all major classification societies' rules. Because we are adding an alternative standard and not changing requirements with this item, we expect this to be a no cost change.

Emergency Generator

The proposed rule would amend subpart 112.05 to allow vessel owners and operators to use an emergency generator in port. Some U.S.-flagged vessel owners and operators favor the availability of this option in port because it is more fuel-efficient and results in less exhaust emissions than using the ship's larger service generators. This option is consistent with international guidance and classification society rules. However, this option would apply to a very small number of U.S.-flagged vessel owners and operators who request it and the Coast Guard would approve the use of an emergency generator for vessel owners and operators in compliance with subchapter J only. We expect this option to have unquantified cost savings associated with it. We also anticipate unquantified benefits due to a decrease in exhaust emissions since an emergency generator would use less fuel than a ship's main generator.

The proposed rule would create consistency between Coast Guard regulations and national and international standards through incorporation by reference, provide options with alternative standards, eliminate obsolete standards, and clarify the existing requirements through the changes we propose in 46 CFR subchapter J. We categorize the proposed changes in table 4, which summarizes the impacts of the proposed rule and the affected parts and subparts in subchapter J. For the purpose of this analysis, table 4 specifically lists all of the individual changes we propose by part, subpart, and paragraph of 46 CFR subchapter J. Table 1 in section III of the preamble is a general summary of the changes proposed in subchapter J.

TABLE 4—REGULATORY CHANGES OF THE PROPOSED RULE BY CFR PART

Category	Description	Affected title 46 CFR subparts/sections	Applicability	Cost impact
Editorial Changes	• IEC naming convention. • Industry standard terminology.	§§ 110.15–1(a), 110.15–1(b), 110.25–1(i), 110.25–1(a)(6), 110.25–1(j), 110.25–1(n), 110.25–1(p), 110.25–1(q), 110.25–3(c), 110.25–3(c), 111.05–3(c), 111.05–9, 111.05–37, 111.10–1, 111.10–9, 111.12–11(g)(2), 111.12–13, 111.12–7(b), 111.15–25(b), 111.15–30, 111.20–15, 111.30–1, 111.30–5(a)(1), 111.30–5(a)(2), 111.30–19(a)(2), 111.30–25(b)(3), 111.30–25(d)(2), 111.30–25(f)(2), 111.30–27(b)(4), 111.30–27(f)(2), 111.30–29, 111.30–29(e)(3), 111.33–1, 111.33–3(a), 111.33–5, 111.33–7, 111.33–9, 111.33–11, 111.33–3(a)(2), 111.33–3(c), 111.33–5(b), 111.50–3(b)(2), 111.50–5(a)(2), subparts 111.51 and 111.52, §§ 111.51–1, 111.51–2, 111.51–3, 111.51–6, 111.60–1(a), 111.60–7, 111.70–1(a), 111.70–3(a), 111.75–17(d)(2), 111.81–1(d), 111.95–1(b), 111.99–3, 111.103, 111.105–1, 111.105–3, 111.105–5, 111.105–7, 111.105–7(a), 111.105–7(a)(1), 111.105–7(a)(1)(i), 111.105–7(a)(1)(ii), 111.105–7(a)(1)(iii), 111.105–7(a)(2), 111.105–7(c), 111.105–7(d), 111.105–15, 111.105–17(d), 111.105–32(c), 111.105–35(a), 111.105–35(c), 111.105–45(a), 111.105–45(b), 111.105–45(b)(1), 111.106–15(a), 111.107–1(a)(1), 112.01–20, 112.05–5, 112.15–1, 112.50–1.	This applies to subchapters D, H, I, I–A, K, L, O, R, and U.	No cost or cost savings. These editorial changes include clarification of text, removal of outdated or redundant terminology, and consolidation of text in different paragraphs into one paragraph.
	Editorial changes to the more recent editions of IBRs.	§§ 110.15–1(b), 111.01–15(c), 111.12–3, 111.12–5, 111.25–5, 111.30–1, 111.30–5(a)(1), 111.33–3(a)(1), 111.33–5(a), 111.33–11, 111.35–1111.40–1, 111.50–3(c), 111.50–7(a), 111.50–9, 111.60–13(b)(1), 111.60–19(b), 111.60–21, 111.60–23(d), 111.75–5(b), 111.99–5, 111.105–7(e), 111.105–31(n), 111.105–40(a), (c), 111.105–41, 111.106–3(b)(1), 111.106–3(b)(1)(i), 111.106–3(b)(1)(ii), 111.106–3(b)(2), 111.106–3(d), 111.106–5(c), 111.106–7(a), 111.106–13(b), 111.107–1(c)(1), 111.108–3(b)(1)(i), 111.108–3(b)(1)(ii), 111.108–3(b)(2), 113.10–7, 113.20–1, 113.25–11(a), 113.30–25(e), 113.30–25(i), 113.37–10(b), 113.40–10(b), 113.30–25(j)(2), 113.65–5. Note to § 111.108–3(b)(1), Note to § 111.108–3(b)(2), Note to § 111.106–3(b)(1).	This applies to subchapters D, H, I, I–A, K, L, O, R, and U.	No cost or cost savings. These provisions would make minimal textual changes to reflect latest trends in technology. These changes would simplify regulatory compliance by referencing the more recent national and international standards that industry is currently using.
	Editorial changes with deletions.	§§ 111.60–1(b), 111.60–1(c) 111.60–1(d), 111.60–1(e) 111.60–2, 111.60–3, 111.60–6, 111.60–11(c), 111.60–13(a), 111.60–13(c), 111.60–23(d), 111.75–17(d)(4), 111.75–18, 111.75–20(c) and (d) 111.105–9, 111.105–11(a) and (b), 111.105–17(c), 111.105–19, 111.105–31(e), 111.106–3(b)(1)(i), 111.108–1, and 112.50–1(g).	This applies to subchapters D, H, I, I–A, K, L, O, R, and U.	No Cost or Cost Savings. These provisions would remove obsolete standards and outdated terminology.
Technical Changes	IBRs with technological changes in electrical equipment and testing.	§§ 110.15–1(b), 111.05–33(a) and (b), 111.12–1(a), 111.12–1(b,) 111.12–7(a) and (b), 111.12–7(c), 111.15–2(b), 111.51–5, 111.54–1(c)(1(ii), 111.54–1(c)(1)(i), 111.54–1(c)(1)(iii), 111.54–1(c)(3)(ii), 111.55–1(a), 111.59–1, 111.60–5(a)(1), 111.60–5(a)(2) and (b), 111.60–7, 111.60–11(c), 111.60–13(b)(2), 111.60–23(f), 111.70–1(a), 111.75–18, 111.105–7, 111.105–11(d), 111.105–37, 111.105–39, 111.105–39(a), 111.106–3(b)(1), 111.106–3(b)(1)(ii), 111.106–3(b)(1)(iii), 111.106–3(b)(3)(vi), 111.106–3(b)(3)(vi), 111.106–3(b)(3)(vi), 111.106–3(b)(3)(vi), 111.106–3(c), 111.106–3(d), 111.107–1(b), 111.107–1(c)(1), 111.108–3(b)(1), 111.108–3(b)(1)(i), 111.108–3(b)(1)(ii), 111.108–3(b)(3), 111.108–3(e), and 113.05–7(a)(2).	This applies to subchapters D, H, I, I–A, K, L, O, R, and U.	No cost or cost savings. These provisions would ensure the implementation of the more recent industry and international standards that industry is currently using. Incorporation by reference is an administrative provision that simplifies regulatory compliance.

TABLE 4—REGULATORY CHANGES OF THE PROPOSED RULE BY CFR PART—Continued

Category	Description	Affected title 46 CFR subparts/sections	Applicability	Cost impact
Options	Newly proposed options.	§§ 110.15–1(b), 111.01–9(a) and (c), 111.01–9(b), 111.01–9(d), 111.15–10(b)(2)(i), 111.20–15, 111.30–5(a)(2), 111.30–19(a)(1), 111.30–19(b)(4), 111.50–3(c) and (e), 111.50–3(e) and (g)(2), 111.53–1(a)(1) and 111.54–1(a)(1), 111.54–1(b), 111.54–1(c)(2), 111.54–1(c)(3)(i), 111.60–1, 111.60–9(c), 111.60–13(a), 111.60–13(c), 111.75–20(a), 111.81–1(d), 111.87–3(a), 111.106–5(a), 113.05–7(a), 113.10–7, 113.20–1, 113.25–11(a), 113.30–25(e), 113.30–25(i), 113.37–10(b), and 113.40–10(b).	This applies to subchapters D, H, I, I–A, K, L, O, R, and U.	No cost or cost savings. These options provide flexibility to U.S.-flagged vessel owners and operators and simplifies regulatory compliance. Because these options represent the more recent standards, which are the current industry standards, there is no cost impact. Incorporating the more recent editions of national and international standards simplifies regulatory compliance and ensures the inclusion of technological changes.
	Additional options	§§ 111.59–1, 111.60–1, 111.75–17(b), 111.75–20(b), 111.83–7, 111.87–3(a), 111.105–7(a)(3), 111.105–11(c), 111.105–17(b), 111.105–28, 111.105–29(e), 111.105–50, 111.105–50(a), 111.105–50(b), 111.106–3(b)(1)(i), 111.108–3(b)(1)(i), 111.108–3(b)(3), and 112.05–7.	This applies to subchapters D, H, I, I–A, K, L, O, R, and U.	No cost or cost savings. The options provide flexibility to U.S.-flagged vessel owners and operators and simplifies regulatory compliance. Because these new options represent the more recent standards, there is no cost impact. Incorporating the more recent editions of national and international standards simplifies regulatory compliance and ensures the inclusion of technological changes.

Note: We may list the same citation of the CFR multiple times because we are proposing numerous changes to the same paragraph. These changes may include clarifications, deletions, or insertions of text. The term ''current industry standards'', means equipment manufacturers have been constructing equipment to the more recent editions of standards.

The Coast Guard has evaluated the affected population and estimates that this proposed rule would generate cost savings for owners and operators of new U.S.-flagged vessels who would no longer submit equivalency requests to the Coast Guard's Marine Safety Center (MSC) for review. The proposed rule would also generate cost savings for the Federal Government, which would review fewer requests. An equivalency request is when an owner or operator of a new U.S.-flagged vessel sends questions to the Coast Guard to ask for a review of the standards they are currently using. Any member of the marine industry may submit a request, but it is primarily submitted by vessel owners and operators. Generally, the reason an owner or operator would make this request is to seek a determination from the Coast Guard on whether or not a standard not contained in Coast Guard regulations is sufficient for use. For example, a proposed equivalent standard could be a more recent edition of a standard in subchapter J or it could be an alternative standard not currently listed in subchapter J. A Coast Guard Marine Engineer compares the proposed equivalent standard with the standard incorporated by reference in subchapter J to ensure it offers an equal or greater level of safety.

When evaluating the proposed alternative standard, we compared the standard that industry is using to the standard in subchapter J that addresses the type of engineering equipment under review. Typically, owners and operators of existing U.S.-flagged vessels (at the time of construction of a vessel and when a vessel enters service) use the more recent standards in subchapter J and therefore would not likely request an equivalency review from the Coast Guard. However, the Coast Guard expects owners and operators of new U.S.-flagged vessels that enter service each year to have some equivalency questions because they may not be familiar with all of the applicable regulations in subchapter J, which includes the most recent standards that are incorporated by reference.

Based on MSC data, the Coast Guard received 15 equivalency requests over the period from September 2018 to February 2020; this is the only period of time the Coast Guard maintained equivalency data and is the most recent data we possess. This is equivalent to 10 requests annually.[7] MSC data show that one vessel owner or operator submits one equivalency request annually, which the Coast Guard's Office of Design and Engineering Standards has validated. Generally, organizations such as UL and the IEC create electrical standards for industry that take into account updates in the latest technology and construction techniques for electrical equipment. These organizations usually review and update standards every 5 years. Therefore, based on a 5-year interval, we generally expect 20 percent of the standards to be out of date in a given year, which in turn, would create equivalency requests from industry. Because the Coast Guard makes a determination on an equivalency request in the same year it receives the request, we do not expect the number of equivalency questions to accumulate from year to year such that the 20-percent estimate would change in any year of a 5-year period. Even if we publish a rule to address updates to electrical standards in subchapter J, we still expect each year that the public will have questions about the standards it is using, which would generate equivalency requests on an annual basis; we do not expect a published rule to eliminate the public's questions altogether.

Industry Baseline Costs

Without this proposed rule or under the current baseline, the Coast Guard receives approximately 10 equivalency requests annually. To draft an equivalency request to the MSC, an owner or operator of a U.S.-flagged vessel would seek the services of an engineering design firm or a shipyard's technical staff for a Marine Engineer or Naval Architect to draft the equivalency request. Using the Bureau of Labor Statistics (BLS) ''Occupational and Employment Statistics'' database and May 2019 wage estimates, the unloaded mean hourly wage rate for Marine Engineers and Naval Architects is $47.47 (occupational code 17–2121).[8] To account for an employee's non-wage benefits, we applied a load factor to the

[7] The ratio of 15 requests divided by 18 months and made this equivalent to an unknown variable, or x, divided by 12 months. We obtain 18x, which is equivalent to 180 since x is equivalent to 10 requests annually.

[8] Visit *https://www.bls.gov/oes/2019/may/oes172121.htm* to find 2019, unloaded mean hourly wage rate for occupations in the United States.

unloaded mean hourly wage rate, which we calculated by using BLS's ''Employer Cost for Employee Compensation'' database. We determined the load factor to be approximately 1.50, rounded.[9] We multiplied $47.47 by 1.50 to obtain a loaded mean hourly wage rate of approximately $71.21 for this occupation.

Based on information from the MSC and validated by subject matter experts in the Coast Guard's Office of Design and Engineering Standards, it takes a Marine Engineer or Naval Architect approximately 40 hours of time to develop an equivalency request and submit it to the Coast Guard for review, which includes the electronic submission.

We estimate the total undiscounted cost for industry to submit 10 equivalency requests annually to be approximately $28,484, or $2,848 for each request (10 equivalency requests × $71.21 × 40 hours per request). See table 5 for industry inputs.

TABLE 5—INDUSTRY INPUTS

[Baseline]

Item	Unit values
Annual Equivalency Requests	10
Hours to Draft One Request	40
Loaded Hourly Wage Rate (Marine Engineer or Naval Architect)	$71.21

Federal Government Baseline Costs

When the Coast Guard receives an equivalency request from a vessel owner or operator (or an electrical equipment manufacturer), the Coast Guard personnel at the MSC must review the request to provide a determination on whether or not the proposed standard(s) is equivalent to standard(s) found in subchapter J. Based on information from the MSC, and validated by subject matter experts in the Coast Guard's Office of Design and Engineering Standards, a civilian Coast Guard Marine Engineer needs about 32 hours to review an equivalency request. This estimate is based on the past number of requests we received, or 10 annually, as we presented earlier in this analysis. The Coast Guard expends approximately 8 weeks of time or 320 hours to review the 10 requests. A Coast Guard Marine Engineer has a Federal Government grade level of a GS–14 (General Schedule), which has a loaded mean hourly wage rate of $106.[10] We estimate the total, undiscounted cost for the Federal Government to review 10 equivalency requests annually to be approximately $33,920 (10 equivalency requests × 32 hours for each request × $106), or $3,392 for each request. See table 6 for the Federal Government inputs.

TABLE 6—FEDERAL GOVERNMENT INPUTS

[Baseline]

Item	Unit values
Annual Equivalency Requests Reviewed	10
Hours to Review One Request	32
Loaded Hourly Wage Rate (Marine Engineer or Naval Architect)	$106

We estimate the total, undiscounted baseline cost to industry and the Federal Government to submit and review equivalency requests, respectively, to be approximately $62,404 ($28,484 + $33,920), annually. Table 7 presents a summary of the baseline costs associated with industry submitting equivalency requests to the Coast Guard.

TABLE 7—ANNUAL BASELINE COSTS OF EQUIVALENCY REQUESTS

[$2019, Undiscounted]

Item	Cost
Industry	$28,484
Federal Government	33,920
Total	62,404

Note: Totals may not sum due to independent rounding.

Industry Cost Savings

The baseline costs we estimated for industry would be from vessel owners and operators of new U.S.-flagged vessels that enter service each year who submit equivalency requests. We expect this proposed rule would reduce the number of equivalency requests industry submits annually. We estimate 157 companies own the average number of 210 new U.S.-flagged vessels that have entered service each year in the past 5 years. The number of equivalency requests the Coast Guard has received annually from these owners and operators is approximately 10 (a vessel owner or operator would request an equivalency determination without regard to the number of vessels owned). We anticipate standards organizations to update their standards every 5 years. Therefore, we expect 20 percent of the standards to be out of date in a given year over this period of time (100 percent divided by 5 years equals 20 percent). We multiplied the 20 percent value by the baseline number of 10 equivalency requests the Coast Guard receives annually from owners and operators of new U.S.-flagged vessels. Therefore, we expect industry to submit 2 equivalency requests (10 equivalency requests × 0.20) in any given year of the analysis period or a reduction in the number of requests of 80 percent. Similarly, the marine industry would save approximately 320 hours annually from not drafting and submitting equivalency requests (320 hours = 8 requests × 40 hours for each request). The submission of an equivalency request would not affect or change an existing information collection request, nor would it create a new one because we estimate the number of requests to be approximately 2 annually, which is below the threshold of 10 in the Paperwork Reduction Act (PRA) of 1995. The Federal Government does not require the marine industry to submit these requests; vessel owners and operators (or manufacturers) would voluntarily submit requests only if they have questions about the standards they are using.

Using the same labor category previously used to calculate the baseline

[9] A loaded hourly wage rate is what a company pays per hour to employ a person, not the hourly wage an employee receives. The loaded hourly wage rate includes the cost of non-wage benefits (health insurance, vacation, etc.). To obtain the load factor, we used the multi-screen data search feature from this database and searched for ''private industry workers'' under ''total compensation'' and then for ''all workers'' in the category ''Transportation and Materials Moving Occupations'', within the United States. We performed the same steps to obtain the value for ''wages and salaries''. The series IDs for total compensation, and wages and salaries are CMU2010000520000D and CMU2020000520000D, respectively, which are not seasonally adjusted values. Using fourth quarter data for 2019, we divided the value for total compensation, $29.96 by wages and salaries, or $19.99, to obtain a load factor of about 1.50, rounded. *https://data.bls.gov/cgi-bin/dsrv?cm.*

[10] We obtained the loaded mean hourly wage rates for civilian Federal Government personnel from a Coast Guard Instruction labeled ''Commandant Instruction.'' This document also provides loaded wage rates for personnel in military service. The most recent version of this document is from February 2020, with a version number of 7310.1U. Readers can view this document at *https://media.defense.gov/2020/Mar/04/2002258826/-1/-1/0/CI_7310_1U.PDF.* The Office of Personnel Management administers the pay and classification system (GS) for most Federal employees. For more detail see *https://www.opm.gov/policy-data-oversight/pay-leave/pay-systems/general-schedule/.*

for industry costs, we estimate the total undiscounted cost savings of this proposed rule to industry to be approximately $22,787 annually [(10 equivalency requests × 40 hours for each equivalency × $71.21 = $28,484) minus (2 equivalency requests × 40 hours for each equivalency request × $71.21 = $5,697)]. We estimate 5-year cost savings of this proposed rule to industry to be approximately $93,432, using a 7-percent discount rate. We estimate the annualized cost savings to be approximately $22,787, using a 7-percent discount rate. See table 8.

TABLE 8—ESTIMATED INDUSTRY COST SAVINGS OF THE PROPOSED RULE

[$2019, 5-Year period of analysis, 7- and 3-Percent discount rates]

Year	Number of reduced equivalencies	Hours to draft equivalencies	Total cost savings	Discounted cost savings, 7%	Discounted cost savings, 3%
1	8	40	$22,787	$21,296.45	$22,123.50
2	8	40	22,787	19,903.22	21,479.12
3	8	40	22,787	18,601.14	20,853.52
4	8	40	22,787	17,384.25	20,246.13
5	8	40	22,787	16,246.96	19,656.44
Total	80			93,432.02	104,358.70
Annualized Cost Savings				22,787	22,787

Note: Totals may not sum due to independent rounding.

Federal Government Cost Savings

With this proposed rule, we expect the number of equivalency requests the Coast Guard would review annually to be 2 (10 equivalency requests × 0.20). This again would be a reduction of 80 percent from the baseline number of 10 requests. With fewer equivalencies to review, the Coast Guard would also save approximately 256 hours annually from not reviewing equivalency requests (8 requests × 32 hours per request).

Using the same labor category previously for MSC personnel to review an equivalency request, we estimate the total, undiscounted cost savings of the proposed rule to the Federal Government to be approximately $27,136 annually [(10 baseline equivalency requests × 32 hours for each equivalency request × $106 = $33,920) minus (2 equivalency requests × 32 hours for each equivalency request × $106 = $6,784)]. We estimate the 5-year discounted cost savings of this proposed rule to the Federal Government to be approximately $111,263, using a 7-percent discount rate. We estimate the annualized cost savings to be approximately $27,136, using a 7-percent discount rate. See table 9.

TABLE 9—ESTIMATED FEDERAL GOVERNMENT COST SAVINGS OF THE PROPOSED RULE

[$2019, 5-Year period of analysis, 7- and 3-Percent discount rates]

Year	Number of reduced equivalencies	Hours to review equivalencies	Total cost savings	Discounted cost savings, 7%	Discounted cost savings, 3%
1	8	32	$27,136	$25,360.75	$26,345.63
2	8	32	27,136	23,701.63	25,578.28
3	8	32	27,136	22,151.06	24,833.28
4	8	32	27,136	20,701.92	24,109.98
5	8	32	27,136	19,347.59	23,407.75
Total	80			111,262.96	124,274.93
Annualized Cost Savings				27,136	27,136

Note: Totals may not sum due to independent rounding.

Total Cost Savings of the Proposed Rule

We estimate the 5-year, total discounted cost savings of the proposed rule to be approximately $204,695 ($93,432 + $111,263), using a 7-percent discount rate (see table 10). We estimate the annualized cost savings of the proposed rule to be approximately $49,923, using a 7-percent discount rate. The total annualized cost savings is the summation of the values in tables 8 and 9 ($22,787 + $27,136 = $49,923) as a result of the reduction in the number of equivalency requests we expect annually from industry. See table 10.

TABLE 10—TOTAL ESTIMATED COST SAVINGS OF THE PROPOSED RULE

[$2019, 5-year period of analysis, 7- and 3-Percent discount rates]

Item	Industry cost savings	Federal Government cost savings	Total
Discounted Cost Savings, 7%	$93,432	$111,263	$204,695
Discounted Cost Savings, 3%	104,359	124,275	228,634

TABLE 10—TOTAL ESTIMATED COST SAVINGS OF THE PROPOSED RULE—Continued

[$2019, 5-year period of analysis, 7- and 3-Percent discount rates]

Item	Industry cost savings	Federal Government cost savings	Total
Annualized Cost Savings	22,787	27,136	49,923

Unquantified Cost Savings of the Proposed Rule

We expect this proposed rule would have unquantified cost savings associated with the option of using an emergency generator while in port. The use of an emergency generator in port would likely save fuel because it would not require a vessel owner or operator to use a ship's larger service generators. However, we are not able to quantify the cost savings associated with this option because the Coast Guard does not have the data to predict how many vessel owners and operators would choose this option while in port. Nevertheless, we expect a very small number of vessel owners and operators to choose this option.

Additionally, we expect this proposed rule to generate qualitative benefits. This proposed rule is necessary because it would update obsolete standards, remove redundancy in regulatory text, clarify and rearrange regulatory text, and provide options to owners and operators of vessels and manufacturers of certain types of electrical equipment. By updating standards and providing options, Coast Guard regulations would be less ambiguous and conform to the more recent industry standards, thereby ensuring consistency within the marine industry. Some of these options we consider to be alternative options and others would be new options. With these changes, industry would follow less ambiguous regulatory provisions, which we expect would create fewer equivalency requests.

Regarding the proposed use of an emergency generator while in port, this option would likely reduce emissions and save fuel for vessel owners and operators who choose to use an emergency generator while in port. Some U.S.-flagged vessel owners and operators favor the availability of this option in port because it is more fuel-efficient and results in less exhaust emissions than using the larger ship's service generators. This would be an option for a very small number of U.S.-flagged vessel owners and operators who request it. This option is consistent with international guidance and classification society rules. The Coast Guard would approve the use of an emergency generator for vessel owners and operators in compliance with subchapter J only.

We are not able to quantify the expected reduction in the exhaust emissions because the Coast Guard is not able predict how many vessel owners and operators would choose this option while in port due to lack of data.

Analysis of Alternatives

(1) Industry would continue to meet the current standards in 46 CFR subchapter J with no updates to standards or incorporations by reference (current baseline without regulatory action).

This alternative is a representation of the current state of the industry where vessel owners and operators would continue to follow standards in 46 CFR subchapter J without any updates to standards. To use a newer standard or alternative standard, industry must submit an equivalency request and Coast Guard must grant that equivalency. With this alternative, industry would not benefit from regulations incorporating newer or alternative standards and would not benefit from the latest advances in electrical equipment technology without incurring the cost of submitting equivalency requests. With this alternative, there would be no change in the costs.

With this alternative, we would not update the standards in 46 CFR subchapter J and industry would not follow the more recent standards, which includes technological advancements in electrical equipment carried on vessels. We rejected this alternative because it would not create cost savings for the marine industry and industry also would not benefit from this alternative because it would not provide needed regulatory clarity.

(2) Issuance of a policy letter that would permit the marine industry to meet the more recent editions of the IBR standards without updating the editions that are incorporated by reference in 46 CFR subchapter J.

For this alternative, we would issue a policy letter that would permit industry members to meet the most recent editions of the pertinent standards. With such a policy in place, we anticipate that the marine industry would use the more recent editions of the IBR standards. However, 46 CFR Subpart J would still contain outdated standards and over prescriptive regulations that we could only remove through notice and comment rulemaking. Issuing a policy letter would not provide the agency an opportunity for soliciting public comment on current industry practice and standards. Additionally, the policy letter would not be enforceable against the public and the Coast Guard could revise the policy letter without opportunity to comment.

We would expect the number of equivalency requests to decrease with this alternative by the same amount as the preferred alternative and we also expect the cost savings associated with this alternative to be the same as the preferred alternative. We estimate this alternative would save industry approximately $22,787 annually (undiscounted). We estimate the 5-year discounted cost savings of this alternative to industry to be approximately $93,432, using a 7-percent discount rate. We estimate the annualized cost savings to be approximately $22,787, using a 7-percent discount rate. We rejected this alternative because we would not be incorporating by reference the more recent standards in the CFR, industry would not benefit from enhanced regulatory clarity in subchapter J, and the public would not be given the opportunity to comment on the appropriateness of the more recent editions of the IBR standards.

(3) Preferred Alternative—Update the IBR standards in 46 CFR subchapter J, create regulatory options, and make editorial changes to reduce the ambiguity that currently exists.

With this alternative, we would update the current standards in 46 CFR subchapter J and incorporate the more recent industry standards. This is the preferred alternative because it would create consistency between Coast Guard regulations and national and international standards, update the standards incorporated by reference to reflect the more recent standards available, provide options for alternative standards, eliminate obsolete standards, and clarify the existing requirements.

This alternative would reduce the number of equivalency requests from the marine industry and create cost savings for vessel owners and operator and manufacturers of marine equipment. It would also reduce the hours the marine industry would spend on drafting and submitting equivalency requests to the Coast Guard. We analyzed and presented the cost saving impacts of this alternative earlier in this analysis.

B. Small Entities

The Regulatory Flexibility Act of 1980 (5 U.S.C. 601–612) (RFA) and Executive Order 13272 (Consideration of Small Entities in Agency Rulemaking) requires a review of proposed and final rules to assess their impacts on small entities. An agency must prepare an initial regulatory flexibility analysis unless it determines and certifies that a rule, if promulgated, would not have a significant impact on a substantial number of small entities.

Under the RFA, we have considered whether this proposed rule would have a significant economic impact on a substantial number of small entities. The term ''small entities'' comprises small businesses, not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and governmental jurisdictions with populations of less than 50,000.

This proposed rule would create cost savings for industry because we estimate fewer equivalency requests to be submitted to the Coast Guard. We expect equivalency requests to be submitted by owners or operators of new U.S.-flagged vessels who may have questions about standards that are not in 46 CFR subchapter J. Over a 5-year period from 2014–2018, we found 1,051 new U.S.-flagged vessels entered service, or an average of approximately 210 annually during this period. We found that 157 companies owned the 1,051 vessels.

Using the publicly-available online database ''ReferenceUSAgov'' (in addition to individual online searches of companies) to search for company-specific information such as annual revenues and number of employees, we found revenue or employee information on 91 of the 157 companies, or approximately 58 percent.[11] Using the Small Business Administration's ''Table of Size Standards'' and the North American Industry Classification System codes listed in the table, we found 58 of the 91 companies to be small entities.[12] We found the other 33 companies to be not small.[13] We did not find information on the remaining 66 companies; therefore, we assumed these companies to be small entities for a total of 124 small entities out of 157 companies, or approximately 79 percent.

We analyzed the potential economic impacts of this proposed rule on small entities and found that each small entity, who no longer submits an equivalency request, would save approximately $2,848 annually. We estimate an 80 percent reduction in the number of equivalency requests (from 10 to 2 annually) industry would submit to the Coast Guard with this proposed rule, given this information, the Coast Guard certifies under 5 U.S.C. 605(b) that this proposed rule would not have a significant economic impact on a substantial number of small entities. For any small entity that does not submit an equivalency request, they would not be impacted by any cost or cost savings.

If you think that your business, organization, or governmental jurisdiction qualifies as a small entity and that this proposed rule would have a significant economic impact on it, please submit a comment to the docket at the address under **ADDRESSES**. In your comment, explain why you think it qualifies and how and to what degree this proposed rule would economically affect it.

C. Assistance for Small Entities

Under section 213(a) of the Small Business Regulatory Enforcement Fairness Act of 1996, Public Law 104–121, we want to assist small entities in understanding this proposed rule so that they can better evaluate its effects on them and participate in the rulemaking. If the proposed rule would affect your small business, organization, or governmental jurisdiction and you have questions concerning its provisions or options for compliance, please contact the person in the **FOR FURTHER INFORMATION CONTACT** section of this proposed rule. The Coast Guard will not retaliate against small entities that question or complain about this proposed rule or any policy or action of the Coast Guard.

Small businesses may send comments on the actions of Federal employees who enforce, or otherwise determine compliance with, Federal regulations to the Small Business and Agriculture Regulatory Enforcement Ombudsman and the Regional Small Business Regulatory Fairness Boards. The Ombudsman evaluates these actions annually and rates each agency's responsiveness to small business. If you wish to comment on actions by employees of the Coast Guard, call 1–888–REG–FAIR (1–888–734–3247).

D. Collection of Information

The Paperwork Reduction Act of 1995, 44 U.S.C. 3501–3520, requires that the Coast Guard consider the impact of paperwork and other information collection burdens imposed on the public. The Coast Guard has determined that there would be no new requirement for the collection of information associated with proposed rule because we estimate that we would receive less than 10 equivalency requests annually from the public.

E. Federalism

A rule has implications for federalism under Executive Order 13132 (Federalism) if it has a substantial direct effect on States, on the relationship between the National Government and the States, or on the distribution of power and responsibilities among the various levels of government. We have analyzed this proposed rule under Executive Order 13132 and have determined that it is consistent with the fundamental federalism principles and preemption requirements described in Executive Order 13132. Our analysis follows.

It is well settled that States may not regulate in categories reserved for regulation by the Coast Guard. It is also well settled that all of the categories covered in 46 U.S.C. 3306, 3703, 7101, and 8101 (design, construction, alteration, repair, maintenance, operation, equipping, personnel qualification, and manning of vessels), 43 U.S.C. 1333, and any other category in which Congress intended the Coast Guard to be the sole source of a vessel's obligations, are within the field foreclosed from regulation by the States. *See* the Supreme Court's decision in *United States* v. *Locke and Intertanko* v. *Locke*, 529 U.S. 89, 120 S.Ct. 1135 (2000). This proposed update to electrical engineering standards for vessels is issued under the authority in 46 U.S.C. 3306(a)(1) which authorizes the Secretary to prescribe regulations for the design, construction, alteration, repair, and operation of vessels subject to inspection, including equipment, appliances, propulsion machinery, auxiliary machinery, boilers, unfired pressure vessels, piping, and electric installations. Therefore, because the States may not regulate within these

[11] *http://www.referenceusagov.com.*

[12] The Coast Guard was unable to find revenue information for two of these small entities.

[13] *https://www.sba.gov/document/support--table-size-standards.*

categories, this rule is consistent with the fundamental federalism principles and preemption requirements described in Executive Order 13132.

While it is well settled that States may not regulate in categories in which Congress intended the Coast Guard to be the sole source of a vessel's obligations, the Coast Guard recognizes the key role that State and local governments may have in making regulatory determinations. Additionally, for rules with federalism implications and preemptive effect, Executive Order 13132 specifically directs agencies to consult with State and local governments during the rulemaking process. If you believe this rule has implications for federalism under Executive Order 13132, please contact the person listed in the **FOR FURTHER INFORMATION** section of this preamble.

F. Unfunded Mandates Reform Act

The Unfunded Mandates Reform Act of 1995, 2 U.S.C. 1531–1538, requires Federal agencies to assess the effects of their discretionary regulatory actions. In particular, the Act addresses actions that may result in the expenditure by a State, local, or tribal government, in the aggregate, or by the private sector of $100 million (adjusted for inflation) or more in any one year. Though this proposed rule would not result in such an expenditure, we do discuss the effects of this proposed rule elsewhere in this preamble.

G. Taking of Private Property

This proposed rule would not cause a taking of private property or otherwise have taking implications under Executive Order 12630 (Governmental Actions and Interference with Constitutionally Protected Property Rights).

H. Civil Justice Reform

This proposed rule meets applicable standards in sections 3(a) and 3(b)(2) of Executive Order 12988, (Civil Justice Reform), to minimize litigation, eliminate ambiguity, and reduce burden.

I. Protection of Children

We have analyzed this proposed rule under Executive Order 13045 (Protection of Children from Environmental Health Risks and Safety Risks). This proposed rule is not an economically significant rule and would not create an environmental risk to health or risk to safety that might disproportionately affect children.

J. Indian Tribal Governments

This proposed rule does not have tribal implications under Executive Order 13175 (Consultation and Coordination with Indian Tribal Governments), because it would not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes.

K. Energy Effects

We have analyzed this proposed rule under Executive Order 13211 (Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use). We have determined that it is not a ''significant energy action'' under that order because it is not a ''significant regulatory action'' under Executive Order 12866 and is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

L. Technical Standards

The National Technology Transfer and Advancement Act, codified as a note to 15 U.S.C. 272, directs agencies to use voluntary consensus standards in their regulatory activities unless the agency provides Congress, through OMB, with an explanation of why using these standards would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (*e.g.,* specifications of materials, performance, design, or operation; test methods; sampling procedures; and related management systems practices) that are developed or adopted by voluntary consensus standards bodies. This proposed rule uses the following voluntary consensus standards:

- ABS Rules for Building and Classing Marine Vessels, 2020, (''ABS Marine Vessel Rules'').
- ABS Rules for Building and Classing Mobile Offshore Units, Part 4 Machinery and Systems, 2020 (''ABS MOU Rules'').
- ANSI/ISA 12.12.01–2015—Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class II, Divisions 1 and 2 Hazardous (Classified) Locations, approved 17 Nov. 2015 (''ANSI/ISA 12.12.01'').
- API RP 14F—Recommended Practice for Design, Installation, and Maintenance of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class 1, Division 1 and Division 2 Locations, Sixth Edition. 2018), October 2018 (''API RP 14F'').
- API RP 14FZ—Recommended Practice for Design, Installation, and Maintenance of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Zone 0, Zone 1 and Zone 2 Locations, Second Edition, May 2013 (''API RP 14FZ'').
- API RP 500—Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2, Third Edition, December 2012 (''API RP 500'').
- API RP 505—Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1, and Zone 2, Second Edition, August 2018 (''API RP 505'').
- ASME A17.1—2016/CSA B44–16 Safety Code for Elevators and Escalators, 2016 (''ASME A17.1'').
- ASTM B117—19, Standard Practice for Operating Salt Spray (Fog) Apparatus, approved Nov. 1, 2019 (''ASTM B 117'').
- ASTM F2876–10—Standard Practice for Thermal Rating and Installation of Internal Combustion Engine Packages for use in Hazardous Locations in Marine Applications, reapproved May 1, 2015 (''ASTM F2876–10'').
- CSA C22.2 No. 30–M1986—Explosion-proof enclosures for use in class I hazardous locations, Reaffirmed 2016 (''CSA C22.2 No. 30–M1986'').
- CSA C22.2 No. 213–16—Non-incendive electrical equipment for use in class I and II and class III, division 2 hazardous 1 and 2 locations, May 2016 (''CSA C22.2 No. 213–16'').
- CSA–C22.2 No. 0–10—General requirements—Canadian Electrical Code, Part II, Reaffirmed 2015 (''CSA C22.2 No. 0–10'').
- CAN/CSA–C22.2 No. 157–92—Intrinsically safe and non-incendive equipment for use in hazardous locations, Reaffirmed 2016 (''CSA C22.2 No. 157–92'').
- MIL–DTL–76E—Military Specification Wire and Cable, Hookup, Electrical, Insulated, General Specification for, Nov. 3, 2016 (''MIL–DTL–76E'').
- MIL–DTL–24640C with Supplement 1—Detail Specification Cables, Lightweight, Low Smoke, Electric, for Shipboard Use, General Specification for, Nov. 8, 2011 (''MIL–DTL–24640C'').
- MIL–DTL–24643C with Supplement 1A—Detail Specification Cables, Electric, Low Smoke Halogen-Free, for Shipboard Use, General Specification for, Oct. 1, 2009

(including Supplement 1A dated Dec. 13, 2011) (''MIL–DTL–24643C'').

• EN 14744—Inland navigation vessels and sea-going vessels—Navigation light, Aug. 2005 (''EN 14744'').

• FM Approvals Class Number 3600—Approval Standard for Electric Equipment for use in Hazardous (Classified) Locations—General Requirements, Jan. 2018 (''FM Approvals Class Number 3600'').

• FM Approvals Class Number 3610—Approval Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations, January 2018 (''FM Approvals Class Number 3610'').

• FM Approvals Class Number 3611—Approval Standard for Nonincendive Electrical Equipment for Use in Class I and II, Division 2, and Class III, Divisions 1 and 2, Hazardous (Classified) Locations, January 2018 (''FM Approvals Class Number 3611'').

• FM Approvals Class Number 3615—Approval Standard for Explosionproof Electrical Equipment General Requirements, January 2018 (''FM Approvals Class Number 3615'').

• FM Approvals Class Number 3620—Approval Standard for Purged and Pressurized Electrical Equipment for Hazardous (Classified) Locations, January 2018 (''FM Approvals Class Number 3620'').

• IEEE C37.04–2018—IEEE Standard Rating Structure for AC High-Voltage Circuit Breakers, 2018 (''IEEE C37.04'').

• IEEE C37.010–2016—IEEE Application Guide for AC High-Voltage Circuit Breakers > 1000 Vac Rated on a Symmetrical Current Basis, 2016 (''IEEE C37.010'').

• IEEE C37.12–2018—IEEE Guide for Specifications of High-Voltage Circuit Breakers (over 1000 Volts), 2018 (''IEEE C37.12'').

• IEEE C37.13–2015—IEEE Standard for Low-Voltage AC Power Circuit Breakers Used in Enclosures, December 2015 (''IEEE C37.13'').

• IEEE C37.14–2015—IEEE Standard for DC (3200 V and below) Power Circuit Breakers Used in Enclosures, 26 Mar. 2015 (''IEEE C37.14'').

• IEEE C37.27–2015—IEEE Guide for Low-Voltage AC (635 V and below) Power Circuit Breakers Applied with Separately-Mounted Current-Limiting Fuses, 2015 (''IEEE C37.27'').

• IEEE 45.1–2017—IEEE Recommended Practice for Electrical Installations on Shipboard—Design, 23 Mar. 2017 (''IEEE 45.1–2017'').

• IEEE 45.2–2011—IEEE Recommended Practice for Electrical Installations on Shipboard—Controls and Automation, 1 Dec. 2011 (''IEEE 45.2–2011'').

• IEEE 45.6–2016—IEEE Recommended Practice for Electrical Installations on Shipboard—Electrical Testing, 7 Dec. 2016 (''IEEE 45.6–2016'').

• IEEE 45.7–2012—IEEE Recommended Practice for Electrical Installations on Shipboard—AC Switchboards, 29 Mar. 2012 (''IEEE 45.7–2012'').

• IEEE 45.8–2016—IEEE Recommended Practice for Electrical Installations on Shipboard—Cable Systems, 29 Jan. 2016 (''IEEE 45.8–2016'').

• IEEE 100—The Authoritative Dictionary of IEEE Standards Terms, Seventh Edition, 2000 (''IEEE 100'').

• IEEE 1202–2006—IEEE Standard for Flame-Propagation Testing of Wire and Cable with Corrigendum 1, (21 Nov. 2012), 2006 (''IEEE 1202'').

• IEEE 1580–2010—IEEE Recommended Practice for Marine Cable for Use on Shipboard and Fixed or Floating Platforms, 2 Mar. 2011 (''IEEE 1580'').

• IEC 60068–2–52:2017—Environmental testing—Part 2–52: Tests—Test Kb: Salt mist, cyclic (sodium chloride solution), Edition 3.0, 2017–11.

• IEC 60079–1:2014—Explosive atmospheres—Part 1: Equipment protection by flameproof enclosures ''d'', Edition 7.0, 2014–06.

• IEC 60079–2:2014—Explosive atmospheres—Part 2: Equipment protection by pressurized enclosures ''p'' with Corrigendum 1 (2015), Edition 6.0, 2014–07.

• IEC 60079–5:2015—Explosive atmospheres—Part 5: Equipment protection by powder filling ''q'', Edition 4.0, 2015–02.

• IEC 60079–6:2015—Explosive atmospheres—Part 6: Equipment protection by liquid immersion ''o'', Edition 4.0, 2015–02.

• IEC 60079–7:2017—Explosive atmospheres—Part 7: Equipment protection by increased safety ''e'', Edition 5.1, 2017–08.

• IEC 60079–11:2011—Explosive atmospheres—Part 11: Equipment protection by intrinsic safety ''i'' with Corrigendum 1 (Jan. 2012), Edition 6.0, 2011–06.

• IEC 60079–13:2017—Explosive atmospheres—Part 13: Equipment protection by pressurized room ''p'', and artificially ventilated room ''v'' Edition 2.0, 2017–05.

• IEC 60079–15:2017—Explosive atmospheres—Part 15: Equipment protection by type of protection ''n'', Edition 5.0, 2017–12.

• IEC 60079–18:2017—Explosive atmospheres—Part 18: Equipment protection by encapsulation ''m'', Edition 4.1, 2017–08.

• IEC 60079–25:2010—Explosive atmospheres—Part 25: Intrinsically safe electrical systems, Edition 2.0, 2010–02.

• IEC 60079–30–1:2007—Part 30–1: Electrical resistance trace heating—General and testing requirements, First Edition, 2007–01.

• IEC 60092–101:2018—Electrical installations in ships—General requirements, Edition 5.0, 2018–10.

• IEC 60092–201:2019—Electrical installations in ships—Part 201: System Design—General, Edition 5.0, 2019–09.

• IEC 60092–202:2016—Electrical installations in ships—Part 202: System—Protection design, Edition 5.0, 2016–09.

• IEC 60092–301:1980—Electrical installations in ships—Part 301: Equipment—Generators and motors, Third Edition with amendment 1 (1994–05) and Amendment 2 (1995–04), 1980.

• IEC 60092–302:1997—Electrical Installation in ships—Part 302: Low-voltage switchgear and control gear assemblies, Fourth Edition, 1997–05.

• IEC 60092–303:1980—Electrical installations in ships—Part 303: Equipment—Transformers for power and lighting, Third Edition with Amendment 1, 1997–09.

• IEC 60092–304:1980—Electrical installations in ships—Part 304: Equipment—Semiconductor convertors, Third Edition with Amendment 1, 1995–04.

• IEC 60092–306:2009—Electrical installation in ships—Part 306: Equipment—Luminaries and lighting accessories, Edition 4.0, 2009–11.

• IEC 60092–350:2014—Electrical installations in ships—Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications, Edition 4.0, 2014–08.

• IEC 60092–352:2005—Electrical Installation in ships—Part 352: Choice and Installation of electrical cables, Third Edition, 2005–09.

• IEC 60092–353:2016—Electrical installation in ships—Part 353: Power cables for rated voltages 1 kV and 3 kV, Edition 4.0, 2016–09.

• IEC 60092–354:2014—Electrical installations in ships—Part 354: Single- and three-core power cables with extruded solid insulation for rated voltages 6 kV (U_m=7.2 kV) up to 30 kV (U_m=36 kV), Edition 3.0, 2014–08.

• IEC 60092–360:2014—Electrical installations in ships—Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and

telecommunication cables, Edition 1.0, 2014–04.

- IEC 60092–376:2017—Electrical installations in ships—Part 376: Cables for control and instrumentation circuits 150/250 V (300 V), Third Edition, 2017–05.
- IEC 60092–401:1980—Electrical installations in ships—Part 401: Installation and test of completed installation, Third Edition with Amendment 1 (1987–02) and Amendment 2 (1997), 1995–04.
- IEC 60092–502:1999—Electrical installations in ships—Part 502: Tankers—Special features, Fifth Edition, 1999–02.
- IEC 60092–503:2007—Electrical installations in ships—Part 503: Special features—A.C. supply systems with voltages in the range of above 1kV up to and including 15 kV, Second Edition, 2007–06.
- IEC 60331–11:2009—Tests for electric cables under fire conditions—Circuit integrity—Part 11: Apparatus—Fire alone at a flame temperature of at least 750 °C, Edition 1.1, 2009–07.
- IEC 60331–21:1999—Tests for electric cables under fire conditions—Circuit integrity—Part 21: Procedures and requirements—Cables of rated voltage up to and including 0.6/1.0kV, First Edition, 1999–04.
- IEC 60332–1–1:2015—Tests on electric and optical fibre cables under fire conditions—Part 1–1: Test for vertical flame propagation for a single insulated wire or cable—Apparatus, First Edition with Amendment 1, 2015–07.
- IEC 60332–1–2:2015—Tests on electric and optical fibre cables under fire conditions—Part 1–2: Test for vertical flame propagation for a single insulated wire or cable—Procedure for 1kW pre-mixed flame, First Edition with Amendment 1, 2015–07.
- IEC 60332–3–21:2018—Tests on electric and optical fibre cables under fire conditions—Part 3–21: Test for vertical flame spread of vertically-mounted bunched wires or cables—Category A F/R, Edition 2.0, 2018–07.
- IEC 60332–3–22:2018—Tests on electric and optical fibre cables under fire conditions—Part 3–22: Test for vertical flame spread of vertically-mounted bunched wires or cables—Category A, Edition 2.0, 2018–07.
- IEC 60529:2013—Degrees of protection provided by enclosures (IP Code), Edition 2.2, 2013–08.
- IEC 60533:2015—Electrical and electronic installations in ships—Electromagnetic compatibility—Ships with a metallic hull, Edition 3.0, 2015–08.
- IEC 60947–2:2019—Low-voltage switchgear and controlgear—Part 2: Circuit-breakers, Edition 5.1, 2019–07.
- IEC 61363–1:1998—Electrical installations of ships and mobile and fixed offshore units—Part 1: Procedures for calculating short-circuit currents in three-phase a.c., First Edition, 1998–02.
- IEC 61439–6:2012: Low-voltage switchgear and control gear assemblies—Part 6: Busbar trunking systems (busways), Edition 1.0, 2012.
- IEC 61660–1:1997—Short-circuit currents in d.c. auxiliary installations in power plants and substations—Part 1: Calculation of short-circuit currents, First Edition, 1997–06.
- IEC 61892–7:2019—Mobile and fixed offshore units—Electrical installations—Part 7: Hazardous areas, Edition 4.0, 2019–04.
- IEC 62271–100:2017—High-voltage switchgear and controlgear—Part 100: Alternating-current circuit-breakers, Edition 2.2, 2017–06.
- IEC–TR 60092–370:2009—Technical Report—Electrical installations in ships—Part 370: Guidance on the selection of cables for telecommunication and data transfer including radio-frequency cables, Edition 1.0, 2009–07.
- IEC/IEEE 80005–1:2019—Utility connections in port—Part 1: High voltage shore connection (HVSC) systems—General requirements, Edition 2.0, 2019–03.
- ISO 25861—Ships and marine technology—Navigation—Daylight signaling lamps, First edition, Dec. 1, 2007.
- Lloyd's Register Type Approval System—Test Specification Number 1, March 2019.
- NEMA Standards Publication ICS 2–2000 (R2005)—Industrial Control and Systems Controllers, Contactors, and Overload Relays, Rated 600 Volts, 2000 (''NEMA ICS 2'').
- NEMA Standards Publication ICS 2.3–1995—Instructions for the Handling, Installation, Operation, and Maintenance of Motor Control Centers Rated not More Than 600 Volts, 1995 (''NEMA ICS 2.3'').
- NEMA Standards Publication No. ICS 2.4–2003 (R2012)—NEMA and IEC Devices for Motor Service—a Guide for Understanding the Differences, 2003 (''NEMA ICS 2.4'').
- NEMA Standards Publication No. NEMA 250–2018—Enclosures for Electrical Equipment (1000 Volts Maximum), 2018 (''NEMA 250'').
- NEMA Standards Publication No. ANSI/NEMA WC–70 ICEA S–95–658—Power Cables Rated 2000V or Less for the Distribution of Electrical Energy, Feb. 23, 2009 (''ANSI/NEMA WC–70'').
- NFPA 70—National Electrical Code, 2017 (''NFPA 70'').
- NFPA 77—Recommended Practice on Static Electricity, 2019 Edition (''NFPA 77'').
- NFPA 99—Health Care Facilities Code, 2018 Edition (''NFPA 99'').
- NFPA 496—Standard for Purged and Pressurized Enclosures for Electrical Equipment, 2017 Edition (''NFPA 496 (2017)'').
- UL 44—Standard for Safety Thermoset-Insulated Wire and Cable, Nineteenth Edition, Jan. 9, 2018 (''ANSI/UL 44'').
- UL 50—Standard for Safety Enclosures for Electrical Equipment, Thirteenth Edition, Oct. 16, 2013 (''UL 50'').
- UL 62—Standard for Safety Flexible Cords and Cables, Twentieth Edition, July 6, 2018 (''ANSI/UL 62'').
- UL 83—Standard for Safety Thermoplastic-Insulated Wires and Cables, Sixteenth Edition, Jul. 28, 2017 (''ANSI/UL 83'').
- UL 484—Standard for Safety Room Air Conditioners, Ninth Edition (with revisions through Oct. 25, 2016), Feb. 7, 2014 (''ANSI/UL 484'').
- UL 489—Standard for Safety Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures, Thirteenth Edition, Oct. 24, 2016 (''ANSI/UL 489'').
- UL 514A—Standard for Safety Metallic Outlet Boxes, Eleventh Edition, (with revisions through Aug. 11, 2017) Feb. 1, 2013 (''ANSI/UL 514A'').
- UL 514B—Standard for Safety Conduit, Tubing, and Cable Fittings, Sixth Edition (with revisions through Nov. 21, 2014), July 13, 2012 (''ANSI/UL 514B'').
- UL 514C—Standard for Safety Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers, Fourth Edition (with revisions through Dec. 10, 2014), Apr. 8, 2014 (''ANSI/UL 514C'').
- UL 674—Standard for Safety Electric Motors and Generators for Use in Hazardous (Classified) Locations, Fifth Edition (with revisions through May 19, 2017), May 31, 2011 (''ANSI/UL 674'').
- UL 823—Electric Heaters for Use in Hazardous (Classified) Locations, Ninth Edition (with revisions through Apr. 22, 2016), Oct. 20, 2006 (''ANSI/UL 823'').
- UL 844—Standard for Safety Luminaires for Use in Hazardous (Classified) Locations, Thirteenth Edition (with revision through Mar. 11, 2016), June 29, 2012 (''ANSI/UL 844).
- UL 913—Standard for Safety Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous Locations, Eighth Edition, 2013 (''ANSI/UL 913'').

• UL 1042—Standard for Safety Electric Baseboard Heating Equipment, Fifth Edition (with revisions through Dec. 14, 2016), Aug. 31, 2009 (''ANSI/UL 1042'').
• UL 1072—Standard for Safety Medium-Voltage Power Cables, Fourth Edition (with revisions through June 19, 2013) June 30, 2006 (''ANSI/UL 1072'').
• UL 1104—Standard for Marine Navigation Lights, Second Edition, Oct. 29, 1998, (''ANSI/UL 1104'').
• UL 1203—Standard for Safety: Explosion-Proof and Dust-Ignition Proof Electrical Equipment for Use in Hazardous (Classified) Locations, Fifth Edition (with revisions through Oct. 16, 2015), Nov. 22, 2013 (''ANSI/UL 1203'').
• UL 1309—Standard for Safety Marine Shipboard Cables, Third Edition, Apr. 21, 2017 (''ANSI/UL 1309'').
• UL 1598—Standard for Safety Luminaires, Fourth Edition, Aug. 28, 2018 (''ANSI/UL 1598'').
• UL 1598A—Standard for Safety Supplemental Requirements for Luminaires for Installation on Marine Vessels, First Edition, (with revisions through Apr. 17, 2015), Dec. 4, 2000, (''ANSI/UL 1598A'').
• UL 2021—Standard for Safety Fixed and Location-Dedicated Electric Room Heaters, Fourth Edition, Sept. 30, 2015 (''ANSI/UL 2021'').
• UL 2225—Standard for Safety Cables and Cable-Fittings for use in Hazardous (Classified) Locations, Fourth Edition, Sept. 30, 2013 (''ANSI/UL 2225'').
• UL 2556—Standard for Safety Wire and Cable Test Methods, Fourth Edition, Dec. 15, 2015 (''ANSI/UL 2556)'').
• UL 60079–18—Standard for Safety Explosive Atmospheres—Part 18: Equipment Protection by Encapsulation ''m'', Fourth Edition, Feb. 20, 2017 (''ANSI/UL 60079–18'').

The proposed sections that reference these standards and the locations where these standards are available are listed in § 110.10–1(b).

This proposed rule also uses technical standards other than voluntary consensus standards.

• SOLAS, Consolidated Text of the International Convention for the Safety of Life at Sea, 1974, and its Protocol of 1988: Article, Annexes and Certificates. (Incorporating all amendments in effect from 1 July 2014), 2014 (''IMO SOLAS 74'').
• IMO Resolution A.1023(26)—Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009, 18 Jan. 2010 (''2009 IMO MODU Code'').

The proposed sections that reference these standards and the locations and web addresses where these standards are available are listed in proposed § 110.10–1(b).

If you disagree with our analysis of these voluntary consensus standards or are aware of voluntary consensus standards that might apply but are not listed, please send a comment explaining your disagreement or identifying additional standards to the docket using one of the methods under **ADDRESSES**.

M. Environment

This action is one of a category of actions that do not individually or cumulatively have a significant effect on the human environment. A preliminary Record of Environmental Consideration supporting this determination is available in the docket. For instructions on locating the docket, see the **ADDRESSES** section of this preamble. This proposed rule would be categorically excluded under paragraph L57 of Appendix A, Table 1 of DHS Instruction Manual 023–01–001–01, Rev. 01. Paragraph L57 pertains to regulations concerning manning, documentation, admeasurement, inspection, and equipping of vessels.

This proposed rule involves incorporating by reference several updated electrical engineering standards along with removing several outdated or unnecessarily prescriptive electrical engineering regulations. We seek any comments or information that may lead to the discovery of a significant environmental impact from this proposed rule.

List of Subjects

46 CFR Part 110

Incorporation by reference, Reporting and recordkeeping requirements, Vessels.

46 CFR Part 111

Vessels.

46 CFR Part 112

Vessels.

46 CFR Part 113

Communications equipment, Fire prevention, Vessels.

For the reasons discussed in the preamble, the Coast Guard proposes to amend 46 CFR parts 110, 111, 112, and 113 as follows:

Title 46—Shipping

PART 110—General Provisions

■ 1. The authority citation for part 110 continues to read as follows:

Authority: 43 U.S.C. 1333; 46 U.S.C. 3306, 3307, 3703; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1; § 110.01–2 also issued under 44 U.S.C. 3507. Sections 110.15–1 and 110.25–1 also issued under sec. 617, Pub. L. 111–281, 124 Stat. 2905.

■ 2. Revise § 110.10–1 to read as follows.

§ 110.10–1 Incorporation by reference.

Certain material is incorporated by reference into this subchapter with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. The word ''should,'' when used in material incorporated by reference, is to be construed the same as the words ''must'' or ''shall'' for the purposes of this subchapter. All approved material is available for inspection at the U.S. Coast Guard, Office of Design and Engineering Standards (CG–ENG), 2703 Martin Luther King Jr Ave. SE, Stop 7418, Washington, DC 20593–7418, and is available from the sources listed elswhere in this section. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email *fedreg.lega@nara.gov* or go to *www.archives.gov/federal-register/cfr/ibr-locations.html.*

(a) *American Bureau of Shipping (ABS),* 1701 City Plaza Drive, Spring, TX 77389, 281–877–5800, *ww2.eagle.org.*

(1) Rules for Building and Classing Marine Vessels, 2020 (''ABS Marine Vessel Rules''), IBR approved for §§ 110.15–1(b), 111.01–9(b), 111.12–3, 111.12–5, 111.12–7, 111.35–1, 111.70–1(a), 111.105–31(o), 111.105–39(a), 111.105–40, 112.05–7(c) and 113.05–7(a).

(2) Rules for Building and Classing Mobile Offshore Units, Part 4 Machinery and Systems, 2020 (''ABS MOU Rules''), IBR approved for §§ 111.12–1, 111.12–3, 111.12–5, 111.12–7(c), 111.33–11, 111.35–1, and 111.70–1(a).

(b) *American National Standards Institute (ANSI),* 25 West 43rd Street, New York, NY 10036, 212–642–4900, *www.ansi.org/.*

(1) ANSI/ISA 12.12.01–2015—Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class II, Divisions 1 and 2 Hazardous (Classified) Locations, approved 17 Nov. 2015 (''ANSI/ISA 12.12.01''), IBR approved for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(2) [Reserved]

(c) *American Petroleum Institute (API),* Order Desk, 1220 L Street NW, Washington, DC 20005–4070, 202–682–8000, */www.api.org.*

(1) API RP 14F—Recommended Practice for Design, Installation, and

Maintenance of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class 1, Division 1 and Division 2 Locations, Sixth Edition. 2018), October 2018 (''API RP 14F''), IBR approved for § 111.105–17(b).

(2) API RP 14FZ—Recommended Practice for Design, Installation, and Maintenance of Electrical Systems for Fixed and Floating Offshore Petroleum Facilities for Unclassified and Class I, Zone 0, Zone 1 and Zone 2 Locations, Second Edition, May 2013, (''API RP 14FZ''), IBR approved for § 111.105–17(b).

(3) API RP 500—Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Division 1 and Division 2, Third Edition, December 2012 (''API RP 500''), IBR approved for §§ 111.106–7(a) and 111.106–13(b).

(4) API RP 505—Recommended Practice for Classification of Locations for Electrical Installations at Petroleum Facilities Classified as Class I, Zone 0, Zone 1, and Zone 2, Second Edition, August 2018 (''API RP 505''), IBR approved for §§ 111.106–7(a) and 111.106–13(b).

(d) *American Society of Mechanical Engineers (ASME)*, Two Park Avenue, New York, NY 10016–5990, 800–843–2763, */www.asme.org.*

(1) ASME A17.1–2016/CSA B44–16 Safety Code for Elevators and Escalators, 2016 (''ASME A17.1''), IBR approved for § 111.91–1.

(2) [Reserved]

(e) *ASTM International (ASTM)*, 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, 610–832–9500, *www.astm.org.*

(1) ASTM B117–19, Standard Practice for Operating Salt Spray (Fog) Apparatus, approved November 1, 2019 (''ASTM B 117''), IBR approved for § 110.15–1(b).

(2) ASTM F2876–10 (Reapproved 2015)—Standard Practice for Thermal Rating and Installation of Internal Combustion Engine Packages for use in Hazardous Locations in Marine Applications, Reapproved May 1, 2015 (''ASTM F2876–10''), IBR approved for §§ 111.105–28, 111.106–3(h) and 111.108–3(g).

(f) *CSA Group*, 178 Rexdale Blvd., Toronto, ON, Canada M9W 1R3, 800–463–6727, *www.csagroup.org.*

(1) CSA C22.2 No. 30–M1986—Explosion-proof enclosures for use in class I hazardous locations, Reaffirmed 2016 (''CSA C22.2 No. 30–M1986''), IBR approved for §§ 111.105–7(a), 111.106–3(b) and 111.108–3(b).

(2) CSA C22.2 No. 213–16—Non-incendive electrical equipment for use in class I and II and class III, division 2 hazardous 1 and 2 locations, May 2016 (''CSA C22.2 No. 213–16''), IBR approved for §§ 111.105–7(a), 111.106–3(b) and 111.108–3(b).

(3) CSA–C22.2 No. 0–10—General requirements—Canadian Electrical Code, Part II, Reaffirmed 2015 (''CSA C22.2 No. 0–10''), IBR approved for §§ 111.105–7(a), 111.106–3(b) and 111.108–3(b).

(4) CAN/CSA–C22.2 No. 157–92—Intrinsically safe and non-incendive equipment for use in hazardous locations, Reaffirmed 2016 (''CSA C22.2 No. 157–92''), IBR approved for §§ 111.105–7(a), 111.106–3(b) and 111.108–3(b).

(g) *DLA Document Services*, Building 4/D, 700 Robbins Avenue, Philadelphia, PA 19111, 215–697–6396, *https://quicksearch.dla.mil/qsSearch.aspx.*

(1) MIL–DTL–76E—Military Specification Wire and Cable, Hookup, Electrical, Insulated, General Specification for, Nov. 3, 2016 (''MIL–DTL–76E''), IBR approved for § 111.60–11(c).

(2) MIL–DTL–24640C with Supplement 1—Detail Specification Cables, Lightweight, Low Smoke, Electric, for Shipboard Use, General Specification for, Nov. 18, 2011 (''MIL–DTL–24640C''), IBR approved for §§ 111.60–1(a), and 111.106–5(a).

(3) MIL–DTL–24643C with Supplement 1A—Detail Specification Cables, Electric, Low Smoke Halogen-Free, for Shipboard Use, General Specification for, Oct. 1, 2009 (including Supplement 1A dated Dec. 13, 2011)(''MIL–DTL–24643C''), IBR approved for §§ 111.60–1(a) and 111.106–5(a).

(h) *European Committee for Standardization*, CEN–CENELEC Management Centre, rue de la Sence 23, B–1040 Brussels, Belgium, + 32 2 550 08 11, *https://www.cen.eu.*

(1) EN 14744—Inland navigation vessels and sea-going vessels—Navigation light, August 2005, IBR approved for § 111.75–17(d).

(2) [Reserved]

(i) *FM Approvals*, P.O. Box 9102, Norwood, MA 02062, 781–7624300, *www.fmapprovals.com.*

(1) Class Number 3600—Approval Standard for Electric Equipment for use in Hazardous (Classified) Locations—General Requirements, January 2018 (''FM Approvals Class Number 3600''), IBR approved for §§ 111.105–7(a), 111.106–3(b) and 111.108–3(b).

(2) Class Number 3610—Approval Standard for Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations, January 2018 (''FM Approvals Class Number 3610''), IBR approved for §§ 111.105–7(a), 111.106–3(b) and 111.108–3(b).

(3) Class Number 3611—Approval Standard for Nonincendive Electrical Equipment for Use in Class I and II, Division 2, and Class III, Divisions 1 and 2, Hazardous (Classified) Locations, January 2018 (''FM Approvals Class Number 3611''), IBR approved for §§ 111.105–7(a), 111.106–3(b) and 111.108–3(b).

(4) Class Number 3615—Approval Standard for Explosionproof Electrical Equipment General Requirements, January 2018 (''FM Approvals Class Number 3615''), IBR approved for §§ 111.105–7(a), 111.106–3(b) and 111.108–3(b).

(5) Class Number 3620—Approval Standard for Purged and Pressurized Electrical Equipment for Hazardous (Classified) Locations, January 2018 (''FM Approvals Class Number 3620''), IBR approved for §§ 111.105–7(a), 111.106–3(b) and 111.108–3(b).

(j) *Institute of Electrical and Electronic Engineers (IEEE),* 3 Park Avenue, New York, NY 10016–5997, 800–701–4333, *www.ieee.org/.*

(1) IEEE C37.04–2018—IEEE Standard Rating Structure for AC High-Voltage Circuit Breakers, 2018 (''IEEE C37.04''), IBR approved for § 111.54–1(c).

(2) IEEE C37.010–2016—IEEE Application Guide for AC High-Voltage Circuit Breakers > 1000 Vac Rated on a Symmetrical Current Basis, 2016 (''IEEE C37.010''), IBR approved for § 111.54–1(c).

(3) IEEE C37.12–2018—IEEE Guide for Specifications of High-Voltage Circuit Breakers (over 1000 Volts), 2018 (''IEEE C37.12''), IBR approved for § 111.54–1(c).

(4) IEEE C37.13–2015—IEEE Standard for Low-Voltage AC Power Circuit Breakers Used in Enclosures, December 2015 (''IEEE C37.13''), IBR approved for § 111.54–1(c).

(5) IEEE C37.14–2015—IEEE Standard for DC (3200 V and below) Power Circuit Breakers Used in Enclosures, 26 Mar. 2015 (''IEEE C37.14''), IBR approved for § 111.54–1(c).

(6) IEEE C37.27–2015—IEEE Guide for Low-Voltage AC (635 V and below) Power Circuit Breakers Applied with Separately-Mounted Current-Limiting Fuses, 2015 (''IEEE C37.27''), IBR approved for § 111.54–1(c).

(7) IEEE 45.1–2017—IEEE Recommended Practice for Electrical Installations on Shipboard—Design, 23 Mar. 2017 (''IEEE 45.1–2017''), IBR

approved for §§ 111.15–2(b), 111.40–1, 111.75–5(b), 111.105–41, and 113.65–5.

(8) IEEE 45.2–2011—IEEE Recommended Practice for Electrical Installations on Shipboard—Controls and Automation, 1 Dec. 2011 (''IEEE 45.2–2011''), IBR approved for §§ 111.33–3(a) and 111.33–5(a).

(9) IEEE 45.6–2016—IEEE Recommended Practice for Electrical Installations on Shipboard—Electrical Testing, 7 Dec. 2016 (''IEEE 45.6–2016''), IBR approved for § 111.60–21.

(10) IEEE 45.7–2012—IEEE Recommended Practice for Electrical Installations on Shipboard—AC Switchboards, 29 Mar. 2012 (''IEEE 45.7–2012''), IBR approved for §§ 111.30–1, 111.30–5(a), 111.30–19(a).

(11) IEEE 45.8–2016—IEEE Recommended Practice for Electrical Installations on Shipboard—Cable Systems, 29 Jan. 2016 (''IEEE 45.8–2016''), IBR approved for §§ 111.05–7, 111.60–5(a), 111.60–11(c), 111.60–13(a), and 111.60–19(b).

(12) IEEE 100—The Authoritative Dictionary of IEEE Standards Terms, Seventh Edition, 2000 (''IEEE 100''), IBR approved for § 110.15–1(b).

(13) IEEE 1202–2006—IEEE Standard for Flame-Propagation Testing of Wire and Cable with Corrigendum 1, (21 Nov. 2012), 2006 (''IEEE 1202''), IBR approved for § 111.107–1(c).

(14) IEEE 1580–2010—IEEE Recommended Practice for Marine Cable for Use on Shipboard and Fixed or Floating Platforms, 2 Mar. 2011 (''IEEE 1580''), IBR approved for §§ 111.60–1(a), and 111.106–5(a).

(k) *International Electrotechnical Commission (IEC),* 3 Rue de Varembe, Geneva, Switzerland, +41 22 919 02 11, *www.iec.ch/.*

(1) IEC 60068–2–52:2017—Environmental testing—Part 2–52: Tests—Test Kb: Salt mist, cyclic (sodium chloride solution), Edition 3.0, 2017–11, IBR approved for § 110.15–1(b).

(2) IEC 60079–1:2014—Explosive atmospheres—Part 1: Equipment protection by flameproof enclosures ''d'', Edition 7.0, 2014–06, IBR approved for §§ 111.105–7, 111.105–17, 106–3(b), and 111.108–3(b).

(3) IEC 60079–2:2014—Explosive atmospheres—Part 2: Equipment protection by pressurized enclosures ''p'' with Corrigendum 1 (2015), Edition 6.0, 2014–07, IBR approved for §§ 111.105–7(a), 111.105–17, 111.106–3(b), and 111.108–3(b).

(4) IEC 60079–5:2015—Explosive atmospheres—Part 5: Equipment protection by powder filling ''q'', Edition 4.0, 2015–02, IBR approved for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(5) IEC 60079–6:2015—Explosive atmospheres—Part 6: Equipment protection by liquid immersion ''o'', Edition 4.0, 2015–02, IBR approved for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(6) IEC 60079–7:2017—Explosive atmospheres—Part 7: Equipment protection by increased safety ''e'', Edition 5.1, 2017–08, IBR approved for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(7) IEC 60079–11:2011—Explosive atmospheres—Part 11: Equipment protection by intrinsic safety ''i'' with Corrigendum 1 (January 2012), Edition 6.0, 2011–06, IBR approved for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(8) IEC 60079–13:2017—Explosive atmospheres—Part 13: Equipment protection by pressurized room ''p'', and artificially ventilated room ''v'' Edition 2.0, 2017–05, IBR approved for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(9) IEC 60079–15:2017—Explosive atmospheres—Part 15: Equipment protection by type of protection ''n'', Edition 5.0, 2017–12, IBR approved for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(10) IEC 60079–18:2017—Explosive atmospheres—Part 18: Equipment protection by encapsulation ''m'', Edition 4.1, 2017–08, IBR approved for §§ 111.105–7(a), 111.106–3(b), 111.106–3(d), and 111.108–3(b) and (e).

(11) IEC 60079–25:2010—Explosive atmospheres—Part 25: Intrinsically safe electrical systems, Edition 2.0, 2010–02, IBR approved for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(12) IEC 60079–30–1:2007—Part 30–1: Electrical resistance trace heating—General and testing requirements, First Edition, 2007–01, IBR approved for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(13) IEC 60092–101:2018—Electrical installations in ships—General requirements, Edition 5.0, 2018–10, IBR approved for §§ 110.15–1 and 111.81–1.

(14) IEC 60092–201:2019—Electrical installations in ships—Part 201: System Design—General, Edition 5.0, 2019–09, IBR approved for §§ 111.70–3 and 111.81–1(d).

(15) IEC 60092–202:2016—Electrical installations in ships—Part 202: System—Protection design, Edition 5.0, 2016–09, IBR approved for §§ 111.12–7(b), 111.50–3, 111.53–1(a), and 111.54–1(a).

(16) IEC 60092–301:1980—Electrical installations in ships—Part 301: Equipment—Generators and motors, Third Edition with Amendment 1 (1994–05) and Amendment 2 (1995–04), 1980, IBR approved for §§ 111.12–7(b), and 111.70–1(a).

(17) IEC 60092–302:1997—Electrical Installation in ships—Part 302: Low-voltage switchgear and control gear assemblies, Fourth Edition, 1997–05, IBR approved for §§ 111.30–1, 111.30–5, and 111.30–19(a).

(18) IEC 60092–303:1980—Electrical installations in ships—Part 303: Equipment—Transformers for power and lighting, Third Edition with Amendment 1, 1997–09, IBR approved for § 111.20–15.

(19) IEC 60092–304:1980—Electrical installations in ships—Part 304: Equipment—Semiconductor convertors, Third Edition with Amendment 1, 1995–04, IBR approved for §§ 111.33–3(a) and 111.33–5(b).

(20) IEC 60092–306:2009—Electrical installation in ships—Part 306: Equipment—Luminaries and lighting accessories, Edition 4.0, 2009–11, IBR approved for §§ 111.75–20(a) and 111.81–1(d).

(21) IEC 60092–350:2014—Electrical installations in ships—Part 350: General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications, Edition 4.0, 2014–08, IBR approved for §§ 111.60–1(a) and 111.106–5(a).

(22) IEC 60092–352:2005—Electrical Installation in ships—Part 352: Choice and Installation of electrical cables, Third Edition, 2005–09, IBR approved for §§ 111.60–1, 111.60–5, and 111.81–1.

(23) IEC 60092–353:2016—Electrical installation in ships—Part 353: Power cables for rated voltages 1 kV and 3 kV, Edition 4.0, 2016–09, IBR approved for §§ 111.60–1(a) and 111.106–5(a).

(24) IEC 60092–354:2014—Electrical installations in ships—Part 354: Single- and three-core power cables with extruded solid insulation for rated voltages 6 kV (U_m=7.2 kV) up to 30 kV (U_m=36 kV), Edition 3.0, 2014–08, IBR approved for § 111.60–1(a).

(25) IEC 60092–360:2014—Electrical installations in ships—Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables, Edition 1.0, 2014–04, IBR approved for § 111.60–1(a).

(26) IEC 60092–376:2017—Electrical installations in ships—Part 376: Cables for control and instrumentation circuits 150/250 V (300 V), Third Edition, 2017–05, IBR approved for § 111.60–1(a).

(27) IEC 60092–401:1980—Electrical installations in ships—Part 401: Installation and test of completed

installation, Third Edition with Amendment 1 (1987–02) and Amendment 2 (1997), 1995–04, IBR approved for §§ 111.05–9 and 111.81–1(d).

(28) IEC 60092–502:1999—Electrical installations in ships—Part 502: Tankers—Special features, Fifth Edition, 1999–02, IBR approved for §§ 111.81–1(d), 111.105–1, 111.105–3(b), 111.105–7(a), 111.105–11(b), 111.105–17(b), 111.105–50(c), 111.106–3(b), 111.106–5(c), 111.106–15(a), and 111.108–3(b).

(29) IEC 60092–503:2007—Electrical installations in ships—Part 503: Special features—A.C. supply systems with voltages in the range of above 1kV up to and including 15 kV, Second Edition, 2007–06, IBR approved for § 111.30–5(a).

(30) IEC 60331–11:2009—Tests for electric cables under fire conditions—Circuit integrity—Part 11: Apparatus—Fire alone at a flame temperature of at least 750 °C, Edition 1.1, 2009–07, IBR approved for § 113.30–25.

(31) IEC 60331–21:1999—Tests for electric cables under fire conditions—Circuit integrity—Part 21: Procedures and requirements—Cables of rated voltage up to and including 0.6/1.0kV, First Edition, 1999–04, IBR approved for § 113.30–25(j).

(32) IEC 60332–1–1:2015—Tests on electric and optical fibre cables under fire conditions—Part 1–1: Test for vertical flame propagation for a single insulated wire or cable—Apparatus, First Edition with Amendment 1, 2015–07, IBR approved for § 111.30–19(b).

(33) IEC 60332–1–2:2015—Tests on electric and optical fibre cables under fire conditions—Part 1–2: Test for vertical flame propagation for a single insulated wire or cable—Procedure for 1kW pre-mixed flame, First Edition with Amendment 1, 2015–07, IBR approved for § 111.30–19(b).

(34) IEC 60332–3–21:2018—Tests on electric and optical fibre cables under fire conditions—Part 3–21: Test for vertical flame spread of vertically-mounted bunched wires or cables—Category A F/R, Edition 2.0, 2018–07, IBR approved for §§ 111.60–1(b) and 111.107–1(c).

(35) IEC 60332–3–22:2018—Tests on electric and optical fibre cables under fire conditions—Part 3–22: Test for vertical flame spread of vertically-mounted bunched wires or cables—Category A, Edition 2.0, 2018–07, IBR approved for §§ 111.60–1(b) and 111.107–1(c).

(36) IEC 60529:2013—Degrees of protection provided by enclosures (IP Code), Edition 2.2, 2013–08, IBR approved for §§ 110.15–1, 111.01–9, 113.10–7, 113.20–3, 113.25–11(a), 113.30–25(e), 113.37–10(b), 113.40–10(b), and 113.50–5(g).

(37) IEC 60533:2015—Electrical and electronic installations in ships—Electromagnetic compatibility—Ships with a metallic hull, Edition 3.0, 2015–08, IBR approved for § 113.05–7(a).

(38) IEC 60947–2:2019—Low-voltage switchgear and controlgear—Part 2: Circuit-breakers, Edition 5.1, 2019–07, IBR approved for § 111.54–1(b).

(39) IEC 61363–1:1998—Electrical installations of ships and mobile and fixed offshore units—Part 1: Procedures for calculating short-circuit currents in three-phase a.c., First Edition, 1998–02, IBR approved for § 111.51–4(b).

(40) IEC 61439–6:2012: Low-voltage switchgear and control gear assemblies—Part 6: Busbar trunking systems (busways), First Edition 1.0, 2012–05, IBR approved for § 111.59–1.

(41) IEC 61660–1:1997—Short-circuit currents in d.c. auxiliary installations in power plants and substations—Part 1: Calculation of short-circuit currents, First Edition, 1997–06, with Corrigendum 1 (1999) and Corrigendum 2 (2000), IBR approved for § 111.51–4(b).

(42) IEC 61892–7:2019—Mobile and fixed offshore units—Electrical installations—Part 7: Hazardous areas, Edition 4.0, 2019–04, IBR approved for §§ 111.105–1, 111.105–3(b), 111.105–7, 111.105–17(b), and 111.108–3(b).

(43) IEC 62271–100:2017—High-voltage switchgear and controlgear—Part 100: Alternating-current circuit-breakers-, Edition .122, 2017–06, IBR approved for § 111.54–1(c).

(44) IEC–TR 60092–370:2009—Technical Report—Electrical installations in ships—Part 370: Guidance on the selection of cables for telecommunication and data transfer including radio-frequency cables, Edition 1.0, 2009–07. IBR approved for § 111.60–1(a).

(45) IEC/IEEE 80005–1:2019—Utility connections in port—Part 1: High voltage shore connection (HVSC) systems—General requirements, Edition 2.0, 2019–03, IBR approved for § 111.83–7.

(l) *International Standards Organization (ISO),* Chemin de Blandonnet 8, CP 401–1214 Vernier, Geneva, Switzerland, +41 22 749 01 11, *https://www.iso.org.*

(1) ISO 25861—Ships and marine technology—Navigation—Daylight signaling lamps, First edition, Dec. 1, 2007, IBR approved for § 111.75–18.

(2) [Reserved]

(m) *International Maritime Organization (IMO Publications Section),* 4 Albert Embankment, London SE1 7SR, United Kingdom, +44 (0) 20 7735 7611, *www.imo.org.*

(1) International Convention for the Safety of Life at Sea (SOLAS, Consolidated Text of the International Convention for the Safety of Life at Sea, 1974, and its Protocol of 1988: Article, Annexes and Certificates. (Incorporating all amendments in effect from 1 July 2014), 2014 (''IMO SOLAS 74''), IBR approved for §§ 111.99–5, 112.15–1(r), and 113.25–6.

(2) IMO Resolution A.1023(26)—Code for the Construction and Equipment of Mobile Offshore Drilling Units, 2009, 18 Jan. 2010 (''2009 IMO MODU Code''), IBR approved for § 111.108–3(b).

(n) *Lloyd's Register,* 71 Fenchurch Street, London EC3M 4BS, UK, +44–0–20–7709–9166, *https://www.lr.org/en/type-approval-test-specifications/.*

(1) Lloyd's Register Type Approval System-Test Specification Number 1, March 2019, IBR approved for § 113.05–7(a).

(2) [Reserved]

(o) *National Electrical Manufacturers Association (NEMA),* 1300 North 17th Street, Suite 900 Arlington, VA 22209, 703–841–3200, *www.nema.org/.*

(1) NEMA Standards Publication ICS 2–2000 (R2005)—Industrial Control and Systems Controllers, Contactors, and Overload Relays, Rated 600 Volts, 2000 (''NEMA ICS 2''), IBR approved for § 111.70–3(a).

(2) NEMA Standards Publication ICS 2.3–1995 (R2008)—Instructions for the Handling, Installation, Operation, and Maintenance of Motor Control Centers Rated not More Than 600 Volts, 1995 (''NEMA ICS 2.3''), IBR approved for § 111.70–3(a).

(3) NEMA Standards Publication No. ICS 2.4–2003 (R2012)—NEMA and IEC Devices for Motor Service—a Guide for Understanding the Differences, 2003 (''NEMA ICS 2.4''), IBR approved for § 111.70–3(a).

(4) NEMA Standards Publication No. ANSI/NEMA 250–2018—Enclosures for Electrical Equipment (1000 Volts Maximum), Edition 14, 2018 (''NEMA 250''), IBR approved for §§ 110.15–1, 111.01–9, 113.10–7, 113.20–3, 113.25–11(a), 113.30–25(e), 113.37–10(b), 113.40–10(b), and 113.50–5(g).

(5) NEMA Standards Publication No. ANSI/NEMA WC–70 ICEA S–95–658—Power Cables Rated 2000V or Less for the Distribution of Electrical Energy, Feb. 23, 2009, (''ANSI/NEMA WC–70''), IBR approved for § 111.60–13(a).

(p) *National Fire Protection Association (NFPA),* 1 Batterymarch Park, Quincy, MA 02169, 617–770–3000, *www.nfpa.org.*

(1) NFPA 70—National Electrical Code, 2017 (''NFPA 70''), IBR approved

for §§ 110.15–1, 111.05–33, 111.20–15, 111.50–3, 111.50–7(a), 111.50–9, 111.53–1(a), 111.54–1(a), 111.55–1(a), 111.59–1, 111.60–7, 111.60–13, 111.60–23, 111.81–1(d), 111.105–1, 111.105–3, 111.105–7(a), 111.105–11, 111.105–17(b), 111.106–3(b), 111.106–5(c), 111.107–1(b) and 111.108–3(b)(1) and (2).

(2) NFPA 77—Recommended Practice on Static Electricity, 2019 Edition (''NFPA 77''), IBR approved for § 111.105–27(b).

(3) NFPA 99—Health Care Facilities Code, 2018 Edition (''NFPA 99''), IBR approved for § 111.105–37.

(4) NFPA 496—Standard for Purged and Pressurized Enclosures for Electrical Equipment, 2017 Edition (''NFPA 496 (2017)''), IBR approved for §§ 111.105–7, 111.106–3(c), and 111.108–3(d).

(q) *UL (formerly Underwriters Laboratories, Inc.),* 2600 NW Lake Road, Camas, WA 98607, 877–854–3577, *www.ul.com.*

(1) UL 44—Standard for Safety Thermoset-Insulated Wire and Cable, Nineteenth Edition, Jan. 9, 2018 (''ANSI/UL 44''), IBR approved for § 111.60–11(c).

(2) UL 50—Standard for Safety Enclosures for Electrical Equipment, Thirteenth Edition, Oct. 16, 2013 (''UL 50''), IBR approved for § 111.81–1(d).

(3) UL 62—Standard for Safety Flexible Cords and Cables, Twentieth Edition, July 6, 2018, (''ANSI/UL 62''), IBR approved for § 111.60–13(a).

(4) UL 83—Standard for Safety Thermoplastic-Insulated Wires and Cables, Sixteenth Edition, Jul. 28, 2017 (''ANSI/UL 83''), IBR approved for § 111.60–1(c).

(5) UL 484—Standard for Safety Room Air Conditioners, Ninth Edition (with revisions through Oct. 25, 2016), Feb. 7, 2014, (''ANSI/UL 484''), IBR approved for § 111.87–3(a).

(6) UL 489—Standard for Safety Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures, Thirteenth Edition, Oct. 24, 2016 (''ANSI/UL 489''), IBR approved for §§ 111.01–15(c) and 111.54–1(b).

(7) UL 514A—Standard for Safety Metallic Outlet Boxes, Eleventh Edition, (with revisions through Aug. 11, 2017) Feb. 1, 2013, (''ANSI/UL 514A''), IBR approved for § 111.81–1(d).

(8) UL 514B—Standard for Safety Conduit, Tubing, and Cable Fittings, Sixth Edition (with revisions through Nov. 21, 2014), July 13, 2012 (''ANSI/UL 514B''), IBR approved for § 111.81–1(d).

(9) UL 514C—Standard for Safety Nonmetallic Outlet Boxes, Flush-Device Boxes, and Covers, Fourth Edition (with revisions through Dec. 10, 2014), Apr. 8, 2014 (''ANSI/UL 514C''), IBR approved for § 111.81–1(d).

(10) UL 674—Standard for Safety Electric Motors and Generators for Use in Hazardous (Classified) Locations, Fifth Edition (with revisions through May 19, 2017), May 31, 2011 (''ANSI/UL 674''), IBR approved for§§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(11) UL 823—Electric Heaters for Use in Hazardous (Classified) Locations, Ninth Edition (with revisions through Apr. 22, 2016), Oct. 20, 2006 (''ANSI/UL 823''), IBR approved for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(12) UL 844—Standard for Safety Luminaires for Use in Hazardous (Classified) Locations, Thirteenth Edition (with revision through Mar. 11, 2016), June 29, 2012, (''ANSI/UL 844''), IBR approved for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(13) UL 913—Standard for Safety Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous Locations, Eighth Edition, 2013, (''ANSI/UL 913''), IBR approved for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(14) UL 1042—Standard for Safety Electric Baseboard Heating Equipment, Fifth Edition (with revisions through Dec. 14, 2016), Aug. 31, 2009 (''ANSI/UL 1042''), IBR approved for § 111.87–3.

(15) UL 1072—Standard for Safety Medium-Voltage Power Cables, Fourth Edition (with revisions through June 19, 2013) June 30, 2006 (''ANSI/UL 1072''), IBR approved for § 111.60–1(a).

(16) UL 1104—Standard for Marine Navigation Lights, Second Edition, Oct. 29, 1998 (''ANSI/UL 1104''), IBR approved for § 111.75–17(f).

(17) UL 1203—Standard for Safety: Explosion-Proof and Dust-Ignition Proof Electrical Equipment for Use in Hazardous (Classified) Locations, Fifth Edition (with revisions through Oct. 16, 2015), Nov. 22, 2013 (''ANSI/UL 1203''), IBR approved for §§ 111.105–7(a), 111.106–3(b), and 111.108–3(b).

(18) UL 1309—Standard for Safety Marine Shipboard Cables, Third Edition, Apr. 21, 2017 (''ANSI/UL 1309''), IBR approved for §§ 111.60–1(a) and 111.106–5(a).

(19) UL 1598—Standard for Safety Luminaires, Fourth Edition, Aug. 28, 2018 (''ANSI/UL 1598''), IBR approved for § 111.75–20.

(20) UL 1598A—Standard for Safety Supplemental Requirements for Luminaires for Installation on Marine Vessels, First Edition (with revisions through Apr. 17, 2015), Dec. 4, 2000 (''ANSI/UL 1598A''), IBR approved for § 111.75–20.

(21) UL 2021—Standard for Safety Fixed and Location-Dedicated Electric Room Heaters, Fourth Edition, Sept. 30, 2015 (''ANSI/UL 2021''), IBR approved for § 111.87–3(a).

(22) UL 2225—Standard for Safety Cables and Cable-Fittings for use in Hazardous (Classified) Locations, Fourth Edition, Sept. 30, 2013 (''ANSI/UL 2225''), IBR approved for §§ 111.105–7(a), 111.106–3(b), and § 111.108–3(b).

(23) UL 2556—Standard for Safety Wire and Cable Test Methods, Fourth Edition, Dec. 15, 2015 (''ANSI/UL 2556)''), IBR approved for § 111.30–19(b).

(24) UL 60079–18—Standard for Safety Explosive Atmospheres—Part 18: Equipment Protection by Encapsulation ''m'', Fourth Edition, Feb. 20, 2017 (''ANSI/UL 60079–18''), IBR approved for §§ 111.105–7(e), 111.106–3(d), and 111.108–3(e).

■ 3. Amend § 110.15–1 as follows:

■ a. Revise paragraph (a);

■ b. In paragraph (b):

■ i. Revise the definitions of ''Corrosion resistant material or finish'';

■ ii. Remove the definition of ''Corrosive location'';

■ iii. Revise the definition of ''Dead ship condition'';

■ iv. Add a definition in alphabetical order for ''Drilling loads'';

■ v. Remove the definition of ''Dripproof'';

■ vi. Revise the definitions of ''Independent laboratory'', ''Location not requiring an exceptional degree of protection'', ''Non-hazardous'', ''Nonsparking fan'';

■ vii. Remove the definitions and ''Ocean vessel'';

■ viii. Add a definition in alphabetical order for ''Ship's service loads''; and

■ ix. Revise the definition of ''Watertight''.

The revisions and additions read as follows:

§ 110.15–1 Definitions

* * * * *

(a) The electrical and electronic terms are defined in IEEE 100 or IEC 60092–101:2018 (both incorporated by reference; see 46 CFR 110.10–1).

(b) * * *

Corrosion resistant material or *finish* means any material or finish that meets the testing requirements of ASTM B117 (incorporated by reference; see 46 CFR 110.10–1) or test Kb in IEC 60068–2–52:2017.

Dead ship condition is where the entire machinery installation, including the power supply, is out of operation and that auxiliary services such as compressed air, starting current from

batteries etc., for bringing the main propulsion into operation and for the restoration of the main power supply are not available.

Drilling loads means all loads associated exclusively with the drilling operation including power to the drill table, mud system, and positioning equipment.

* * * * *

Independent laboratory means a laboratory that is accepted by the Commandant under part 159 for the testing and listing or certification of electrical equipment.

* * * * *

Location not requiring an exceptional degree of protection means a location which is not exposed to the environmental conditions outlined in the definition for locations requiring exceptional degrees of protection. This location requires the degree of protection of § 111.01–9(c) or (d). These locations include—

(i) An accommodation space;

(ii) A dry store room;

(iii) A passageway adjacent to quarters;

(iv) A water closet without a shower or bath;

(v) A radio, gyro and chart room; and

(vi) A location with similar environmental conditions.

* * * * *

Non-hazardous location means an area in which an explosive gas or dust atmosphere is not expected to be present in quantities that require special precautions for the construction, installation, and use of electrical equipment.

Nonsparking fan means nonsparking fan as defined in ABS Marine Vessel Rules (incorporated by reference; see 46 CFR 110.10–1), section 4–8–3/11.

* * * * *

Ship's service loads means the electrical equipment for all auxiliary services necessary for maintaining the vessel in a normal, operational and habitable condition. Ship's service loads include, but are not limited to, all safety, lighting, ventilation, navigational, communications, habitability, and propulsion auxiliary loads. Electrical propulsion motor, bow thruster motor, cargo transfer, drilling, cargo refrigeration for other than Class 5.2 organic peroxides and Class 4.1 self-reactive substances, and other industrial type loads are not included.

* * * * *

Watertight means enclosed so that equipment meets at least a NEMA 250 Type 4 or 4X or an IEC 60529:2013 IP 56 rating.

* * * * *

§ 110.25–1 [Amended]

■ 4. Amend § 110.25–1 as follows:

■ a. In paragraph (a)(5), remove the text ''interrupting capacity of circuit breakers'' and add in its place the text ''interrupting capacity of overcurrent devices'';

■ b. In paragraph (a)(6), remove the text ''111.52'' and add in its place the text ''111.51'';

■ c. In paragraph (i) introductory text, remove the text ''subpart 111.105 is'' and add in its place the text ''subparts 111.105, 111.106, and 111.108 are'';

■ d. In paragraph (j), remove the text ''§ 111.105–11'' and add in its place the text ''§§ 111.105–11 and 111.106–5(c)'';

■ e. In paragraph (m), in the ''Note to paragraph (m), remove the word ''signalling'' and add in its place the word ''signaling'';

■ f. In paragraph (n), in the ''Note to paragraph (n), remove the text ''ANSI, or'' and add in its place the text ''ANSI, NFPA, or''; and

■ g. Remove paragraphs (p) and (q).

■ 5. Amend § 110.25–3 by revising paragraph (a)(1) and the note at the end of the section to read as follows:

§ 110.25–3 Procedure for submitting plans.

(a) * * *

(1) By visitors to the Commanding Officer, Marine Safety Center, U.S. Coast Guard, 2703 Martin Luther King Jr. Avenue SE, Washington, DC 20593–7403, or by mail to: Commanding Officer (MSC), Attn: Marine Safety Center, U.S. Coast Guard Stop 7430, 2703 Martin Luther King Jr. Avenue SE, Washington, DC 20593–7430, or electronically to *MSC@uscg.mil.*

* * * * *

(c) * * *

Note to § 110.25–3: The Coast Guard and a Recognized Classification Society (RCS), IAW 46 CFR part 8, may coordinate plan review for vessels classed by the RCS in order to eliminate duplication of effort. An applicant for plan review of a vessel that is classed by an RCS should consult Commanding Officer, Marine Safety Center, to determine applicable procedures for submitting plans.

PART 111—ELECTRIC SYSTEMS—GENERAL REQUIREMENTS

■ 6. The authority citation for part 111 continues to read as follows:

Authority: 46 U.S.C. 3306, 3703; Department of Homeland Security Delegation No. 0170.1. Section 111.05–20 and Subpart 111.106 also issued under sec. 617, Pub. L. 111–281, 124 Stat. 2905.

§ 111.01–9 [Amended]

■ 7. Amend § 111.01–9 as follows:

■ a. In paragraph (a):

■ i. After the text ''NEMA 250'', add the text ''Type 2'';

■ ii. Remove the text ''IEC 60529'' and add in its place the text ''IEC 60529:2013 IP 22''; and,

■ iii. After the text ''110.10–1)'', remove the text ''IP 22'';

■ b. In paragraph (b), remove the word ''Steel'' and add in its place the word ''Marine'';

■ c. In paragraph (c), remove the text ''IEC 60529'' and add in its place the text ''IEC 60529:2013'';

■ d. In paragraph (d), remove the text ''IEC 60529 IP 11 as specified in IEC 60529'' and add in its place the text ''IEC 60529:2013''.

§ 111.01–15 [Amended]

■ 8. Amend § 111.01–15, in paragraph (c), by removing the text ''UL 489'' and adding in its place the text ''ANSI/UL 489''.

■ 9. Amend § 111.05–3 by revising paragraph (c) to read as follows:

§ 111.05–3 Design, construction, and installation; general.

* * * * *

(c) In a grounded distribution system, only grounded, three-prong appliances may be used. Adaptors that allow an ungrounded, two-prong appliance to fit into a grounded, three-prong, receptacle must not be used. This does not apply to double-insulated appliances or tools and low voltage appliances of 50 volts or less.

* * * * *

■ 10. Revise § 111.05–7 to read as follows:

§ 111.05–7 Armored and metallic sheathed cable.

When installed, the metallic armor or sheath must meet the installation requirements of Section 6 of IEEE 45.8 2016 (incorporated by reference; see 46 CFR 110.10–1).

■ 11. Revise § 111.05–9 to read as follows:

§ 111.05–9 Masts.

Each nonmetallic mast and topmast must have a lightning-ground conductor in accordance with section 10 of IEC 60092–401:1980 (incorporated by reference; see 46 CFR 110.10–1).

§ 111.05–33 [Amended]

■ 12. Amend § 111.05–33 by removing the text ''NEC 2002'' wherever it appears and adding in its place the text ''70''.

§ 111.10–01 [Removed and Reserved]

■ 13. Remove and reserve § 111.10–01.

■ 14. Amend § 111.10–09 by adding a sentence at the end of the note to § 111.1–9 to read as follows:

§ 111.10–09 Ship's service supply transformers; two required.

* * * * *

Note to § 111.1–9: * * * It is not the intent, nor is it required, that transformers fed by the ship's service switchboard, such as 480/120 transformers, be duplicated.

■ 15. Revise § 111.12–1 to read as follows:

§ 111.12–1 Prime movers.

Prime movers must meet section 46 CFR 58.01–5 and subpart 58.10 except that those for mobile offshore drilling units must meet 6–1–3/3.3 and 6–1–3/3.5 of the ABS MOU Rules (incorporated by reference; see 46 CFR 110.10–1). Further requirements for emergency generator prime movers are in 46 CFR 112.50.

■ 16. Revise § 111.12–3 to read as follows:

§ 111.12–3 Excitation.

In general, excitation must meet sections 4–8–3/3.13.2(a), 4–8–5/5.5.1, 4–8–5/5.5.2, and 4–8–5/5.17.5(e) of the ABS Marine Vessel Rules (incorporated by reference; see 46 CFR 110.10–1), except that those for mobile offshore drilling units must meet sections 6–1–7/5.17.1 and 6–1–7/5.19.1 of the ABS MOU Rules (incorporated by reference; see 46 CFR 110.10–1). In particular, no static exciter may be used for excitation of an emergency generator unless it is provided with a permanent magnet or a residual-magnetism-type exciter that has the capability of voltage build-up after two months of no operation.

■ 17. Revise § 111.12–5 to read as follows:

§ 111.12–5 Construction and testing of generators.

Each generator must meet the applicable requirements for construction and testing in section 4–8–3 of the ABS Marine Vessel Rules (incorporated by reference; see 46 CFR 110.10–1) except that each one for a mobile offshore drilling unit must meet the requirements in section 6–1–7 of the ABS MOU Rules (incorporated by reference; see 46 CFR 110.10–1).

■ 18. Revise § 111.12–7 to read as follows:

§ 111.12–7 Voltage regulation and parallel operation.

(a) For AC systems: sections 4–2–3/7.5.2, 4–2–4/7.5.2, 4–8–3/3.13.2, and 4–8–3/3.13.3 of the ABS Marine Vessel Rules (incorporated by reference; see 46 CFR 110.10–1); and

(b) For DC systems: section 4–8–3/3.13.3(c) of the ABS Marine Vessel Rules, and IEC 92600–202:2016 and IEC 92600–301:1995 (both incorporated by reference; see 46 CFR 110.10–1); and

(c) For mobile offshore drilling units: sections 6–1–7/5.17.2, 6–1–7/5.17.3, 6–1–7/5.19.2, and 6–1–7/5.19.3 of the ABS MOU Rules (incorporated by reference; see 46 CFR 110.10–1).

■ 19. Amend § 111.12–11 by revising paragraph (g) to read as follows:

§ 111.12–11 Generator protection

* * * * *

(g) Location. A ship's service generator overcurrent protective device must be on the ship's service generator switchboard. The generator and its switchboard must be in the same space. For the purposes of this section, the following are not considered separate from the machinery space:

(1) A control room that is inside of the machinery casing; and

(2) A dedicated switch-gear and semiconductor converter compartment on a mobile offshore drilling unit that is separate from but directly adjacent to and on the same level as the generator room.

* * * * *

§ 111.12–13 [Removed]

■ 20. Remove § 111.12–13.

■ 21. Amend § 111.15–2 by revising paragraph (b) to read as follows:

§ 111.15–2 Battery construction

* * * * *

(b) Each fully charged lead-acid battery must have a specific gravity that meets Section 11 of IEEE 45.1–2017 (incorporated by reference; see 46 CFR 110.10–1).

* * * * *

§ 111.15–3 [Amended]

■ 22. Amend § 115.15–03 by removing the text ''kw'' wherever it appears in paragrpahs (a)(1) through (3) and adding in its place the text ''kW''.

§ 111.15–10 [Amended]

■ 23. Amend § 111.15–10, in paragraph (b)(2)(i), after the text ''Group B'', by adding the text ''or its IEC equivalent designation of Zone 1, IIB + H2''.

§ 111.15–25 [Amended]

■ 24. Amend § 115.15–25, in paragraph (b), by removing the word ''rectifier'' and adding in its place the word ''converter''.

§ 111.15–30 [Amended]

■ 25. Amend § 115.15–30 by removing the text ''rectifiers,'' and adding in its place the text ''converters,''.

■ 26. Revise § 111.20–15 to read as follows:

§ 111.20–15 Protection of transformers against overcurrent.

Each transformer must have protection against overcurrent that meets Article 450 of NFPA 70 or IEC 60092–303:1980 (both incorporated by reference; see 46 CFR 110.10–1).

§ 111.25–5 [Removed and Reserved]

■ 27. Remove and reserve § 111.25–5.

■ 28. Revise § 111.30–1 to read as follows:

§ 111.30–1 Location and installation.

Each switchboard must meet the location and installation requirements in section 5.3 of IEEE 45.7–2012 or IEC 60092–302:1997 (both incorporated by reference; see 46 CFR 110.10–1), as applicable.

■ 29. Revise § 111.30–5 to read as follows:

§ 111.30–5 Construction.

(a) All low voltage and medium voltage switchboards (as low and medium are determined within the standard used) must meet—

(1) For low voltages, either section 6 of IEEE 45.7–2012 or IEC 60092–302:1997 (both incorporated by reference; see 46 CFR 110.10–1), as appropriate.

(2) For medium voltages, either section 7 of IEEE 45.7–2012 or IEC 92600–503:2007 (incorporated by reference; see 46 CFR 110.10–1), as appropriate.

(b) Each switchboard must be fitted with a dripshield unless the switchboard is a deck-to-overhead mounted type which cannot be subjected to leaks or falling objects.

(c) The interchangeability and compatibility of components complying with both IEEE and IEC cannot be assumed.

■ 30. Amend § 111.30–19 by revising paragraphs (a)(1) and (2) and (b)(4) to read as follows:

§ 111.30–19 Buses and wiring.

(a) * * *

(1) Section 5.10 of IEEE 45.7–2012 (incorporated by reference; see 46 CFR 110.10–1); or

(2) IEC 60092–302:1997 (clause 7) (incorporated by reference; see 46 CFR 110.10–1).

* * * * *

(b) * * *

(4) Flame-retardant meeting test VW–1 of ANSI/UL 1581 or IEC 60332–1–1:2015 and IEC 60332–1–2:2015 (incorporated by reference; see 46 CFR 110.10–1); and

* * * * *

§ 111.30–24 [Amended]

■ 31. Amend § 115.30–24 by removing the text ''kw'' in the section heading and adding in its place the text ''kW''.

§ 111.30–25 [Amended]

■ 32. Amend 111.30–25 as follows:
■ a. In paragraph (b)(3), remove the text ''A pilot lamp'' and add in its place the text ''An indicator light'';
■ b. In paragraph (d)(2), remove the words ''An indicating'' and add in their place the word ''A''; and
■ a. In paragraph (f)(2), remove the words ''A pilot'' and add in its place the words ''An indicator''.

§ 111.30–27 [Amended]

■ 33. Amend § 111.30–27, in paragraph (b)(4), by removing the text ''A pilot lamp'' and adding in its place the text ''An indicator light''.
■ 34. Amend § 111.30–29 as follows:
■ a. Remove paragraph (d);
■ b. Redesignate paragraphs (e), (f), (g), and (h) as paragraphs (d), (e), (f), and (g) respectively; and
■ c. Revise newly redesignated paragraph (d).

The revision reads as follows:

§ 111.30–29 Emergency switchboards.

* * * * *

(d) Each switchboard of an alternating-current emergency generator must have:

(1) A circuit breaker that meets § 111.12–11;

(2) A disconnect switch or link for each emergency generator conductor, except for a switchboard with a draw out or plug-in type generator circuit breaker that disconnects:

(i) Each generator conductor; and

(ii) If there is a switch in the generator neutral, each ungrounded conductor; and

(3) An indicator light connected between the generator and circuit breaker.

* * * * *

Subpart 111.33—Power Semiconductor Converter Systems

■ 35. Revise the heading of subpart 111.33 to read as set forth above.

§ 111.33–3 [Amended]

■ 36. Amend § 111.33–3 as follows:
■ a. In paragraph (a) introductory text, remove the word ''rectifier'' and add in its place the word ''converter'';
■ b. In paragraph (a)(1), remove the text ''10.20.12 of IEEE 45–2002'' and add in its place the text ''4.31.19.12 of IEEE 45.2–2011'';
■ c. In paragraph (a)(2), remove the text ''60092–304'' and add in its place the text ''60092–304:1980''; and
■ d. In paragraph (c), remove the word ''rectifiers'' and add in its place the word ''converters''.
■ 37. Revise § 111.33–5 to read as follows:

§ 111.33–5 Installation.

Each semiconductor converter system must meet the installation requirements, as appropriate, of—

(a) Sections 4.31.19.2, 4.31.19.7, and 4.31.19.8 of IEEE 45.2–2011 (incorporated by reference; see 46 CFR 110.10–1); or

(b) IEC 60092–304:1980 (incorporated by reference; see 46 CFR 110.10–1).

§ 111.33–7 [Amended]

■ 38. Amend § 111.33–7 by removing the word ''rectifier'' and adding in its place the word ''converter''.

§ 111.33–9 [Amended]

■ 39. Amend § 111.33–9 by removing the word ''rectifier'' and adding in its place the word ''converter''.
■ 40. Revise § 111.33–11 to read as follows:

§ 111.33–11 Propulsion systems.

Each power semiconductor converter system in a propulsion system must meet sections 4–8–5/5.17.8 and 4–8–5/5.17.9 of ABS Marine Vessel Rules (incorporated by reference; see 46 CFR 110.10–1), except that each one for mobile offshore drilling units must meet the requirements in section 6–1–7/12 of ABS MOU Rules (incorporated by reference; see 46 CFR 110.10–1).
■ 41. Revise § 111.35–1 to read as follows:

§ 111.35–1 Electrical propulsion installations.

Each electric propulsion installation must meet Sections 4–8–5/5.5, 4–8–5/5.11, 4–8–5/5.13, 4–8–5/5.17.7(e), 4–8–5/5.17.8, and 4–8–5/5.17.9 of ABS Marine Vessel Rules (incorporated by reference; see 46 CFR 110.10–1), except that each one for mobile offshore drilling units must meet the requirements in section 6–1–7/12 of ABS MOU Rules (incorporated by reference; see 46 CFR 110.10–1).
■ 42. Revise § 111.40–1 to read as follows:

§ 111.40–1 Panelboard standard.

Each panelboard must meet Section 9.10 of IEEE 45.1–2017 (incorporated by reference; see 46 CFR 110.10–1).

§ 111.50–1 [Amended]

■ 43. Amend § 111.50–1, in the introductory text, by removing the words ''of this chapter''.

§ 111.50–3 [Amended]

■ 44. Amend § 115.50–3 as follows:
■ a. In paragraph (b) introductory text, remove the text ''of this chapter'';
■ b. In paragraph (b)(2), remove the text ''subchapter F'' and add in its place the text ''subpart 58.25'';
■ c. In paragraph (c) introductory text:
■ i. Remove the text ''NEC 2002'' and add in its place the text ''70'';
■ ii. Remove the text ''or IEC 60092–202''; and
■ iii. Remove the word ''both''.
■ d. In paragraphs (c) introductory text and (c)(2), remove the word ''circuitbreakers'' wherever it appears and add in its place the words ''circuit breakers'';
■ e. In paragraphs (e) and (g)(2), remove the text ''NEC 2002'' and add in its place the text ''70'' and remove the text ''60092–202'' and add in its place the text ''60092–202–16''.

§ 111.50–5 [Amended]

■ 45. Amend § 111.50–5 as follows:
■ a. In paragraph (a)(2), by removing the text ''§ 111.30–25'' and adding in its place the text ''§ 111.30–25(f)''; and
■ b. In paragraph (a)(4), by removing the text ''single phase'' and ''(two wire with single voltage secondary)''.

§ 111.50–7 [Amended]

■ 46. Amend § 115.50–7, in paragraph (a), by removing the text ''NEC 2002'' and adding in its place the text ''70''.

§ 111.50–9 [Amended]

■ 47. Amend § 111.50–9 by removing the text ''NEC 2002'' and adding in its place the text ''70''.
■ 48. Revise subpart 111.51 to read as follows:

Subpart 111.51—Calculation of Short-Circuit Currents and Coordination of Overcurrent Protective Devices

Sec.

Subpart 111.51—Calculation of Short-Circuit Currents and Coordination of Overcurrent Protective Devices

§ 111.51–1 General.

Electrical installations must be protected against short circuits, by appropriate devices. The selection, arrangement and performance of various protective devices must provide coordinated automatic protection and selective operation in order to provide continuity of service for equipment vital to the propulsion, control or safety of the vessel under short-circuit conditions through coordination and selective

operation of overcurrent protective devices.

§ 111.51–2 Short-circuit calculations

(a) The available short-circuit current must be computed—

(1) From the aggregate contribution of all generators that can simultaneously operate in parallel;

(2) From the largest probable motor load; and

(3) With a three-phase fault on the load terminals of the protective device.

(b) The calculated currents must be used to select suitably rated equipment and to allow the selection and setting of protective devices.

§ 111.51–3 Short-circuit calculations for systems below 1500 kilowatts.

The following short-circuit assumptions must be made for a system with an aggregate generating capacity below 1500 kilowatts, unless detailed computations in accordance with § 111.51–4 are submitted:

(a) The maximum short-circuit current of a direct current system must be assumed to be 10 times the aggregate normal rated generator currents plus 6 times the aggregate normal rated currents of all motors that may be in operation.

(b) The maximum asymmetrical short-circuit current for an alternating current system must be assumed to be 10 times the aggregate normal rated generator currents plus 4 times the aggregate normal rated currents of all motors that may be in operation.

(c) The average asymmetrical short circuit current for an alternating-current system must be assumed to be 8½ times the aggregate normal rated generator currents plus 3½ times the aggregate normal rated currents of all motors that may be in operation.

§ 111.51–4 Short-circuit calculations for systems 1500 kilowatts or above.

Short-circuit calculations must be submitted for systems with an aggregate generating capacity of 1500 kilowatts or more by utilizing one of the following methods:

(a) Exact calculations using actual impedance and reactance values of system components.

(b) Estimated calculations using IEC 61363–1:1998 (incorporated by reference; see 46 CFR 110.10–1) for AC systems and IEC 61660–1:1997 for DC systems.

(c) The estimated calculations using a commercially established analysis procedure for utility or industrial applications.

§ 111.51–5 Protection of vital equipment.

(a) The coordination of overcurrent protective devices must be demonstrated for all potential plant configurations.

(b) Protective relays and overcurrent protective devices must be installed so that:

(1) A short-circuit on a circuit that is not vital to the propulsion, control, or safety of the vessel does not trip equipment that is vital; and

(2) A short-circuit on a circuit that is vital to the propulsion, control, or safety of the vessel is cleared only by the protective device that is closest to the point of the short-circuit.

Subpart 111.52—[Removed and Reserved]

■ 49. Remove and reserve subpart 111.52, consisting of §§ 111.52–1, 111.52–3, and 111.52–5.

§ 111.53–1 [Amended]

■ 50. Amend § 111.53–1 as follows:

■ a. In paragraph (a)(1), remove the text ''NEC 2002'' and add in its place the text ''70'' and remove the text ''60092–202'' and add in its place the text ''60092–202:2016''; and

■ b. Remove paragraph (a)(3).

■ 51. Revise § 111.54–1 to read as follows:

§ 111.54–1 Circuit breakers.

(a) Each circuit breaker must—

(1) Meet the general provision of Article 240 of NFPA 70 or IEC 60092–202:2016 (both incorporated by reference; see 46 CFR 110.10–1) as appropriate;

(2) Meet subpart 111.55 of this part; and

(3) Have an interrupting rating sufficient to interrupt the maximum asymmetrical short-circuit current available at the point of application.

(b) No molded-case circuit breaker may be used in any circuit having a nominal voltage of more than 600 volts (1,000 volts for a circuit containing a circuit breaker manufactured to the standards of the IEC). Each molded-case circuit breaker must meet section 9 and marine supplement SA of ANSI/UL 489 (incorporated by reference, see 46 CFR 110.10–1) or IEC 60947–2:2019 (incorporated by reference; see § 110.10–1), except as noted in paragraph (e) of this section.

(c) Each circuit breaker, other than a molded-case one, that is for use in any of the following systems must meet the following requirements:

(1) An alternating-current system having a nominal voltage of 600 volts or less (1,000 volts for such a system with circuit breakers manufactured to the standards of the IEC) must meet:

(i) IEEE C37.13 (incorporated by reference; see 46 CFR 110.10–1);

(ii) IEEE C37.27 (incorporated by reference; see 46 CFR 110.10–1); or

(iii) IEC 60947–2:2019.

(2) A direct-current system of 3,000 volts or less (1,500 volts or less for such a system with circuit breakers manufactured to the standards of the IEC) must meet IEEE C37.14 (incorporated by reference; see 46 CFR 110.10–1) or IEC 60947–2:2019.

(3) An alternating-current system having a nominal voltage greater than 600 volts (or greater than 1,000 volts for IEC standard circuit breakers) must meet:

(i) IEEE C37.04, IEEE C37.010, and IEEE C37.12 (all three standards incorporated by reference; see 46 CFR 110.10–1); or

(ii) IEC 62271–100:2017 (incorporated by reference; see 46 CFR 110.10–1).

(d) A circuit breaker must not:

(1) Be dependent upon mechanical cooling to operate within its rating; or

(2) Have a long-time-delay trip element set above the continuous current rating of the trip element or of the circuit breaker frame.

(e) Each circuit breaker located in an engineroom, boilerroom, or machinery space must be calibrated for a 50 degree C ambient temperature. If the circuit breaker is located in an environmentally controlled machinery control room where provisions are made for ensuring an ambient temperature of 40 degree C or less, a circuit breaker must have at least the standard 40 degrees C ambient temperature calibration.

§ 111.55–1 [Amended]

■ 52. Amend § 111.55–1, in paragraph (a), by removing the text ''NEC 2002'' and adding in its place the text ''70''.

§ 111.59–1 [Amended]

■ 53. Amend § 111.59–1, in paragraph (a), by removing the text ''NEC 2002'' and adding in its place the text ''70 or IEC 61439–6:2012''.

■ 54. Revise § 111.60–1 to read as follows:

§ 111.60–1 Construction and testing of cable.

(a) Electric cables constructed of stranded copper conductors, thermoplastic, elastomeric or other insulation, moisture-resistant jackets, and, where applicable, armoring and outer-sheathing are to be in accordance with either IEC 60092–350:2014, 60092–352:2005, 60092–353:2016, 60092–354:2014, 60092–360:2014, IEC–TR 60092–370:2009, 60092–376:2017, IEEE

1580, ANSI/UL 1072, ANSI/UL 1309, or MIL–DTL–24640C or MIL–DTL–24643C (incorporated by reference; see 46 CFR 110.10–1), including the respective flammability tests contained therein.

(b) IEC 60092 series cable must meet the flammability requirements of IEC 60332–3–22:2009 or 60332–3–21:2000, Category A or A F/R (incorporated by reference; see 46 CFR 110.10–1).

§§ 111.60–2 and 111.60–3 [Removed and Reserved]

■ 55. Remove and reserve §§ 111.60–2 and 111.60–3.

§ 111.60–4 [Amended]

■ 56. Amend § 111.60–4, by removing ''#'' wherever it appears.

■ 57. Amend § 111.60–5 by revising paragraphs (a) and (b) to read as follows:

§ 111.60–5 Cable installation.

(a) Each cable installation must meet—

(1) Sections 6, of IEEE 45.8–2016 (incorporated by reference; see 46 CFR 110.10–1); or

(2) Cables manufactured to IEC 60092–353:2016 must be installed in accordance with IEC 60092–352:2005 (both incorporated by reference; see 46 CFR 110.10–1), including clause 8.

(b) Each cable installation made in accordance with clause 8 of IEC 60092–352:2005 must utilize the conductor ampacity values of Table I of IEC 60092–352:2005.

* * * * *

§ 111.60–6 [Removed and Reserved]

■ 58. Remove and reserve § 111.60–6.

■ 59. Amend § 111.60–7 by revising the table to read as follows:

§ 111.60–7 Demand loads.

* * * * *

TABLE 1 TO 111.60–7—DEMAND LOADS

Type of circuit	Demand load
Generator Cables	115 percent of continuous generator rating.
Switchboard bus-ties, except ship's service to emergency switchboard bus-ties.	75 percent of generating capacity of the larger switchboard.
Emergency switchboard bus-ties	115 percent of continuous rating of emergency generator.
Motor feeders	Article 430 of NFPA 70 (incorporated by reference; see 46 CFR 110.10–1).
Galley equipment feeders	100 percent of either the first 50 kW or one-half the connected load, whichever is the larger, plus 65 percent of the remaining connected load, plus 50 percent of the rating of the spare switches or circuit breakers on the distribution panel.
Lighting feeders	100 percent of the connected load plus the average active circuit load for the spare switches or circuit breakers on the distribution panels.
Grounded neutral of a dual voltage feeders	100 percent of the capacity of the ungrounded conductors when grounded neutral is not protected by a circuit breaker overcurrent trip, or not less than 50 percent of the capacity of the ungrounded conductors when the grounded neutral is protected by a circuit breaker overcurrent trip or overcurrent alarm.

■ 60. Amend § 111.60–11 by revising paragraph (c) to read as follows:

§ 111.60–11 Wire.

* * * * *

(c) Wire, other than in switchboards, must meet the requirements in Section 5.7 of IEEE 45.8–2016, ANSI/UL 44, ANSI/UL 83, MIL–DTL–76E (all four standards incorporated by reference; see 46 CFR 110.10–1), or equivalent standard.

* * * * *

■ 61. Amend § 111.60–13 by revising paragraphs (a) through (e) to read as follows:

§ 111.60–13 Flexible electric cord and cables.

(a) *Construction and testing.* Each flexible cord and cable must meet the requirements in Sections 4.4.2. and 4.4.6 of IEEE 45.8–2016, Article 400 of NFPA 70, ANSI/NEMA WC–70, or ANSI/UL 62 (all five standards incorporated by reference; see 46 CFR 110.10–1).

(b) *Application.* No flexible cord may be used except:

(1) As allowed under Sections 400.10 and 400.12 of NFPA 70; and

(2) In accordance with Table 400.4 in NFPA 70.

(c) *Allowable current-carrying capacity.* No flexible cord may carry more current than allowed under Table 400.5 in NFPA 70, or ANSI/NEMA WC–70.

(d) *Conductor size.* Each flexible cord must be 18 AWG (0.82 mm2) or larger.

(e) *Splices.* Each flexible cord and cable must be without splices or taps except for a cord or cable 12 AWG (3.3 mm2) or larger spliced for repairs in accordance with § 111.60–19.

* * * * *

■ 62. Amend § 111.60–19 by revising paragraph (b) to read as follows:

§ 111.60–19 Cable splices.

* * * * *

(b) Each cable splice must be made in accordance with Section 6.11 of IEEE 45.8–2016 (incorporated by reference; see 46 CFR 110.10–1).

■ 63. Revise § 111.60–21 to read as follows:

§ 111.60–21 Cable insulation tests.

All cable for electric power and lighting and associated equipment must be checked for proper insulation resistance to ground and between conductors. The insulation resistance must not be less than that in Section 5.1 of IEEE 45.6–2016 (incorporated by reference; see 46 CFR 110.10–1).

■ 64. Amend § 111.60–23 by revising paragrpahs (d) and (f) to read as follows:

§ 111.60–23 Metal-clad (Type MC) cable.

* * * * *

(d) The cable must be installed in accordance with Article 326 of NFPA 70 (incorporated by reference; see 46 CFR 110.10–1).

* * * * *

(f) Equipment grounding conductors in the cable must be sized in accordance with Section 250.122 of NFPA 70. System grounding conductors must be of a cross-sectional area not less than that of the normal current carrying conductors of the cable. The metal sheath must be grounded but must not be used as a required grounding conductor.

* * * * *

■ 65. Amend § 111.70–1 by revising paragraph (a) introductory text to read as follows:

§ 111.70–1 General.

(a) Each motor circuit, controller, and protection must meet the requirements of sections 4–8–2/9.17, 4–8–4/9.5 and 4–8–3/5 of ABS Marine Vessel Rules; sections 6–1–7/9.9 and 6–1–7/9.15 of

the ABS MOU Rules; or IEC 60092–301:1980 (all three standards incorporated by reference; see 46 CFR 110.10–1), as appropriate, except for the following circuits:

* * * * *

■ 66. Amend § 111.70–3 by revising paragraphs (a), (c)(2), and (d)(1)(v) to read as follows:

§ 111.70–3 Motor controllers and motor-control centers

(a) *General.* The enclosure for each motor controller or motor-control center must meet either NEMA ICS 2 and NEMA ICS 2.3, or Table 1 of IEC 60092–201:2019 (all three standards incorporated by reference; see 46 CFR 110.10–1), as appropriate, for the location where it is installed. In addition, each such enclosure in a hazardous location must meet the requirements of subpart 111.105 of this part. NEMA ICS 2.4 (incorporated by reference; see 46 CFR 110.10–1) provides guidance on the differences between devices meeting NEMA and those meeting IEC for motor service.

* * * * *

(c) * * *

(2) A motor controller for a motor of less than 2 horsepower (1.5 kW).

(d) * * *

(1) * * *

(v) kW (Horsepower).

* * * * *

■ 67. Amend § 111.75–5 by revising paragraph (b) to read as follows:

§ 111.75–5 Lighting Branch Circuits.

* * * * *

(b) *Connected load.* The connected loads on a lighting branch circuit must not be more than 80 percent of the rating of the overcurrent protective device, computed on the basis of the fixture ratings and in accordance with Section 9.4.2 of IEEE 45.1–2017 (incorporated by reference; see 46 CFR 110.10–1).

* * * * *

■ 68. Amend § 111.75–17 by removing paragraph (e) and revising paragraph (d)(2).

The revision reads as follows:

§ 111.75–17 Navigation lights.

* * * * *

(d) * * *

(2) Be certified by an independent laboratory to the requirements of ANSI/UL 1104 or EN 14744 (incorporated by reference; see 46 CFR 110.10–1) or an equivalent standard under 46 CFR 110.20–1. Portable battery powered navigation lights need only be certified to the requirements of ANSI/UL 1104 applicable to those lights.

* * * * *

■ 69. Revise § 111.75–18 to read as follows:

§ 111.75–18 Signaling lights.

Each self-propelled vessel over 150 gross tons when engaged on an international voyage must have on board an approved daylight signaling lamp that meets ISO 25861:2007.

■ 70. Revise § 111.75–20 to read as follows:

§ 111.75–20 Luminaries (lighting fixtures).

(a) The construction of each luminaire (lighting fixture) for a non-hazardous location must meet ANSI/UL 1598A, or IEC 60092–306:2009 (incorporated by reference; see 46 CFR 110.10–1).

(b) Nonemergency and inside-type decorative luminaires in environmentally protected, nonhazardous locations must meet the applicable luminaire-type requirements of ANSI/UL 1598 (incorporated by reference; see 46 CFR 110.10–1) or IEC 60092–306:2009. These luminaires must also meet Clauses 7.4, 8.1, 8.3, 11.2, 13.4, and 17.2 of ANSI/UL 1598A, except in an accommodation space, navigating bridge, gyro room, radio room, galley, or similar space where it is not subject to damage.

(c) Each tablelamp, desklamp, floorlamp, and similar equipment must be secured in place so that it cannot be displaced by the roll or pitch of the vessel.

■ 71. Amend § 111.81–1 by revising paragraph (d) to read as follows:

§ 111.81–1 Outlet boxes and junction boxes; general

* * * * *

(d) As appropriate, each outlet-box or junction-box installation must meet the following standards, all of which are incorporated by reference (see 46 CFR 110.10–1): Article 314 of NFPA 70; ANSI/UL 50; ANSI/UL 514A, ANSI/UL 514B, and ANSI/UL 514C; IEC 60092–101:2018; IEC 60092–201:2019; IEC 60092–306:2009; IEC 60092–352:2005; IEC 60092–401:1980; and IEC 60092–502:1999.

* * * * *

■ 72. Add § 111.83–7 to subpart 111.83 to read as follows:

§ 111.83–7 High voltage shore connection.

Ships required by state or local law to connect to shore power, and receiving high voltage shore power (over 1000 volts), should meet the requirements of IEC/IEEE 80005–1:2019 (incorporated by reference; see 46 CFR 110.10–1).

■ 73. Amend § 111.87–3 by revising paragraph (a) to read as follows:

§ 111.87–3 General requirements.

(a) Each electric heater must meet applicable ANSI/UL 484, ANSI/UL 1042, or ANSI/UL 2021 construction standards (both incorporated by reference; see 46 CFR 110.10–1) or equivalent standards under § 110.20–1 of this chapter.

* * * * *

§ 111.95–1 [Amended]

■ 74. Amend § 111.95–1, in paragraph (b), by removing the text ''in other parts of this chapter under which vessels are certificated and''.

§ 111.99–3 [Removed and Reserved]

■ 75. Remove and reserve § 111.99–3.

§ 111.99–5 [Amended]

■ 76. Amend § 111.99–5 by removing the text ''II 2/30.4.3'' and adding in its place the text ''II–2/9.4.1.1.5.3''.

■ 77. Amened § 111.103–1 by revising the introductory text to read as follows:

§ 111.103–1 Power ventilation systems except machinery space ventilation systems.

Each power ventilation system that is not a machinery space ventilation system must have:

* * * * *

■ 78. Amend § 111.103–3 by revising paragraph (a) to read as follows:

§ 111.103–3 Machinery space ventilation.

(a) Each power ventilation system for a machinery space must have two controls to stop the ventilation, one of which may be the supply circuit breaker.

* * * * *

■ 79. Amend § 111.103–7 by revising the introductory text to read as follows:

§ 111.103–7 Ventilation stop stations.

Each power ventilation system stop station must:

* * * * *

■ 80. Revise § 111.105–1 to read as follows:

§ 111.105–1 Applicability.

This subpart applies to installations in hazardous locations as defined in Articles 500 through 505 of NFPA 70, Clause 6 of IEC 60092–502:1999 or Clause 8 of IEC 61892–7:2019 (incorporated by reference; see 46 CFR 110.10–1).

■ 81. Revise § 111.105–3 to read as follows:

§ 111.105–3 General requirements and system integrity

(a) Electrical equipment and wiring should not be installed in hazardous locations unless essential for operational purposes. When installed in

these locations, special precautions should be taken to ensure that the electrical equipment is not a source of ignition.

(b) All electrical installations in hazardous locations must comply with Articles 500 through 505 of NFPA 70 or with Clause 8 of IEC 61892–7:2019 or Clause 6 of IEC 60092–502:1999 (incorporated by reference; see 46 CFR 110.10–1).

(c) To maintain system integrity, each electrical installation in Class/Division or Class/Zone hazardous locations must comply with Sections 501.5 or 505.9(C) of NFPA 70 (incorporated by reference; see 46 CFR 110.10–1), and not in combination in a manner that will compromise system integrity or safety.

§ 111.105–5 [Removed and Reserved]

■ 82. Remove and reserve § 111.105–5.

■ 83. Revise § 111.105–7 to read as follows:

§ 111.105–7 Approved equipment.

(a) Electrical installations in hazardous locations must comply with paragraph (a)(1), (2), or (3) of this section.

(1) NFPA 70 Articles 500 through 504 (incorporated by reference, see § 110.10–1). Equipment required to be identified for Class I locations must meet the provisions of Sections 500.7 and 500.8 of NFPA 70 and must be tested and listed by an independent laboratory to any of the following standards:

(i) ANSI/UL 674, ANSI/UL 823, ANSI/UL 844 (2012), ANSI/UL 913, ANSI/UL 1203, ANSI/ISA 12.12.01, or ANSI/UL 2225 (2011) (incorporated by reference, see § 110.10–1).

(ii) FM Approvals Class Number 3600 (1998), Class Number 3610, Class Number 3611, Class Number 3615, or Class Number 3620 (incorporated by reference, see § 110.10–1).

(iii) CSA C22.2 Nos. 0–10, 30–M1986, 157–92, or 213–16 (incorporated by reference, see § 110.10–1).

(2) NFPA 70 Article 505 (incorporated by reference, see § 110.10–1). Equipment required to be identified for Class I locations must meet the provisions of Sections 505.7 and 505.9 of NFPA 70 and must be tested and listed by an independent laboratory to one or more of the types of protection in ANSI/ISA Series of standards incorporated in NFPA 70.

(3) Clause 8 of IEC 61892–7:2019 or clause 6 of IEC 60092–502:1999 (incorporated by reference, see § 110.10–1). Electrical apparatus in hazardous locations must be tested to IEC 60079–1:2014, IEC 60079–2:2014, IEC 60079–5:2015, IEC 60079–6:2015, IEC 60079–7:2017, IEC 60079–11:2011, IEC 60079–13:2017, IEC 60079–15:2017, IEC 60079–18:2017, IEC 60079–25:2010 or IEC 60079–30–1:2007 (incorporated by reference, see § 110.10–1) and certified by an independent laboratory under the IECEx System.

(b) System components that are listed or certified under paragraph (a)(1), (2), or (3) of this section must not be combined in a manner that would compromise system integrity or safety.

(c) As an alternative to paragraph (a)(1) of this section, electrical equipment that complies with the provisions of NFPA 496 (2017) (incorporated by reference, see § 110.10–1) is acceptable for installation in Class I, Divisions 1 and 2. When equipment meeting this standard is used, it does not need to be identified and marked by an independent laboratory. The Commanding Officer, MSC, will evaluate equipment complying with this standard during plan review and will generally consider it acceptable if a manufacturer's certification of compliance is indicated on a material list or plan.

(d) Purged and pressurized equipment that meets NFPA 496 (incorporated by reference, see § 110.10–1)

(e) Equipment listed or certified to UL 60079–18:2017 or IEC 60079–18:2017, respectively, (incorporated by reference, see § 110.10–1) is not permitted in Class I Special Division 1 or Zone 0 hazardous location, unless the encapsulating compound of Ex ''ma'' protected equipment is not exposed to, or has been determined to be compatible with, the liquid or cargo in the storage tank.

§ 111.105–9 [Removed and Reserved]

■ 84. Remove and reserve § 111.105–9.

■ 85. Revise § 111.105–11 to read as follows:

§ 111.105–11 Intrinsically safe systems.

(a) As part of plan approval, the manufacturer must provide appropriate installation instructions and restrictions on approved system components or the control drawing in Section 504.10(A) of NFPA 70 (incorporated by reference, see § 110.10–1). Typical instructions and restrictions include information addressing—

(1) Voltage limitations;

(2) Allowable cable parameters;

(3) Maximum length of cable permitted;

(4) Ability of system to accept passive devices;

(5) Acceptability of interconnections with conductors or other equipment for other intrinsically safe circuits; and

(6) Information regarding any instructions or restrictions which were a condition of approval of the system or its components.

(b) For intrinsically safe systems under the standards cited in § 111.105–3(a)(1) and (2) the wiring methods must meet Sections 504.30, 504.50 and 504.60 of NFPA 70 (incorporated by reference, see 46 CFR 110.10–1). For intrinsically safe systems under the standards cited in § 111.105–7(a)(3) of this subpart, the installation and wiring must meet Clause 7, except for Clause 7.3.1, of IEC 60092–502:1999 (incorporated by reference, see § 110.10–1).

§ 111.105–15 [Removed and Reserved]

■ 86. Remove and reserve § 111.105–15.

■ 87. Revise § 111.105–17 to read as follows:

§ 111.105–17 Wiring methods for hazardous locations.

(a) Through runs of marine shipboard cable meeting subpart 111.60 of this part are required for all hazardous locations. Armored cable may be used to enhance ground detection capabilities. Additionally, Type MC cable may be used subject to the restrictions in § 111.60–23.

(b) Where conduit is installed, the applicable requirements of either NFPA 70 Clause 9 of IEC 61892–7: 2019 or Clause 7 of IEC of 60092–502: 1999 (incorporated by reference; see 46 CFR 110.10–1) must be followed. Alternatively, the conduit and cable seals and sealing methods in Clause 6.8 of API RP 14F or API RP 14FZ (incorporated by reference; see 46 CFR 110.10–1) may be followed. Where required by the standard that is applicable to the listed or certified electrical equipment, seal fittings, termination fittings, or glands must be listed or certified by an independent laboratory for use in hazardous locations.

(c) Each cable entrance into Class II and Class III (Zone 20, 21, and 22) equipment must be made with dust tight cable entrance seals approved for the installation.

■ 88. Revise § 111.105–19 to read as follows:

§ 111.105–19 Switches.

A switch that is explosionproof or flameproof, or that controls any explosionproof or flameproof equipment must have a pole for each ungrounded conductor.

■ 89. Add § 111.105–28 to read as follows:

§ 111.105–28 Internal combustion engines.

Internal combustion engines installed in Class I Divisions 1 and 2 (Zones 1 and 2) must meet the provisions of ASTM

F2876–10 (incorporated by reference, see § 110.10–1).

■ 90. Amend § 111.105–31 as follows:

■ a. Redesignate paragraphs (e) through (n) as paragraphs (f) through (o); and

■ b. Add new paragraph (e); and

■ c. Revise newly redesignated paragraph (o).

The additions and revisions read as follows:

§ 111.105–31 Flammable or combustible cargo with a flashpoint below 60 °C (140 °F), carriers of liquid-sulphur or inorganic acid.

* * * * *

(e) *Submerged pump motors.* Submerged pump motors that do not meet requirements of paragraph (d) of this section must receive concept approval by the Commandant (CG–ENG) and plan approval by the Commanding Officer, MSC.

* * * * *

(o) *Duct keels.* The lighting and ventilation systems, and the gas detection system, if installed, for each pipe tunnel must meet section 5C–1–7/31.17 of ABS Marine Vessel Rules (incorporated by reference; see 46 CFR 110.10–1).

§ 111.105–35 [Amended]

■ 91. Amend § 111.105–35 as follows:

■ a. In paragraph (a) introductory text, remove the text ''10 or Z'' and add in its place the text ''20''; and

■ b. In paragraph (c), remove the text ''11 or Y'' and add in its place the text ''22''.

§ 111.105–39 [Amended]

■ 92. Amend § 111.105–39 in the introductory text and paragraph (a) as follows:

■ a. Remove the text ''Steel'' and add in its place the text ''Marine''; and

■ b. Remove the text ''5–10–4/3'' and add in its place the text ''5C–10–4/3''.

§ 111.105–40 [Amended]

■ 93. Amend § 111.105–40 by removing the text ''Steel'' in paragraph (a) and paragraph (c) introductory text and adding in its place the text ''Marine''.

§ 111.105–41 [Amended]

■ 94. Amend § 111.105–41 by removing the text ''IEEE 45–1998'' and adding in its place the text ''IEEE 45.1''.

§ 111.105–45 [Amended]

■ 95. Amend § 111.105–45 as follows:

■ a. In paragraph (a) introductory text, remove the text ''10 or Z'' and adding in its place the text ''20'';

■ b. In paragraph (b) introductory text, remove the text ''11 or Y'' and add in its place the text ''22''; and

■ c. In paragraph (b)(1), remove the text ''10 or Z'' and add in its place the text ''20''.

■ 96. Add § 111.105–50 to subpart 111.105 to read as follows:

§ 111.105–50 Alternative standard to the classification of hazardous locations requirements of this subchapter

This section contains alternative standards to the classification of hazardous locations requirements in §§ 111.105–29, 111.105–31, 111.105–32, 111.106–9, and 111.106–11 of this subchapter.

(a) Classification of hazardous locations may be in accordance with IEC 60092–502 (1999).

(b) If IEC 60092–502 is chosen as an alternative standard as allowed in paragraph (a) of this section, it shall be used exclusively and not in combination with §§ 111.105–29, 111.105–31, 111.105–32, 111.106–9, and 111.106–11.

(c) If IEC 60092–502 is chosen as an alternative standard as allowed in paragraph (a) of this section, ventilation systems for cargo handling rooms on tank vessels that carry combustible or flammable cargo and carriers of liquid-sulphur or inorganic acid, and hydrocarbon pump rooms must meet the requirements in § 3 2.60–20(c) of this chapter in addition to meeting the ventilation requirements in IEC 60092–502. Bulk liquefied flammable gas and ammonia carriers must meet the requirements in § 38.20–10 of subchapter D.

■ 97. Amend § 111.106–3 by revising paragraphs (b)(1)(i) and (iii), (b)(2), (b)(3) introductory text, (b)(3)(vi), (c), and (d) to read as follows:

§ 111.106–3 General requirements

* * * * *

(b) * * *

(1) * * *

(i) ANSI/UL 674, ANSI/UL 823, ANSI/UL 844, ANSI/UL 913, ANSI/UL 1203, ANSI/ISA 12.12.01, ANSI/UL 2062 and/or ANSI/UL 2225 (incorporated by reference, see § 110.10–1).

* * * * *

(iii) CAN/CSA C22.2 Nos. 0–10, 30–M1986, 157–92, and/or 213–16 (incorporated by reference, see § 110.10–1).

* * * * *

(2) NFPA 70 Article 505 (incorporated by reference, see § 110.10–1). Equipment identified for Class I locations must meet the provisions of Sections 505.7 and 505.9 of NFPA 70 and be tested and listed by an independent laboratory to the ANSI/ISA Series of standards incorporated in NFPA 70.

Note to § 111.106–3(b)(2): See sections 505.9(C) and 505.20 of the NFPA 70 for use of Division equipment in Zone designated spaces.

(3) IEC 60092–502:1999 (incorporated by reference, see § 110.10–1), with the following exceptions:

* * * * *

(vi) Electrical apparatus in hazardous locations must meet one or the combination of IEC 60079–1:2014, IEC 60079–2:2014, IEC 60079–5:2015, IEC 60079–6:2015, IEC 60079–7:2017, IEC 60079–11:2011, IEC 60079–13:2017, IEC 60079–15:2017, IEC 60079–18:2017, IEC 60079–25:2010 or IEC 60079–30–1:2007 (incorporated by reference, see § 110.10–1) in lieu of Clause 6.5.

* * * * *

(c) As an alternative to paragraph (b)(1) of this section, electrical equipment that complies with the provisions of NFPA 496 (2017) (incorporated by reference, see § 110.10–1) is acceptable for installation in Class I, Divisions 1 and 2. When equipment meeting this standard is used, it does not need to be identified and marked by an independent laboratory. The Commanding Officer, Marine Safety Center (MSC) will evaluate equipment complying with this standard during plan review. It is normally considered acceptable if a manufacturer's certification of compliance is indicated on a material list or plan.

(d) Equipment listed or certified to UL 60079–18 or IEC 60079–18:2017, respectively, (incorporated by reference, see § 110.10–1) is not permitted in Class I Special Division 1 or Zone 0 hazardous location, unless the encapsulating compound of Ex ''ma'' protected equipment is not exposed to, or has been determined to be compatible with, the liquid or cargo in the storage tank.

* * * * *

§ 111.106–5 [Amended]

■ 98. Amend § 111.106–5 as follows:

■ a. In paragraph (a):

■ i. Remove the text ''UL'' and add in its place the text ''ANSI/UL'';

■ ii. Remove the text ''60092–350:2008'' and add in its place the text ''60092–350:2014''; and

■ iii. Remove the text ''IEC 60092–353:2011'' and add in its place the text IEC ''60092–353:2016''; and

■ b. In paragraph (c), remove the text ''60092–502'' and add, in its place, the text ''60092–502:1999''.

§ 111.106–15 [Amended]

■ 99. Amend § 111.106–15, in paragraph (a), by removing the text ''60092–502'', wherever it occurs, and adding in its place the text ''60092–502:1999''.

■ 100. Amend § 111.107–1 as follows:

■ a. In paragraph (a)(1), remove the text ''111.10–1'' and add in its place the text ''110.15–1'';
■ b. In paragraph (b) introductory text, remove the text ''NEC 2002'' and add in its place the text ''70'';
■ c. Remove paragraph (b)(1);
■ d. Redesignate paragraphs (b)(2) through (5) as paragraphs (b)(1) through (4);
■ e. Add new paragraph (b)(5); and
■ f. In paragraph (c)(1), remove the text ''or Category A of IEC 60332–3–22 (both incorporated by reference; see 46 CFR 110.10–1)'' and add in its place the text ''IEC 60332–3–22:2018 or IEC 60332–3–21:2018, Category A or A F/R (incorporated by reference; see 46 CFR 110.10–1)''.

The addition reads as follows:

§ 111.107–1 Industrial systems.

* * * * *

(b) * * *

(5) Sections 111.30–1, 111.30–5(a), and 111.30–19(a)—Switchgear.

■ 101. Revise § 111.108–1 to read as follows:

§ 111.108–1 Applicability.

This subpart applies to MODUs, floating OCS facilities, and vessels, other than offshore supply vessels regulated under 46 CFR subchapter L of this chapter, constructed after April. 2, 2018 that engage in OCS activities.

102. Amend § 111.108–3 by revising paragraphs (b)(1)(i) through (iii), (b)(2) and (3), (d) introductory text, and (e) to read as follows:

§ 111.108–3 General requirements.

* * * * *

(b) * * *

(1) * * *

(i) ANSI/UL 674 (2013), ANSI/UL 823, ANSI/UL 844 (2012), ANSI/UL 913, ANSI/UL 1203, ANSI/ISA 12.12.01, ANSI/ISA 12.12.0, ANSI/UL 2062 or ANSI/UL 2225 (2011) (incorporated by reference, see § 110.10–1).

(ii) FM Approvals Class Number 3600, Class Number 3610, Class Number 3611, Class Number 3615, or Class Number 3620 (incorporated by reference, see § 110.10–1).

(iii) CSA C22.2 Nos. 0–10, 30–M1986, 157–92, or 213–16 (incorporated by reference, see § 110.10–1).

* * * * *

(2) NFPA 70 Article 505 (incorporated by reference, see § 110.10–1). Equipment required to be identified for Class I locations must meet the provisions of Sections 505.7 and 505.9 of NFPA 70 and must be tested and listed by an independent laboratory to one or more of the types of protection in ANSI/ISA Series of standards incorporated in NFPA 70.

Note to § 111.108–3(b)(2): See sections 505.9(C) of the NFPA 70 (incorporated by reference, see § 110.10–1) for use of Division equipment in Zone designated spaces.

(3) Clause 8 of IEC 61892–7:2019 (incorporated by reference, see § 110.10–1) for all U.S. and foreign floating OCS facilities and vessels on the U.S. OCS or on the waters adjacent thereto; chapter 6 of 2009 IMO MODU Code (incorporated by reference, see § 110.10–1) for all U.S. and foreign MODUs; or clause 6 of IEC 60092–502:1999 (incorporated by reference, see § 110.10–1) for U.S. tank vessels that carry flammable and combustible cargoes. Electrical apparatus in hazardous locations must be tested to IEC 60079–1:2014, IEC 60079–2:2014, IEC 60079–5:2015, IEC 60079–6:2015, IEC 60079–7:2017, IEC 60079–11:2011, IEC 60079–13:2017, IEC 60079–15:2017, IEC 60079–18:2017, IEC 60079–25:2010 or IEC 60079–30–1:2007 (incorporated by reference, see § 110.10–1) and certified by an independent laboratory under the IECEx System.

* * * * *

(d) As an alternative to paragraph (b)(1) of this section, electrical equipment that complies with the provisions of NFPA 496 (2017) (incorporated by reference, see § 110.10–1) is acceptable for installation in Class I, Divisions 1 and 2. When equipment meeting this standard is used, it does not need to be identified and marked by an independent laboratory. The Commanding Officer, MSC, will evaluate equipment complying with this standard during plan review.

* * * * *

(e) Equipment listed or certified to UL 60079–18 or IEC 60079–18:2017, respectively, (incorporated by reference, see § 110.10–1) is not permitted in Class I, Special Division 1, or Zone 0 hazardous locations unless the encapsulating compound of Ex ''ma'' protected equipment is not exposed to, or has been determined to be compatible with, the liquid or cargo in the storage tank.

* * * * *

PART 112—EMERGENCY LIGHTING AND POWER SYSTEMS

■ 103. The authority citation for part 112 continues to read as follows:

Authority: 46 U.S.C. 3306, 3703; Department of Homeland Security Delegation No. 0170.1.

■ 104. Revise § 112.01–20 to read as follows:

§ 112.01–20 Final emergency power source.

A final emergency power source is one that automatically supplies power to the emergency loads under § 112.15–5 and automatically transfers the temporary emergency loads under § 112.15–1 when the potential of the final emergency source reaches 85 to 95% of normal value.

■ 105. Amend § 112.05–5 as follows:
■ a. Revise paragraph (a) introductory text; and
■ b. Redesignate Table 112.05–5(a) as Table 1 to § 112.05–5.

The revision reads as follows:

§ 112.05–5 Emergency power source.

(a) The emergency power source must meet table 112.05–5(a) and have the capacity to supply all loads, at a unity (1.0) service factor, that are simultaneously connected to it, except a load on a bus-tie to the main switchboard or non-required loads that are connected in accordance with § 112.05–1(c).

* * * * *

■ 106. Add § 112.05–07 to subpart 112.05 to read as follows:

§ 112.05–7 Use of emergency generator in port.

The emergency generator may be used during lay time in port for supplying power to the vessels, provided the following:

(a) The fuel oil tank for the emergency generator prime mover must be appropriately sized and provided with a level alarm, which is to be set to alarm at a level where there is sufficient fuel oil capacity for the emergency services for the period of time required by § 112.05–5(a).

(b) The emergency generator prime mover is to be rated for continuous service.

(c) The prime mover is to be fitted with alarms, displays and automatic shutdown arrangements that meet ABS Marine Vessel Rules, section 4–8–2/5.19 Table 2, except that for fuel oil tank low-level alarm, in paragraph (a) of this section is to apply instead. The displays and alarms are to be provided in the centralized control station. Monitoring at the engineers' quarters must meet ABS Marine Vessel Rules, section 4–9–6/19.

(d) The emergency generator room is to be fitted with fire detectors. Where the emergency generator is located in a space separated from the emergency switchboard, fire detectors are to be located in each space. The fire detection and alarm system must meet the requirements of 46 CFR subpart 113.10.

(e) The power supply circuits, including control and monitoring

circuits, for the use of an emergency generator in port are to be so arranged and protected that any electrical fault, except for the emergency generator and the emergency switchboard, will not affect the operation of the main and emergency services.

(f) Means are to be provided to readily change over to emergency operation.

(g) The generator is to be safeguarded against overload by automatically shedding such other loads so that the supply to the required emergency loads is always available.

(h) Operational instructions such as that on the fuel oil tank level, harbor/seagoing mode changeover arrangements, etc. are to be provided on board. Before the vessel is under way, all valves, switches, etc., are to be in the positions for the intended mode of operation of the emergency generator and the emergency switchboard. Such instructions are to be distinctly posted at the emergency generator room. Planned maintenance is to be carried out only while in port.

■ 107. Amend § 112.15–1 by adding paragraph (s) to read as follows:

§ 112.15–1 Temporary emergency loads.

* * * * *

(s) Engineer's assistance-needed alarm.

§ 112.43–13 [Removed and Reserved]

■ 108. Remove and reserve § 112.43–13.

■ 109. Amend § 112.50–1 by revising paragraphs (g) and (h) to read as follows:

§ 112.50–1 General.

* * * * *

(g) The following automatic shutdowns are required for the generator set:

(1) Overspeed; and

(2) Operation of a fixed fire extinguishing system in the emergency generator room.

(h) The following audible alarms are required for the generator set if the prime mover is a diesel engine:

(1) Low oil pressure; and

(2) High cooling water temperature.

* * * * *

PART 113—COMMUNICATION AND ALARM SYSTEMS AND EQUIPMENT

■ 110. The authority citation for part 113 continues to read as follows:

Authority: 46 U.S.C. 3306, 3703; Department of Homeland Security Delegation No. 0170.1.

■ 111. Revise § 113.05–07 to read as follows:

§ 113.05–7 Environmental tests.

(a) Communication, alarm system, control, and monitoring equipment, with the exception of fire and smoke detection and alarm systems, must meet the environmental tests of—

(1) Section 4–9–9, Table 1, of ABS Marine Vessel Rules (incorporated by reference; see110.10–1) or the applicable ENV category of Lloyd's Register Type Approval System—Test Specification Number 1 (incorporated by reference; see 110.10–1); and

(2) IEC 60533:2015 (incorporated by reference; see 46 CFR 110.10–1) as appropriate.

(b) Components of smoke detection and alarm systems must be tested in accordance with 46 CFR 161.002.

§ 113.25–7 [Amended]

■ 112. Amend § 113.25–7, in paragraph (b), by removing the text ''as allowed under § 113.25–6(e)(2)''.

§ 113.25–11 [Amended]

■ 113. Amend § 113.25–11, in paragraph (a), by removing the text ''IEC 60529'' and adding in its place the text ''IEC 60529:2013''.

§ 113.30–25 [Amended]

■ 114. Amend § 113.30–25 as follows:

■ a. In paragraph (e), remove the text ''IEC 60529'' and add in its place the text ''IEC 60529:2013''; and

■ b. In paragraph (i), remove the text ''IEC 60529'' and add in its place the text ''IEC 60529:2013''.

■ c. In paragraph (j)(2), remove the text ''60331–11'' and add in its place the text ''60331–11:2009'' and remove the text ''60331–21'' and add in its place the text ''60331–21:1999''.

§ 113.37–10 [Amended]

■ 115. Amend § 113.37–10, in paragraph (b), by removing the text ''IEC 60529'' and adding in its place the text ''IEC 60529:2013''.

§ 113.40–10 [Amended]

■ 116. Amend § 113.40–10, in paragraph (b), by removing the text ''IEC 60529'' and adding in its place the text ''IEC 60529:2013''.

§ 113.50–5 [Amended]

■ 117. Amend § 113.30–25, in paragraphs (b) and (d), after the word ''maker'', add the words ''or initiating device''.

■ 118. Revise § 113.65–5 to read as follows:

§ 113.65–5 General requirements

Each whistle operator must meet Section 18 of IEEE 45.1–2016 (incorporated by reference; see 46 CFR 110.10–1).

Dated: March 25, 2021.

R.V. Timme,

Rear Admiral, U.S. Coast Guard, Assistant Commandant for Prevention Policy.

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