



DEPARTMENT OF HOMELAND SECURITY

Coast Guard

46 CFR Parts 25, 27, 28, 31, 34, 35, 62, 71, 76, 78, 91, 95, 97, 107, 108, 112, 115, 118, 119, 122, 131, 132, 147, 162, 167, 169, 176, 181, 182, 185, 189, 190, 193, 194, and 196

USCG-2006-24797

RIN 1625-AB44

Carbon Dioxide Fire Suppression Systems on Commercial Vessels

AGENCY: Coast Guard, DHS

ACTION: Final rule.

SUMMARY: The Coast Guard is amending the current regulations for fire suppression systems on several classes of commercial vessels. The amendments clarify that approved alternatives to carbon dioxide systems may be used to protect some spaces on these vessels, and set general requirements for alternative systems. Additionally, certain new carbon dioxide systems must be equipped with lockout valves and odorizing units to protect persons after a carbon dioxide discharge. By requiring these features on carbon dioxide systems and by making a wider range of fire suppression systems available, the regulations advance the Coast Guard's strategic goals of promoting marine safety and maritime mobility.

DATES: This final rule is effective July 9, 2012. The incorporation by reference of certain publications listed in the rule is approved by the Director of the Federal Register on July 9, 2012.

ADDRESSES: Comments and material received from the public, as well as documents

mentioned in this preamble as being available in the docket, are part of docket USCG-2006-24797 and are available for inspection or copying at the Docket Management Facility (M-30), U.S. Department of Transportation, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays. You may also find this docket on the Internet by going to <http://www.regulations.gov>, inserting USCG-2006-24797 in the “Keyword” box, and then clicking “Search.”

FOR FURTHER INFORMATION CONTACT: If you have questions on this rule, call or e-mail LCDR Suzanne Hemann, CG-5214; telephone 202-372-1356, e-mail Suzanne.E.Hemann@uscg.mil. If you have questions on viewing the docket, call Renee V. Wright, Program Manager, Docket Operations, telephone 202-366-9826.

SUPPLEMENTARY INFORMATION

Table of Contents for Preamble

- I. Abbreviations
- II. Regulatory History
- III. Basis and Purpose
- IV. Background
- V. Discussion of Comments and Changes
- VI. Incorporation by Reference
- VII. Regulatory Analyses
 - A. Regulatory Planning and Review
 - B. Small Entities
 - C. Assistance for Small Entities
 - D. Collection of Information
 - E. Federalism
 - F. Unfunded Mandates Reform Act
 - G. Taking of Private Property
 - H. Civil Justice Reform
 - I. Protection of Children
 - J. Indian Tribal Governments
 - K. Energy Effects
 - L. Technical Standards
 - M. Environment

I. Abbreviations

CFR	Code of Federal Regulations
DHS	Department of Homeland Security
EPA	U.S. Environmental Protection Agency
FR	<u>Federal Register</u>
FSS	IMO's International Code for Fire Systems Safety
IMO	International Maritime Organization
MODU	Mobile offshore drilling unit
MSC	Coast Guard Marine Safety Center
NEPA	National Environmental Policy Act of 1969
NFPA	National Fire Protection Association
NPRM	Notice of proposed rulemaking
NTTAA	The National Technology Transfer and Advancement Act
OMB	Office of Management and Budget
SOLAS 74	International Convention for the Safety of Life at Sea, 1974
TSAC	Towing Safety Advisory Committee
UL	Underwriters Laboratory
U.S.C.	United States Code

II. Regulatory History

On February 24, 2010, we published a notice of proposed rulemaking entitled “Carbon Dioxide Fire Suppression Systems on Commercial Vessels” in the Federal Register (75 FR 8432). We received 18 comments on the proposed rule. No public meeting was held.

III. Basis and Purpose

The basis of this final rule is the Secretary of Homeland Security’s regulatory authority under the following statutes. In all cases, the Secretary has delegated this authority to the Coast Guard through Delegation No. 0170.1(92). Section 3306 of Title 46, United States Code (U.S.C.) mandates the issuance of vessel equipment regulations for Coast Guard-inspected vessels and the issuance of structural fire protection regulations for small passenger vessels; 46 U.S.C. 3703 mandates regulations, including fire protection regulations, for vessels carrying liquid bulk dangerous cargoes; 46 U.S.C. 4102 authorizes regulations, after consultation with the Towing Safety Advisory Committee (TSAC), for fire protection and suppression measures on

towing vessels; 46 U.S.C. 4302 authorizes safety equipment regulations for recreational vessels; and 46 U.S.C. 4502 mandates fire extinguisher regulations for some uninspected commercial fishing vessels and authorizes safety equipment regulations for certain other uninspected commercial fishing vessels.

The purpose of this final rule is to advance the Coast Guard's strategic goals of marine safety and maritime mobility, by clarifying and codifying the requirements for fire suppression systems that use carbon dioxide (CO₂) alternatives, and by requiring lockout valves and odorizers to improve safety on certain vessels that use carbon dioxide fire suppression systems.

IV. Background

This discussion is adapted from Parts III and IV of our NPRM. See 75 FR 8432, 8433.

Carbon dioxide (CO₂) systems are suitable for suppressing or extinguishing fires in certain vessel spaces. They work by flooding spaces with CO₂. CO₂ flooding deprives a fire of the oxygen it needs to burn, but these same systems have also killed people on U.S. military vessels and foreign flag vessels who were in CO₂-protected spaces when the odorless CO₂ gas was discharged accidentally, or without adequate warning to evacuate. This final rule addresses that risk by requiring lockout valves ("lockouts") and odorizing units ("odorizers") for most new CO₂ systems, specifically those installed or altered after July 9, 2013. ("Altered" means modified or refurbished beyond the maintenance required by the manufacturer's design, installation, operation and maintenance manual.)

New CO₂ systems protecting spaces containing more than 6,000 cubic feet will need lockout valves. The lockout must be locked in the "off" position during maintenance or testing of a CO₂ system, to prevent its accidental discharge during those times of heightened risk to personnel.

All new CO₂ systems will need odorizers. In the event of a discharge, the odorizer will inject a wintergreen scent that will linger as long as harmful amounts of the discharged gas are present, to alert personnel to that presence.

Existing Coast Guard regulations require CO₂ systems in certain spaces on towing vessels, tank vessels, cargo and miscellaneous vessels, mobile offshore drilling units (MODUs), offshore supply vessels, public nautical school ships, and large passenger vessels (“Subchapter H” vessels); we allow their use on smaller “Subchapter K” and “Subchapter T” passenger vessels as well. In recent years, fixed extinguishing systems using “clean agents” have been developed that are comparable to CO₂ systems in their ability to suppress fires, but that do not pose the same risks to persons onboard. We would like to spread public awareness that these alternatives exist. We have approved many alternative systems as “regulatory equivalents” to CO₂ systems, but the process for requesting and granting an equivalency determination can be burdensome and time-consuming both for regulated entities and for the Coast Guard. We want to update our regulations so that the clean agent systems we have routinely been approving can be used by regulated entities to comply with Coast Guard fire suppression requirements, without the need for obtaining individual equivalency determinations. This should reduce regulatory burden and potentially increase the use of these alternative systems.

The following table lists the parts within 46 CFR that are affected by the final rule and the specific sections we are amending. The foregoing discussion provides a general summary of the changes. When additional information is required, it appears in the table in parentheses. The table omits any discussion of numerous minor and non-substantive style, format, or wording changes that we are proposing solely to improve the clarity of our regulations.

Table 1: Changes to 46 CFR

46 CFR Part and Topic	46 CFR Sections Affected (& Comments)
25 – Uninspected vessels	25.30-1 (preemption; see part VII.E of this preamble), 25.30-15 (remove paragraph designations and remove redundant second paragraph)
27 – Towing vessels	27.100 (preemption; see part VII.E of this preamble), 27.101
28 – Commercial fishing industry vessels	28.30 (preemption; see part VII.E of this preamble), 28.825
31, 34, 35 – Tank vessels	31.01-1 (preemption; see part VII.E of this preamble), 31.10-18 (remove flow test requirement in para. (f)), 34.01-1 (preemption), 34.01-15 (incorporation by reference), 34.05-5, 34.15-50 (new), 34.15-60 (new), 35.01-2 (new; preemption), 35.40-7, 35.40-8 (new), 35.40-10
62 – Marine engineering, vital systems automation	62.01-1 (preemption; see part VII.E of this preamble), 62.25-20
71, 76, 78 – Subchapter H passenger vessels (>= 100 gross tons)	71.01-1/71.01-2 (new/redesignation; preemption; see part VII.E of this preamble), 71.20-20, 71.25-20, 71.65-5, 76.01-1 (preemption), 76.05-1, 76.10-5, 76.15-50 (new), 76.16-60 (new), 78.01-1 (preemption), 78.47-9, 78.47.11 (new), 78.47-17
91, 95, 97 – Cargo & miscellaneous vessels	91.01-1/91.01-2 (new/redesignation; preemption; see part VII.E of this preamble), 91.20-20, 91.25-20, 91.55-5, 95.01-1 (preemption), 95.01-2 (incorporation by reference), 95.05-10, 95.10-5, 95.15-5 (lengthen discharge time from 2 to 10 min. for spaces specially suitable for vehicles to provide greater safety margin and meet the International Maritime Organization’s Safety of Life at Sea (SOLAS) requirements), 95.15-30 (provide for nitrogen pilot cylinders), 95.15-50 (new), 95.15-60 (new), 95.16-1 — 95.16-90 (new; based on current subpart 95.15, modified and reorganized), 97.01-1 (preemption), 97.37-9, 97.37-11 (new), 97.37-13
107, 108 – Mobile offshore drilling units	107.01-1 (preemption; see part VII.E of this preamble), 107.231, 107.235, 108.102 (new; preemption), 108.444 (new), 108.446 (new), 108.626 (new), 108.627 , 108.631
112 – Electrical engineering, emergency lighting & power systems	112.05-1 (preemption; see part VII.E of this preamble), 112.15-5
115, 118, 119, 122 – Subchapter K passenger vessels (< 100 gross	115.1 (new; preemption; see part VII.E of this preamble), 115.810, 118.115 (preemption),

tons & > 150 passengers or > 49 overnight passengers)	118.410, 119.100 (preemption), 119.710, 122.115 (preemption), 122.612
131, 132 – Offshore supply vessels	131.100 (new; preemption; see part VII.E of this preamble), 131.815, 131.817 (new), 131.825, 132.100 (preemption), 132.350
147 – Hazardous ships’ stores	147.1 (preemption; see part VII.E of this preamble), 147.7 (incorporation by reference), 147.45 (non-substantive change), 147.60 (non-substantive change), 147.66 (new), 147.67 (new)
162 – Engineering equipment	162.017-1 (preemption; see part VII.E of this preamble), 162.161-1 – 162.161-9 (new)
167 – Public nautical school ships	167.01-5 (preemption; see part VII.E of this preamble), 167.45-1, 167.45-45, 167.55-5
169 – Sailing school vessels	169.101 (preemption; see part VII.E of this preamble), 169.247, 169.564, 169.570 (new), 169.571 (new), 169.732, 169.734
176, 181, 182, 185 – Subchapter T passenger vessels (< 100 gross tons & <= 150 passengers or <= 49 passengers overnight)	176.1 (new; preemption; see part VII.E of this preamble), 176.810, 181.115 (preemption), 181.410, 182.115 (preemption), 182.710, 185.115 (preemption), 185.612
189, 190, 193, 194, 196 – Oceanographic research vessels	189.01-1/189.01-2 (new/redesignation; preemption; see part VII.E of this preamble), 189.25-20, 189.55-5, 190.00-1 (new; preemption), 190.15-5, 193.01-1 (preemption), 193.05-10, 193.10-5, 193.15-16 (new), 193.15-17 (new), 193.15-50 (new), 194.01-1 (preemption), 194.20-7, 196.01-1 (preemption), 196.37-8 (new), 196.37-9, 196.37-13

V. Discussion of Comments and Changes

We received 18 written comments from 17 sources (one commenter provided duplicate comments). Of the 17 commenters, seven were individuals or firms that operate vessels, four were trade groups associated with vessel operators, two represented other businesses, one was a fire protection association, one was from an individual employed by a Federal agency, and two did not indicate any particular affiliation. One of the commenters requested a public meeting to discuss the NPRM; we did not grant that request because it was unsupported by any discussion of how a meeting might be beneficial.

We also received one comment almost a year after the close of the comment period. The commenter, a manufacturer, said our regulations should allow electric release clean agent fire suppression systems in addition to manual and pneumatic release systems. Although we are not required to respond to late comments, in this case we acknowledge the merit of the suggestion and will consider it either in a future rulemaking or as a type of system we could approve as providing safety equivalent to systems meeting regulatory requirements.

Scope of the rule. Three commenters asked questions about or commented on the scope of this rulemaking. One expressed the hope that it is not intended to force companies to remove existing fixed carbon dioxide systems and install inferior semi-portable fire extinguishers, which the commenter regarded as less safe than fixed systems. We are not requiring the removal of any existing system. We are providing a regulatory structure for CO₂ alternative (clean agent) systems, and requiring some minimal protective measures for new CO₂ systems.

A second commenter inferred that a carbon dioxide lockout would need to be activated even at times when the CO₂ system is not undergoing maintenance. Our intention is for the lockout only to be activated when the CO₂ system is being tested or maintained, and we have modified the regulatory text to make this clearer.

The second commenter also asked questions about our proposed lockout exception for spaces smaller than 6,000 cubic feet. In the NPRM, we proposed limiting that exception to those small spaces that provide a means of horizontal escape, like spaces with walk-in/walk-out access. We have decided, for the final rule, to extend the exception to all spaces smaller than 6,000 cubic feet, whether or not they provide horizontal escape routes. Not all small spaces provide walk-in/walk-out access, but in most cases the small space is protected by a CO₂ system that protects that space alone. The arrangements for these systems are generally less complex as they serve

only one space, and are thus, less likely to discharge inadvertently during system maintenance and testing.

The third commenter asked if we intend for the rule to apply to foreign-flagged mobile offshore drilling units (MODUs) operating on the U.S. Outer Continental Shelf under a U.S. Certificate of Compliance. This commenter said it would be problematic to apply U.S. type approvals to non-U.S. manufactured carbon dioxide systems on foreign-flagged MODUs. Under 33 CFR 143.207, a MODU documented under the laws of a foreign nation has a choice of design and equipment standards with which it must comply when operating on the U.S. Outer Continental Shelf. It may comply with Coast Guard regulations in 46 CFR part 108, which, as amended by this final rule, include the lockout and odorizer requirements for CO₂ systems. It may comply with the documenting nation's standards, if it applies for and receives a Coast Guard determination that those standards provide an equivalent or greater level of safety. In the case of CO₂ system lockout and odorizer requirements, an equivalency determination may be given after an applicant demonstrates that the foreign nation's standards require some type of lockout and odorizer or alternative means of providing an equivalent level of safety, though they need not be Coast Guard-approved equipment. Finally, the foreign MODU may comply with the International Maritime Organization's Code for Construction and Equipment of Mobile Offshore Drilling Units, which does not require lockouts or odorizers for CO₂ systems.

Need for the rule. Ten commenters questioned the need for various aspects of this rule. Four commenters questioned the overall need, focusing primarily on the lockout and odorizer requirements. Typical of these four commenters was the remark: "retrofitting the numerous and extremely diverse vessel population this rule would impact would be much more costly than [the Coast Guard's] analysis indicates and would provide a marginal safety advantage, if any." In the

NPRM, we proposed applying those requirements to all vessels, which would have required retrofitting for existing vessels. In the final rule, we have eliminated the provisions that would have required retrofitting, thereby significantly reducing costs and eliminating the disagreement raised by this commenter. Seven commenters said we had failed to demonstrate a need for lockouts, and five said we failed to show the need for odorizers. Many pointed out that lockouts would not have prevented many of the reported carbon dioxide-related casualties in recent years, and that we cited no studies to show that odorizers would provide better protection than the audible and visual alarms that already protect most vessels.

In response to these comments, we will not require the retrofitting of existing CO₂ systems, but we will apply the lockout and odorizer requirements only to new CO₂ systems regardless of vessel class. Although we have only limited casualty data for some vessel classes, we think the risk of inadvertent CO₂ system discharge is common to all classes and requires a uniform regulatory approach. Furthermore, while alarms provide advance warning of an imminent discharge, they do not provide similar protection after a discharge when pockets of CO₂ can pose a serious risk of fatality. Similarly, lockouts provide better protection than alarms in scenarios where evacuation is not feasible despite the advance warning provided by alarms.

We acknowledge that our lockout and odorizer requirements may not *eliminate* the risk of casualties related to CO₂ exposure, but we believe they will *reduce* that risk. CO₂ exposure is a potential health hazard recognized by government agencies like the National Institute of Occupational Safety and Health (see their publication NIOSH 76-194, “Criteria for a Recommended Standard—Occupational Exposure to Carbon Dioxide,” available at <http://www.cdc.gov/niosh/76-194.html>) and the Environmental Protection Agency (EPA), and by industry groups like the National Fire Prevention Association (NFPA). Internationally, 19

incidents since 1980, involving 55 deaths and at least 29 injuries, indicate the reality and extent of the risk with respect to marine CO₂ fire suppression systems. To the extent U.S. vessels are equipped with those systems, we think they share in that risk.

Two commenters questioned the need for lockout or odorizer requirements on passenger or towing vessels, which are already required by Coast Guard regulations to have central alarms that sound in advance of a carbon dioxide discharge. Lockouts and odorizers provide protection that alarms and discharge delays cannot. The lockout is a positive control to prevent discharge into protected spaces during maintenance and testing, when any other safety control or method may be turned off or potentially misaligned. Unlike alarms, odorizers are not primarily intended to notify persons who are in a protected space when CO₂ is inadvertently discharged. The odor allows crewmembers to positively identify where the gas has lingered in protected spaces or migrated to other spaces after an intentional or inadvertent release. This is important, as CO₂ gas is heavier than air and can easily migrate or collect in unanticipated areas even after the spaces have been ventilated naturally or mechanically.

Alternative systems. Five commenters addressed our proposals for CO₂ alternative fire protection systems. One of the five said that if there are safer alternatives that work as well as carbon dioxide, “those systems ought to be considered and offered as options.” The other four generally agreed with the comment that recognition of “other clean agent systems appears to be overdue and should go forward.” We agree with these comments.

One commenter, an EPA employee, recommended limiting the use of carbon dioxide systems in new installations. Another commenter recommended incorporating the 2010 version of NFPA 13, a standard for sprinkler systems, in 46 CFR part 34, instead of the 1996 edition that we currently incorporate by reference, and also recommended incorporating NFPA standards for

water mist, spray, and foam fire suppression systems. These recommendations are beyond the scope of this rulemaking, and not necessary to reach our regulatory goals of providing protective measures where CO₂ systems are used and a regulatory structure for CO₂ alternative (clean agent) fire suppression systems.

Lockouts. Twelve commenters addressed the NPRM's proposed requirement for lockouts on carbon dioxide systems. One of these acknowledged that lockouts could be useful when persons unfamiliar with a vessel perform maintenance on the CO₂ system. Two commenters agreed with our proposal, one of them pointing out that lockouts "are widely used low-cost methods for reducing the risk to personnel in spaces protected with carbon dioxide."

Four commenters questioned the need for, or effectiveness of, lockouts. Three of the four said vessel operators already use rigorous procedures, sirens, and strobe lights to warn personnel in the event of a carbon dioxide discharge. The fourth pointed out that, during CO₂ system maintenance, a trained and certified manufacturer's representative should always be present to ensure that written safety protocols are observed, and that the crew should verify compliance with those protocols. In his view, therefore, lockouts are not needed. Our position is that lockouts provide protection that the measures cited by these commenters cannot. The lockout valves are intended to provide protection during repair and maintenance procedures to the system, preventing an accidental discharge with a positively closed valve, whereas existing measures simply warn of an impending accidental (or intentional) discharge. There are many ways in which a CO₂ system can discharge inadvertently during maintenance and testing. Because each system is uniquely engineered and arranged to suit the space it protects, even experienced technicians may be unfamiliar with a system designed to protect multiple spaces with multiple actuation methods and locations. The lockout gives the master or person-in-charge

an ultimate, positive control to prevent discharge into protected spaces at a time when any other safety controls may be turned off or potentially misaligned.

Five commenters said the lockout requirement might have unintended adverse consequences. A typical comment from these five said that personnel might fail to reopen the lockout once the need for closing the CO₂ system ends, and that this failure might not be noticed until a fire triggers the need for the CO₂ system to discharge. The commenter contrasted that possibility with electrical systems, where inadvertent failure to reopen a lockout would result in continued disruption of electrical service and would be noticed immediately. Turning the valve on and off each time a crewmember enters a protected space is not the intended use of the valve. Our regulatory text now clarifies that the lockout is to close the system only during system maintenance and testing, and that the master or person-in-charge must ensure that the valve is locked open when maintenance or testing is completed. Finally, we will ensure that when we review a manufacturer's maintenance manual, we verify that using and unlocking the lockout valve is discussed in the manual's maintenance procedures. Such procedures have proven to be effective where CO₂ lockout valves have been used.

Another commenter suggested that, instead of requiring the master to ensure that a carbon dioxide system is returned to service after maintenance, we should require "a lockout/tag-out system, which is a more generally accepted method to ensure that each valve...is correctly positioned after maintenance." We support, but do not require, the use of lockout/tag-out systems, and believe we achieve similar protection by requiring the lockout design or locking mechanism to make it obvious whether the valve is open or closed.

Four commenters suggested alternatives or modifications to our proposal. One commenter cited the International Maritime Organization's International Code for Fire Safety

Systems (FSS Code) requirement for the use of two independent valves to control the release of a CO₂ system and, noting that the FSS Code also allows for the use of a lock box and key to prevent activation of the flooding system, said that “[a]s the lock box is designed to work with an existing system controls it will be easier to install and maintain” than a lockout valve. We also require a dual-action release arrangement on most spaces larger than 6,000 cubic feet, and passenger vessels are required to have a locked box to protect the release handles against inadvertent discharge. The locked boxes and dual action releases help to ensure that the system is only activated when intended, and that the agent is released to the desired space during an emergency. The use of a locked box reduces the probability of tampering or inadvertent release by inquisitive or malicious passengers. Lockout valves, on the other hand, serve to protect personnel during system maintenance and testing, when accidental discharges have been known to occur.

A second commenter suggested that, as an alternative to requiring lockouts, a “better approach for life safety would be to prohibit new installations of carbon dioxide systems.” This suggestion is beyond the scope of this rulemaking, which seeks only to provide protective measures where CO₂ fire suppression systems are used, and to provide a regulatory structure for CO₂ alternative (clean agent) systems.

Finally, a third commenter said we should substitute “master or person-in-charge” for “master” as the person responsible for ensuring the reopening of carbon dioxide system valves after maintenance, because not all vessels use masters, or use masters only when the vessel is underway. We have made the suggested change.

Odorizers. Eleven commenters addressed our odorizer proposal. Two supported our proposal, and one of these two said odorizers “are widely used low-cost methods for reducing the risk to personnel in spaces protected with carbon dioxide.”

One commenter asked if we intended to require adding wintergreen scent directly to the carbon dioxide gas stored in system cylinders, or if we intended to require even hand-held pressurized CO₂ cylinders to be odorized. Neither is our intent. However, if it ever becomes feasible to odorize CO₂ directly in the cylinder, this could be considered for approval as a regulatory equivalent to our requirement for the CO₂ system to have an approved odorizing unit.

Seven commenters questioned the effectiveness of an odorizer requirement. Most asked why we think odorizers are superior to the sirens, strobe lights, or other alarms they already use to warn personnel in the event of a carbon dioxide discharge. In our view odorizers are not necessarily superior to those other alarms, but a natural complement to existing protective measures. Alarms are intended to alert personnel in the protected space when a CO₂ system discharges. The alarm is short and stops once the gas has stopped flowing from the storage bottles. Because the gas is naturally odorless and colorless, the addition of an odorizer will signal to personnel where the CO₂ gas is and will provide notice as long as it remains, and will continue to provide an alert to danger after discharge. Further, the odor provides easy indication if it remains in the protected space or if the gas has migrated, perhaps unexpectedly, to other compartments. Being alerted to where the CO₂ gas is and how long it remains should enhance the safety of personnel. The longstanding use of mercaptan to signify the presence of natural gas and the successful use of wintergreen odorizers for shore-based CO₂ systems show the validity of such requirements. For example, the Nuclear Regulatory Commission’s NRC Information Notice 99-05 describes an incident in which a security guard was alerted to the dangerously

concentrated presence of migrated CO₂ in an area outside of a protected space by its wintergreen scent. With crew familiarization, and the explanatory signage we require, personnel will become accustomed to wintergreen being associated with CO₂ discharges, just as they learn to differentiate other alerts such as bells and sirens in their workplace.

One commenter pointed out that carbon dioxide casualties in recent years have resulted from persons being trapped in spaces during carbon dioxide discharges, and not from a lack of warning. We acknowledge that odorizers, by themselves, will not prevent a trapping incident. However, the odorizer will at least give a person additional warning that he or she should exit the space if possible and it may also alert others nearby who can help extricate any trapped person, and will alert individuals to potentially dangerous concentrations post-discharge.

Another commenter asked whether an offensive odor might work better than wintergreen, and raised practical concerns about how the crew would recognize the scent if it was masked by other environmental conditions, such as the presence of perfume or cleaning agent odors. We chose wintergreen because it is required, except when it is already in common use for non-emergency purposes in the system location, by the National Fire Protection Association's commonly-used NFPA 12 Standard on Carbon Dioxide Extinguishing Systems, and therefore is widely and inexpensively available. Personnel are likely to respond to an unusual scent without regard to how pleasant it smells, especially if they are trained to do so. If other environmental odors are strong enough to cause notice, they will prompt a simple investigation that presumably will quickly allay concerns of a CO₂ leak. Wintergreen is used on shore-based systems in part to avoid confusing a CO₂ presence with the presence of mercaptan-laced natural gas.

Three commenters suggested alternatives to our proposal. As other commenters also observed, one commenter said wintergreen may be confused with other scents in use on the

vessel. Therefore this commenter suggested using an odor other than wintergreen, or adding color to the carbon dioxide gas. Our existing regulations allow for the approval of regulatory equivalents when strict compliance with regulatory requirements is impractical, and when there are alternatives that can be shown to achieve the same level of safety that the regulations provide. Owners and operators who find it impractical to use the wintergreen odor may have another odor approved under these equivalency provisions. However, we expect most systems to use wintergreen, given its acceptance for shore-based systems under NFPA 12 and its wide and inexpensive availability. The success and availability of wintergreen additives in the shore-based systems provide the basis for choosing this as the standard. We will continue to monitor industry standards for the success of alternative scents or adding color to carbon dioxide gas.

A second proponent of alternatives suggested prohibiting the installation of new carbon dioxide systems instead of requiring systems to be odorized. This comment is beyond the scope of this rulemaking, which seeks only to provide protective measures where such systems are used, and to provide a regulatory structure for CO₂ alternative (clean agent) fire suppression systems.

The third proponent of alternatives suggested using plastic wrap to detect leaks rather than requiring odorizers. This suggestion is also beyond the scope of this rulemaking. Further, it would only help those looking for a leak to detect it, assuming the wrap happened to be in place at the location of the leak, but it would not alert persons who are engaged in other activities at the time of an inadvertent discharge as the odorizers are designed to do. Existing requirements for annually validating the weight of fire suppression agents provide routine protection against the small leaks that the commenter's suggestion would target, but they do not focus on the full discharge that is the focus of this rulemaking.

Cost information. Eight commenters provided information about the cost of our proposals. One commenter provided a combined estimate of \$3,472 to meet both the lockout valve and odorizer proposals.

Four commenters provided cost estimates for lockout valves. Two of these supplied estimates ranging between \$800 and \$1800 per lockout valve. A third estimated that a lockout valve for a less-than-2-inch pipe would cost \$2,895. The fourth estimated that the total cost of lockouts for the commenter's 30 vessels would be \$175,000, but did not estimate the total number of lockouts that would be required.

Three commenters provided cost estimates for odorizers. One said the cost of odorizing a system would be \$400. Another estimated the cost at \$3,225, and had received a discounted estimate of \$25,329 for eight tanks. The third estimated the cost, for 30 vessels, as \$75,000, but did not indicate how many tanks would require treatment.

We have incorporated the additional specific cost information provided by these commenters as appropriate based on the completeness of data and sources provided. This final rule reflects new national average costs accordingly. In the NPRM, we gave the national average cost for lockout valves under two inches as \$1,258, and \$3,188 for lockout valves two inches or more in length. The new figures are \$2,076 and \$4,925 respectively.

Four commenters, some of whom acknowledged that the costs of our specific proposals might be reasonable, stated that our proposals were unreasonable when considered cumulatively with the cost of other recent Federal regulations, including Coast Guard regulations, affecting vessel owners and operators. Two of these commenters operate dinner cruise vessels, and cited their inability to pass these cumulative costs to their customers without harming their ability to compete with land-based recreational attractions not subjected to marine safety regulations. We

reviewed our proposed regulation in light of the cost concerns cited by commenters, and we have modified the regulatory text for the final rule to minimize costs. Existing vessels will not be affected by our lockout and odorizer requirements unless they install or alter a CO₂ system. We encourage vessel owners and operators to voluntarily modify existing CO₂ systems to include lockouts and odorizers, but we will not require them to do so. We acknowledge the new Executive Order 13563 of January 2011 ("Improving Regulation and Regulatory Review") that asks Federal regulatory agencies to "tailor regulations to impose the least burden on society, consistent with obtaining regulatory objectives, taking into account, among other things, and to the extent practicable, the costs of cumulative regulations." In this rule, we have sought to minimize the cumulative impacts on industry by removing the NPRM requirements for existing vessels unless the CO₂ system is altered. Consequently, in this final rule we reduced the incremental cumulative cost to industry from the NPRM's figure of \$9.8 million to \$2.3 million, a reduction of \$7.5 million or 77 percent over 10 years (using a 7-percent discount rate).

Regulatory analysis. One commenter, an industry association, stated the breakeven analysis is contradicted by actual experience since the Coast Guard found no CO₂-related fatalities in the U.S. commercial fleet in 13 years. The commenter also said we did not account for other factors that might have been involved in the casualties linked to carbon dioxide discharges, pointing out that many casualties occurred on foreign-flagged or naval vessels that would not be subject to our rule, and said we should have included in the rulemaking docket those NFPA and EPA studies that we discuss in the analysis. We acknowledge that most of the CO₂ casualties occurred on foreign vessels or naval vessels. However, the hazard and vessel similarities suggest a risk remains on U.S. flag commercial vessels. The primary hazard in the incidents mentioned above was an unintended or accidental CO₂ release. The breakeven and

uncertainty analysis in the preliminary regulatory analysis for the NPRM acknowledged many of these concerns. The breakeven analysis of the NPRM (which included all new and existing fire suppression systems on certain classes of commercial vessels) found that the rule would need to prevent 0.22 fatalities per year to break even, or about one fatality every 4-5 years. By extension, breakeven could be achieved by preventing multiple fatalities over longer periods. This analysis did not include the value of potential non-fatal injuries and secondary impacts. As this rulemaking seeks to reduce risk to the crew on vessels with CO₂ fire suppression systems, the potential value of the avoided damages at risk is quite large in comparison to the relatively minor costs of the proposed safety measures in the NPRM. In addition, we further minimized costs in this final rule by removing the NPRM requirements for all existing vessels unless the CO₂ system is altered (in which case, that smaller subset of vessels would be going through a refurbishment). We believe this balance of both reduced costs and reduced risks makes this final rule the most effective alternative. We do not believe “no action” is an alternative given the inherent risks with CO₂ fire suppression systems. Coast Guard accident data reveal two more recent casualties, from a single incident, that were not reflected in our original analysis for the NPRM. Those casualties (crewmembers) recovered, but their exposure to an accidental release of carbon dioxide demonstrates that a risk remains with CO₂ fire suppression systems. We have modified the breakeven analysis for the final rule to reflect the revised applicability and reduced cost. The final rule would need to prevent one fatality every 27 years for the benefits of the rule to equal or exceed the costs. Regarding the EPA and NFPA reports, we did not place them on the docket because the EPA report is accessible online at <http://www.epa.gov/ozone/snap/fire/co2/co2report.pdf> and the NFPA reports are available free

online as read-only documents at

<http://www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=12>.

Timing of implementation. One commenter criticized as “inadequate,” without further explanation, the NPRM’s proposal for a 5-year phase-in of lockouts and odorizers for existing carbon dioxide systems. We have modified these requirements in the final rule so that they will not affect existing systems, only new CO₂ systems.

Small business impacts. One commenter stated that most domestic passenger vessels are operated by small businesses or small entities. Given absence of documented need for application of the proposed rule to this sector of the maritime industry, the Coast Guard has a statutory duty to more rigorously examine the proposal’s consequences for small businesses and entities. In the NPRM and its supporting regulatory analysis on the docket, we summarized and prepared an initial regulatory flexibility analysis discussing the impacts of this proposed rule on small entities. We performed this analysis as required by the Regulatory Flexibility Act (5 U.S.C. 601-612). As required by section 603(b) of the Act, we provided detailed discussion in response to the following: (1) a description of the reasons why action by the agency is being considered; (2) a succinct statement of the objectives of, and legal basis for, the proposed rule; (3) a description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply; (4) a description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement, and the type of professional skills necessary for preparation of the report or record; (5) an identification, to the extent practicable, of all relevant Federal rules which may duplicate, overlap or conflict with the proposed rule; and, under section 603(c) of the Act, a description of any significant alternatives to the proposed rule which

accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities. After performing and documenting this analysis, we found that we could certify under 5 U.S.C. 605(b) that this rulemaking would not have a significant economic impact on a substantial number of small entities. We solicited public comments on this finding. We reviewed our proposed regulation in light of the cost concerns cited by commenters, and we have modified the regulatory text for the final rule to minimize costs to small entities, eliminating the need for existing vessels to meet our lockout and odorizer requirements unless they install or alter a CO₂ system.

Preemption. Throughout this final rule, we have added new text explaining the preemptive effect of our regulations. See the “Federalism” discussion in part VII.E of this preamble for a full discussion.

Beyond scope of rulemaking. One commenter said carbon dioxide systems should be banned for new and retrofit installations because of the availability of better alternatives, and that we should ban gas-driven alarms and shutdowns in favor of alarms and shutdowns that are not gas-driven. A second commenter said the Coast Guard should routinely hold at least one public meeting in connection with any rulemaking. These suggestions are all beyond the scope of this rulemaking, which seeks only to provide protective measures where carbon dioxide systems are used, and to provide a regulatory structure for CO₂ alternative (clean agent) fire suppression systems.

VI. Incorporation by Reference

The Director of the Office of the Federal Register has approved the material in 46 CFR 34.01-15, 147.7, and 162.161-2 for incorporation by reference under 5 U.S.C. 552 and 1 CFR part 51. Copies of the material are available from the sources listed in those sections.

VII. Regulatory Analyses

We developed this rule after considering numerous statutes and executive orders related to rulemaking. Our analyses based on 14 of these statutes or executive orders are presented below.

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. This final rule is not a significant regulatory action under section 3(f) of Executive Order 12866. The final rule has not been reviewed by the Office of Management and Budget. A Final Regulatory Analysis is available in the docket as indicated under ADDRESSES. A summary of the Final Regulatory Analysis follows:

Table 2 summarizes a comparison of the costs and benefits of the NPRM and the final rule:

Table 2: Comparison of Impacts between NPRM and Final Rule

Category	NPRM	Final Rule	Change/Reason
Affected population	<ul style="list-style-type: none"> •Retrofit systems on existing vessels: 3,204 existing CO₂ systems would require lockout valves. •New systems on new vessels: 34 new CO₂ systems would require 	<ul style="list-style-type: none"> •No retrofits. •Lockout valves required for about 2 altered CO₂ systems per year for existing vessels. •New systems on new vessels: 53 	<ul style="list-style-type: none"> •Final rule does not include requirements for existing vessels to retrofit and install lockout valves and odorizers unless the CO₂ system is altered. •Data refreshed for new construction totals.

	lockout valves per year. •All existing vessels require odorizers for 7,815 CO ₂ systems. New vessels require odorizers for 46 CO ₂ systems per year.	CO ₂ systems required lockout valves per year. •Odorizers required for about 5 modified or replaced systems per year for existing vessels. New vessels require odorizers for 128 CO ₂ systems per year.	
Unit costs that have changed: Lockout valves*	•Under 2 inches: \$1,258. •Over 2 inches: \$3,188.	•Under 2 inches: \$2,076. •Over 2 inches: \$4,925.	•Unit costs increased for lockout valves based on data and information provided in public comments.
Costs (based on 7% discount rate and 10 year period of analysis)	•10-year costs: \$9.8 million. •Annualized costs: \$1.4 million.	•10-year costs: \$2.3 million. •Annualized costs: \$233,000 (rounded).	•Cost reduced since final rule does not include requirements for existing vessels to retrofit and install lockout valves and odorizers unless the CO ₂ system is replaced, altered, or added. •Unit costs increased for lockout valves based on data and information provided in public comments. However, the increased cost estimate for lockout valves is greatly offset by the removal of requirements for existing vessels as previously discussed.
Benefits	The primary benefit is the reduction in risk of crew injuries and fatalities related to CO ₂ exposure from fire suppression system discharges in existing vessels and new construction.	The primary benefit of this final rule is the reduction in risk of crew injuries and fatalities related to CO ₂ exposure from fire suppression system discharges in refurbished existing vessels and new construction.	Final rule scope of benefits is for systems on new vessels and existing vessels as systems are altered, resulting in lowering risk reduction. While not quantified, the benefits of this final rule are reduced compared to the proposed rule since these systems are being phased in more slowly.
	Regulatory efficiency: rulemaking formalizes and codifies Coast Guard acceptance	Regulatory efficiency: rulemaking formalizes and codifies Coast Guard acceptance	--

	of alternative fire suppression systems.	of alternative fire suppression systems.	
Breakeven analysis**	The NPRM (which included all existing vessels) would need to prevent about 0.22 fatalities per year or about 1 fatality every 4-5 years for the benefits of the NPRM to equal or begin to exceed the costs. This analysis did not include the value of potential non-fatal injuries and secondary impacts.	The final rule would need to prevent about .037 fatalities per year or about one fatality every 27 years for the benefits of the final rule to equal or begin to exceed the costs. This analysis does not include the value of potential non-fatal injuries and secondary impacts.	As a result of reduced costs, the breakeven analysis suggests that it would take very little monetized benefits for the final rule to equal or begin to exceed costs. Consequently, there is a 5-7 fold decrease in mishap frequency needed for the benefits of this rule to equal or exceed the costs.

* These are average unit costs for lockout valves. Final rule unit cost estimates for odorizers did not change since the NPRM.

** Breakeven analysis answers the question, “How small could the value of the non-quantified benefits be before the rule would yield zero net benefits?” OMB guidance also acknowledges that it will not always be possible to express in monetary units all of the important benefits of a rule. See OMB Circular A-4 “Regulatory Analysis” (2003), page 2.

The purpose of this final rule is to advance the Coast Guard’s strategic goals of marine safety and maritime mobility by clarifying and codifying the requirements for fire suppression systems that use carbon dioxide alternatives, and by requiring lockout valves and odorizers to provide safety on certain vessels that use carbon dioxide fire suppression systems. This final rule applies two new requirements that have additional costs to industry, lockout valves and odorizers, to all CO₂ suppression systems installed or altered after July 9, 2013. “Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual. Lockout valves must be installed in systems protecting any space with a gross volume greater than 6,000 cubic feet. According to Coast Guard Marine Investigation Security and Law Enforcement (MISLE) data, this requirement will

affect an average of 53 systems on new vessels and about two systems on existing vessels each year. Odorizers must be installed in CO₂ systems for new vessels and existing vessels with altered systems. According to MISLE data, this requirement will affect an average of 128 CO₂ systems of all sizes on newly constructed vessels and about five systems of all sizes on refurbished vessels each year.

Under the NPRM, all affected commercial vessels would have been required to install lockout valves and odorizers. This would have required existing commercial vessels to retrofit these devices. A major change from the NPRM is that the final rule will only affect newly constructed commercial vessels and those commercial vessels that may have alterations of existing systems. Furthermore, NPRM commenters provided additional data on the costs of lockout valves, which has been incorporated into our estimates and results in a higher unit cost for lockout valves. As a result of the adjustments to the proposed regulation, total costs for the final rule decrease in comparison to the NPRM despite an increase in unit cost for lockout valves.

Based on industry data and public comments, we estimate the average industry prices for installing retrofit large and small lockout valves on new vessels to be \$4,925 and \$2,077, respectively. Systems that handle more than 2,450 pounds of CO₂ require a valve larger than 2 inches. Of the two systems for refurbished vessels affected annually by this proposed rule, .7, on average, would require the larger, more expensive lockout valves, while 1.4, on average, systems require the smaller valves for a total undiscounted cost of about \$6,184. Of the 52.5 systems for newly constructed vessels affected annually by this rule, 17.3 would require the larger, more expensive lockout valves, while 35.2 systems require the smaller valves for a total undiscounted cost of about \$158,368. The annual undiscounted cost for owners of newly constructed and

refurbished vessels with systems to meet the lockout valve requirement of this rule would be approximately \$164,552 for each year. Industry would incur this cost for each year over the ten-year period of analysis.

As for odorizers, we estimate that the installed costs, including three warning signs, are \$516/unit based on industry information. We estimate the total annual undiscounted cost of the refurbished vessels to be \$2,582. For systems on newly constructed vessels, the total undiscounted annual cost is \$66,105. We estimate the total annual undiscounted cost to be about \$68,687 for all 133 CO₂ protected areas on these vessels. The total cost per vessel would be dependent on the number of areas protected by CO₂.

The total annual undiscounted cost for both lockout valves and odorizers for new or refurbished vessels is about \$233,000 (rounded). We estimate the total present value 10-year cost of the final rule to be \$1.638 million at a seven percent discount rate. This represents about an 83-percent cost reduction from the NPRM total present value 10-year cost estimate of \$9.8 million. We estimate the annualized cost of the final rule to be \$233,000 compared to \$1.4 million for the NPRM (estimates using a seven percent discount rate).

This final rule also issues new regulations for installing, maintaining, and using approved CO₂ alternative (clean agent) fire suppression systems. We believe this promotes safety and is advantageous to industry since these alternative systems provide additional flexibility to industry and formalizes the Coast Guard's policy of approving these alternative systems. Commenters supported the NPRM provisions for alternative systems (see "Discussion of Comments and Changes").

As discussed in the NPRM, this rule clarifies Coast Guard approval of alternatives to using CO₂ systems. We estimate that these provisions will not have an additional cost impact

because the Coast Guard has been approving alternative systems on an ad hoc basis. We expect these approved installed alternative systems will be compliant with the requirements for alternative systems proposed in this rule. We did not receive comments to the NPRM on additional costs for these regulations for alternative systems. In addition, the use of halocarbon (one of a number of alternatives) fire suppression systems has been making steady inroads in recent years (2006–2010). As discussed in the NPRM, our updated records indicate that industry installed an average of 32 halocarbon fire suppression systems compared to an average of 65 CO₂ fire suppression systems with capacity over 6,000 cubic feet annually.

Benefits

The primary benefit associated with this rule is the reduction in risk of injuries and fatalities related to CO₂ exposure. CO₂ exposure has long been recognized as a potential hazard to human health. The National Institute of Occupational Safety and Health, in its publication NIOSH 76–194, “Criteria for a Recommended Standard—Occupational Exposure to Carbon Dioxide,” available at <http://www.cdc.gov/niosh/76-194.html>, has set criteria for a standard for limits of exposure to CO₂ in workplace settings.

Other Federal and industry agencies and associations have also recently concluded that CO₂ fire suppression systems could pose a risk. For example, the National Fire Prevention Association guidance in its 2005 edition for CO₂ fire suppression systems located on land states that “total flooding CO₂ suppression systems shall not be used in normally occupied enclosures.” In addition, the EPA, in its 2000 report, “Carbon Dioxide as a Fire Suppressant: Examining the Risk,” has suggested that clarifying maritime regulation would be beneficial to reducing accidental exposure.

We searched the MISLE database for casualty reports between 1996 and 2010 to find personnel casualties related to CO₂ fire suppression systems discharged in areas with personnel. We found one non-fatal incident in the U.S. commercial fleet during the 15-year period analyzed for this rulemaking. As previously stated, CO₂ flooding can cause fatalities to people who are in CO₂-protected spaces when the odorless CO₂ gas is discharged accidentally, or without adequate warning to evacuate. Exposure to an accidental release of carbon dioxide demonstrates that a risk remains in the regulated fleet covered by this rule. The danger of CO₂ flooding can be reduced by the use of lockout valves that are locked “off” when someone is conducting maintenance in the CO₂ system as well as the use of odorizers to help the person at risk detect CO₂ discharges.

In addition, there have been incidents in military and foreign fleets. Due to these aggregate incidents, we conclude that some (unquantifiable) risk remains present. Given this situation, wherein we are not able to quantify the remaining risk and risk reduction for the purposes of this rulemaking, we used a “breakeven analysis” to understand the benefits of this rule.

In breakeven analysis, we compare the known costs to an estimate of a loss to determine a threshold. In safety regulations, it is common to use the “value of a statistical life” (VSL) concept to measure a loss. The VSL is not meant to be an estimate of the actual value of a life, but a measure of society’s willingness to pay to reduce small risks of fatalities. Using the annualized costs at a seven percent discount rate over a ten-year period, or \$233,320 for the final rule, we can compare it to the VSL’s \$6.3 million¹. The final rule would need to prevent 1 fatality in 27 years, or 0.037 fatalities per year to break even. The NPRM (which included all new and existing fire suppression systems on certain classes of commercial vessels) would have

¹ “Valuing Mortality Risk Reductions in Homeland Security Regulatory Analyses”, DHS/CBP, June 2008.

needed to prevent about 0.22 fatalities per year or about 1 fatality every 4-5 years for the benefits of the NPRM to equal or begin to exceed the costs. The breakeven analysis of the NPRM and final rule did not include the value of potential non-fatal injuries and secondary impacts.

Finally, a secondary benefit of this rule is the expediting of applications for approval of alternative systems. These systems, using non-CO₂ agents, have been approved on a case-by-case basis for years. The final rule will make these requirements clearer. These qualitative changes of reducing transaction costs are not easily translated into quantitative cost impacts, so none were estimated. In addition, the increased clarity with regards to the requirements for alternative systems may foster the increased development and use of these potentially safer systems.

Regulatory Alternatives

We considered three alternatives for this rulemaking:

Alternative One - No action. We rejected this alternative as unacceptable since risk would remain under the existing regulations. Also, because the current regulations do not specifically address the use of alternative "clean agent" fire suppression systems, there would be continued uncertainty in selecting and using these systems as well as obtaining Coast Guard approval for them. This alternative was rejected for both the NPRM and the final rule.

Alternative Two - Ban the use of CO₂ fire suppression systems. While a risk exists, a complete prohibition of CO₂ systems could require a complete retrofit of existing commercial vessels affected and be prohibitively expensive. This alternative was rejected for both the NPRM and the final rule.

Alternative Three - Amend Coast Guard regulations to clarify that approved alternatives to CO₂ systems are permissible, to set general parameters for those alternative systems and for

getting them approved, and to require the use of lockout valves and odorizers in all spaces protected by CO₂ systems on new and refurbished vessels. In our view, this alternative is the best approach to reducing risk and minimizing cost to the marine industry as we are aware that CO₂ generally remains the least expensive agent available for these systems. Consequently, this alternative was used as the basis for the NPRM for new construction and all existing fire suppression systems on certain classes of commercial vessels in a retrofit mode. After reviewing public comment and considering the amended cost basis, we have amended the rules proposed in our NPRM and will apply this regulation only to new or refurbished vessels. This final rule Alternative Three is a modification of the NPRM Alternative Three.

B. Small Entities

Under the Regulatory Flexibility Act (5 U.S.C. 601-612), we have considered whether this rule would have a significant economic impact on a substantial number of small entities. A final regulatory flexibility analysis discussing the impact of this final rule on small entities is available in the docket and contained in the final regulatory analysis where indicated under ADDRESSES.

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.

The entities affected by this proposed rule are generally found under the North American Industry Classification System (NAICS) codes for water transportation. The most common NAICS codes include the following 6-digit NAICS codes for marine transportation: 483212-Coastal and Great Lakes Freight Transportation, 487210-Scenic and Sightseeing Water Transportation, and 532411-Commercial Air, Rail, and Water Transportation Equipment

Leasing. A complete listing of the relevant NAICS codes may be found in the NPRM’s regulatory analysis. We examined employment levels and revenue of the entities that will be affected by this final rule and based on the available data; we estimate that about 56 percent of entities affected by the final rule requirements are small under the Regulatory Flexibility Act and the SBA size standards.

The final rule's regulatory analysis used a higher unit cost adjusted as a result of comments received on the NPRM. This higher unit cost increased the cost impacts on revenue for affected entities. This did not change our overall finding from the NPRM that this rule did not have a significant economic impact on a substantial number of small entities. As previously explained, we have significantly reduced the scope of this regulation compared to the proposed rule. We estimated the proposed rule would have directly regulated approximately 400 small entities, while we estimate this final rule will directly regulate only 31 small entities.

As a result of our analysis of 2010 MISLE data on new construction vessels and refurbishment vessels, we concluded that small entities likely comprise 56 percent (or approximately 31 unique businesses) of the total population evaluated. Of these 31 businesses, we found revenue data on 15 entities. The balance of 16 unknown size entities was assumed to be small by SBA standards. Under our methodology, we assume an entity is small unless we can find evidence that indicates it is not. We determined that 80 percent of small entities would have an annual revenue impact of less than 1 percent. Further, we estimated that the impact on 93 percent of these small entities would be less than 3 percent of annual revenue. Table 3 provides details of these conclusions.

Table 3: Comparison of NPRM and Final Rule Revenue Impacts

Category	NPRM Result	FR Result	Change

Small Business ' Affected	400	31	Applicability of Vessel Groups
0% ≤ Impact ≤1%	84%	80%	Unit Cost Increased
1% < Impact ≤3%	16%	13%	"
3% > Impact ≤5%		7%	"
Total	100%	100%	

Source: USCG Calculations

The final rule reduced the impact on the number of small entities affected since the vessels affected are a much smaller group of new construction and refurbished vessels and excludes the retrofit vessels originally included in the NPRM. By reducing the scope of this final rule in response to public comment, we have reduced the revenue impact not only on the whole industry, but on the small entities as well.

Therefore, the Coast Guard certifies under 5 U.S.C. 605(b) that this final rule will not have a significant economic impact on a substantial number of small entities.

C. Assistance for Small Entities

Under section 213(a) of the Small Business Regulatory Enforcement Fairness Act of 1996 (Public Law 104-121), we offered to assist small entities in understanding the rule so that they could better evaluate its effects on them and participate in the rulemaking. The Coast Guard will not retaliate against small entities that question or complain about this 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

This final rule would not require a new collection of information or a revision to an existing collection of information under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501-3520). The Coast Guard did not receive any COI-related comments to the NPRM.

The Coast Guard has been approving alternatives to CO₂ systems under an approved collection, OMB Control Number 1625-0035. Satisfactory lockout valve and odorizing unit installation will be confirmed under current Coast Guard inspections.

E. Federalism

A rule has implications for federalism under Executive Order 13132, Federalism, if it has a substantial direct effect on State or local governments and would either preempt State law or impose a substantial direct cost of compliance on them. We have evaluated this rule under E.O. 13132 and have determined that they are preemptive of State law or regulation in that Congress intended the Coast Guard to regulate the type and design of fire suppression systems aboard certain vessels. The regulations listed in this rulemaking are promulgated pursuant to 46 U.S.C. 3306, 3703, 4102, 4306, and 4502.

It is well settled that States may not regulate in categories reserved for regulation by the Coast Guard. It is also well settled, now, 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) are within the fields foreclosed from regulation by the States (See the decision of the Supreme Court in the consolidated cases of

United States v. Locke and Intertanko v. Locke, 529 U.S. 89, 120 S.Ct. 1135 (March 6, 2000)).

For those regulations promulgated under 46 U.S.C. 3306 and 3703, Congress directed the Secretary to prescribe regulations that would require equipment used in firefighting and fire prevention aboard certain inspected vessels. Here, the Coast Guard is promulgating regulations to require enhanced or alternative safety features on firefighting systems on board inspected vessels defined in 46 U.S.C. Chapters 33 and 37, which will improve safety. Because States may not promulgate rules within this category, preemption is not an issue under Executive Order 13132.

Under 46 U.S.C. 4102, Congress mandated certain uninspected vessels, defined within 46 U.S.C. Chapter 41, to be equipped with fire extinguishers that meet the requirements prescribed by regulation. The Coast Guard, in considering the safety features necessary to extinguish fires promptly and effectively and, to the extent required in consultation with the Towing Safety Advisory Committee, has promulgated regulations requiring certain equipment features for uninspected vessels. These regulations do not raise any preemption concerns under Executive Order 13132 since States may not promulgate rules within this category of uninspected vessels.

Congress mandated the Coast Guard to promulgate regulations requiring safety standards for fire extinguishers aboard uninspected commercial fishing vessels defined in 46 U.S.C. Chapter 45. Those regulations promulgated under 46 U.S.C. 4502 require certain features to make fire extinguishers readily identifiable and accessible in accordance with Congress's mandate. Because States may not promulgate rules within this category, preemption is not an issue under Executive Order 13132.

Regulations issued pursuant to 46 U.S.C. 4302 are preemptive of State law to the extent outlined in 46 U.S.C. 4306. Under 46 U.S.C. 4306, Federal regulations establishing minimum

safety standards for recreational vessels and associated equipment and the procedures and tests established to measure conformance with those standards preempt State law, unless the State law is identical to a Federal regulation, or a State is specifically provided an exemption to those regulations, or permitted to regulate marine safety articles carried or used to address a hazardous condition or circumstance unique to that State.

Additionally, President Obama's Memorandum of May 20, 2009 titled "Preemption" states that "preemption of State law by executive departments and agencies should be undertaken only with full consideration of the legitimate prerogatives of the States and with a sufficient legal basis for preemption." To that end, when a department or agency intends to preempt State law, it should do so only if justified under legal principles governing preemption, including those outlined in Executive Order 13132, and it should also include preemption provisions in the codified regulation. In accordance with this memorandum, the Coast Guard has included in the final rule regulatory text the statutory provisions granting it preemption authority as well as language indicating its intent to preempt conflicting state or local regulation, when required.

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 \$100,000,000 (adjusted for inflation) or more in any one year. Though this rule will not result in such an expenditure, we do discuss the effects of this rule elsewhere in this preamble.

G. Taking of Private Property

This rule will 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 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 rule under Executive Order 13045, Protection of Children from Environmental Health Risks and Safety Risks. This rule is not an economically significant rule and does not create an environmental risk to health or risk to safety that may disproportionately affect children.

J. Indian Tribal Governments

This rule does not have tribal implications under Executive Order 13175, Consultation and Coordination with Indian Tribal Governments, because it does 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 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. The Administrator of the Office of

Information and Regulatory Affairs has not designated it as a significant energy action.

Therefore, it does not require a Statement of Energy Effects under Executive Order 13211.

L. Technical Standards

The National Technology Transfer and Advancement Act (NTTAA) (15 U.S.C. 272 note) directs agencies to use voluntary consensus standards in their regulatory activities unless the agency provides Congress, through the Office of Management and Budget, 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 rule uses the following voluntary consensus standards: Underwriters Laboratories (UL) standards UL 2127 “Standard for Inert Gas Clean Agent Extinguishing System Units,” and UL 2166 “Standard for Halocarbon Clean Agent Extinguishing System Units,” and National Fire Protection Association (NFPA) standard 2001 “Standard on Clean Agent Fire Extinguishing Systems.” The sections that reference these standards and the locations where these standards are available are listed in the regulatory text for 46 CFR 34.01-15, 147.7, and 162.161-2.

This rule also uses technical standards other than voluntary consensus standards. The test described in the regulatory text in 46 CFR 162.161-6 is in accordance with requirements of the International Maritime Organization, IMO MSC/Circ.848 “Revised Guidelines for the Approval of Equivalent Fixed Gas Fire-Extinguishing Systems, as referred to in SOLAS 74, for machinery spaces and cargo pump-rooms” and IMO MSC.1/Circ. 1267 “Amendments to the Revised Guidelines for the Approval of Equivalent Fixed Gas Fire-Extinguishing Systems, as referred to in SOLAS 74, for machinery spaces and cargo pump-rooms (MSC/Circ. 848).” The remaining

requirements and tests were developed by the Coast Guard and used to evaluate currently approved carbon dioxide alternative (clean agent) fire suppression systems. These requirements are described throughout the regulations. They are used because we did not find voluntary consensus standards that are applicable to this rule.

M. Environment

We have analyzed this rule under Department of Homeland Security Management Directive 023-01 and Commandant Instruction M16475.1D, which guide the Coast Guard in complying with the National Environmental Policy Act of 1969 (NEPA) (42 U.S.C. 4321-4370f), and have concluded that this action is one of a category of actions that do not individually or cumulatively have a significant effect on the human environment. This rule is categorically excluded under section 2.B.2, figure 2-1, paragraph (34) (d) of the Instruction and 6 (a) of the “Appendix to National Environmental Policy Act: Coast Guard Procedures for Categorical Exclusions, Notice of Final Agency Policy” (67 FR 48243, July 23, 2002).” This rule involves regulations concerning vessel operation safety standards and regulations concerning equipping of vessels. An environmental analysis checklist and a categorical exclusion determination are available in the docket where indicated under ADDRESSES.

List of Subjects

46 CFR Part 25

Fire prevention, Marine safety, and Reporting and recordkeeping requirements.

46 CFR Part 27

Fire prevention, Incorporation by reference, Marine safety, and Reporting and recordkeeping requirements, Vessels.

46 CFR Part 28

Alaska, Fire prevention, Fishing vessels, Marine safety, Occupational safety and health, Reporting and recordkeeping requirements, Seamen.

46 CFR Part 31

Cargo vessels, Marine safety, Reporting and recordkeeping requirements.

46 CFR Part 34

Cargo vessels, Fire prevention, Incorporation by reference, Marine safety.

46 CFR Part 35

Cargo vessels, Marine safety, Navigation (water), Occupational safety and health, Reporting and recordkeeping requirements, Seamen.

46 CFR Part 62

Reporting and recordkeeping requirements, Vessels.

46 CFR Part 71

Marine safety, Passenger vessels, Reporting and recordkeeping requirements.

46 CFR Part 76

Fire prevention, Marine safety, Passenger vessels.

46 CFR Part 78

Marine safety, Navigation (water), Passenger vessels, Penalties, Reporting and recordkeeping requirements.

46 CFR Part 91

Cargo vessels, Marine safety, Reporting and recordkeeping requirements.

46 CFR Part 95

Cargo vessels, Fire prevention, Marine safety.

46 CFR Part 97

Cargo vessels, Marine safety, Navigation (water), Reporting and recordkeeping requirements.

46 CFR Part 107

Marine safety, Oil and gas exploration, Reporting and recordkeeping requirements, Vessels.

46 CFR Part 108

Fire prevention, Marine safety, Occupational safety and health, Oil and gas exploration, Vessels.

46 CFR Part 112

Vessels.

46 CFR Part 115

Fire prevention, Marine safety, Passenger vessels, Reporting and recordkeeping requirements.

46 CFR Part 118

Fire prevention, Marine safety, Passenger vessels.

46 CFR Part 119

Marine safety, Passenger vessels.

46 CFR Part 122

Marine safety, Passenger vessels, Penalties, Reporting and recordkeeping requirements.

46 CFR Part 131

Cargo vessels, Fire prevention, Marine safety, Navigation (water), Occupational safety and health, Reporting and recordkeeping requirements.

46 CFR Part 132

Cargo vessels, Fire prevention, Marine safety, Reporting and recordkeeping requirements.

46 CFR Part 147

Hazardous materials transportation, Incorporation by reference, Labeling, Marine safety, Packaging and containers, Reporting and recordkeeping requirements.

46 CFR Part 162

Fire prevention, Incorporation by reference, Marine safety, Oil pollution, Reporting and recordkeeping requirements.

46 CFR Part 167

Fire prevention, Marine safety, Reporting and recordkeeping requirements, Schools, Seamen, Vessels.

46 CFR Part 169

Fire prevention, Marine safety, Reporting and recordkeeping requirements, Schools, Vessels.

46 CFR Part 176

Fire prevention, Marine safety, Passenger vessels, Reporting and recordkeeping requirements.

46 CFR Part 181

Fire prevention, Marine safety, Passenger vessels.

46 CFR Part 182

Marine safety, Passenger vessels.

46 CFR Part 185

Marine safety, Passenger vessels, Reporting and recordkeeping requirements.

46 CFR Part 189

Marine safety, Oceanographic research vessels, Reporting and recordkeeping requirements.

46 CFR Part 190

Fire prevention, Marine safety, Occupational safety and health, Oceanographic research vessels.

46 CFR Part 193

Fire prevention, Marine safety, Oceanographic research vessels.

46 CFR Part 194

Explosives, Hazardous materials transportation, Marine safety, Oceanographic research vessels.

46 CFR Part 196

Marine safety, Oceanographic research vessels, Reporting and recordkeeping requirements.

For the reasons listed in the preamble, the Coast Guard amends 46 CFR parts 25, 27, 28, 31, 34, 35, 62, 71, 76, 78, 91, 95, 97, 107, 108, 112, 115, 118, 119, 122, 131, 132, 147, 162, 167, 169, 176, 181, 182, 185, 189, 190, 193, 194, and 196 as follows:

PART 25--REQUIREMENTS

1. The authority citation for part 25 continues to read as follows:

Authority: 33 U.S.C. 1903(b); 46 U.S.C. 3306, 4102, 4302; Department of Homeland Security Delegation No. 0170.1.

2. Revise § 25.30-1 to read as follows:

§ 25.30-1 Applicability; preemptive effect.

This subpart applies to all vessels contracted for on or after November 19, 1952, except that § 25.30–90 of this subpart applies to vessels contracted for before that date, and the regulations in this subpart have preemptive effect over State or local regulations in the same field.

3. Revise § 25.30-15 to read as follows:

§ 25.30-15 Fixed fire-extinguishing systems.

When a fixed fire-extinguishing system is installed, it must be a type approved or accepted by the Commandant (CG-5214) or the Commanding Officer, U.S. Coast Guard Marine Safety Center.

PART 27—TOWING VESSELS

4. The authority citation for part 27 continues to read as follows:

Authority: 46 U.S.C. 3306, 4102, (as amended by Pub. L. 104-324, 110 Stat. 3901); Department of Homeland Security Delegation No. 0170.1.

5. In § 27.100, revise the section heading and add paragraph (e) to read as follows:

§ 27.100 Applicability; preemptive effect.

* * * * *

(e) The regulations in this part have preemptive effect over State or local regulations in the same field.

6. In § 27.101, revise paragraphs (1) and (3) and add paragraph (4) to the definition of “Fixed fire-extinguishing system” to read as follows:

§ 27.101 Definitions.

* * * * *

Fixed fire-extinguishing system means:

(1) A carbon dioxide system that satisfies 46 CFR 76.15 and the system labeling requirements in 46 CFR 78.47-9 and 78.47-11 and that is approved by the Commandant;

* * * * *

(3) A manually-operated water-mist system that satisfies NFPA 750 (incorporated by reference; see § 27.102) and that is approved by the Commandant; or

(4) A clean agent system that satisfies 46 CFR 95.16 and the labeling requirements of 46 CFR 97.37-9 and 97.37-11 and that is approved by the Commandant.

* * * * *

PART 28—REQUIREMENTS FOR COMMERCIAL FISHING INDUSTRY VESSELS

7. The authority citation for part 28 continues to read as follows:

Authority: 46 U.S.C. 3316, 4502, 4505, 4506, 6104, 10603; Department of Homeland Security Delegation No. 0170.1.

8. In § 28.30, revise the section heading and add paragraph (c) to read as follows:

§ 28.30 Applicability; preemptive effect.

* * * * *

(c) The regulations in this part have preemptive effect over State or local regulations in the same field.

9. Revise § 28.825(b)(2)(iv) to read as follows:

§ 28.825 Excess fire detection and protection equipment.

* * * * *

(b) * * *

(2) * * *

(iv) The control cabinets or spaces containing valves or manifolds for the various fire extinguishing systems must be distinctly marked in conspicuous red letters at least 2 inches high: “[CARBON DIOXIDE/FOAM/CLEAN AGENT – as appropriate] FIRE SYSTEM.”

* * * * *

PART 31—INSPECTION AND CERTIFICATION

10. The authority citation for part 31 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 2103, 3205, 3306, 3307, 3703; 46 U.S.C. Chapter 701; 49 U.S.C. 5103, 5106; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; E.O. 12777, 56 FR 54757, 3 CFR, 1991 Comp., p. 351; Department of Homeland Security Delegation No. 0170.1. Section 31.10–21 also issued under the authority of Sect. 4109, Pub. L. 101–380, 104 Stat. 515.

11. In § 31.01-1, revise the section heading and add paragraph (d) to read as follows:

§ 31.01-1 Inspections required—TB/ALL, preemptive effect.

* * * * *

(d) The regulations in this part have preemptive effect over State or local regulations in the same field.

12. In § 31.10-18, revise Table 31.10-18(c) and paragraph (f) to read as follows:

§ 31.10-18 Firefighting equipment: General – TB/ALL.

* * * * *

(c) * * *

Table 31.10–18(c)

Type system	Test
Foam	Systems utilizing a soda solution must have that solution replaced. In all cases, ascertain that powder is not caked.
Carbon dioxide	Weigh cylinders. Recharge cylinder if weight loss exceeds 10 percent of the weight of the charge. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed carbon dioxide systems must be tested or renewed, as required by 46 CFR 147.60 and 147.65.
Halon 1301 and halocarbon	Recharge or replace if weight loss exceeds 5 percent of the weight of the charge or if cylinder has a pressure gauge, recharge cylinder if pressure loss exceeds 10 percent adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections to Halon 1301 and halocarbon cylinders must be tested or renewed, as required by 46 CFR 147.60 and 147.65 or 147.67. NOTE: Halon 1301 system approvals have expired, but existing systems may be retained if they are in good and serviceable condition to the satisfaction of the Coast Guard inspector.
Inert gas	Recharge or replace cylinder if cylinder pressure loss exceeds 5 percent of the specified gauge pressure, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed inert extinguishers must be tested or renewed, as required by 46 CFR 147.60 and 147.66.
Water mist	Maintain system in accordance with the maintenance instructions in the system manufacturer's design, installation, operation, and maintenance manual.

* * * * *

(f) The marine inspector must check all fire extinguishing system piping, controls, valves, and alarms to ascertain that the system is in good operating condition. For carbon dioxide or clean agent systems as described in 46 CFR subpart 95.16, the marine inspector must:

- (1) Verify that flow is continuous and that the piping and nozzles are unobstructed; and
- (2) Verify that any discharge delays and pre-discharge alarms function properly during

the flow test.

* * * * *

PART 34—FIREFIGHTING EQUIPMENT

13. The authority citation for part 34 continues to read as follows:

Authority: 46 U.S.C. 3306, 3703; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

14. In § 34.01-1, revise the section heading and add paragraph (b) to read as follows:

§ 34.01-1 Applicability—TB/ALL, preemptive effect.

* * * * *

(b) The regulations in this part have preemptive effect over State or local regulations in the same field.

15. Revise § 34.01-15 to read as follows:

§ 34.01-15 Incorporation by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish notice of change in the Federal Register and the material must be available to the public. All approved material is available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030 or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html. Also,

it is available for inspection at the Coast Guard, Office of Design and Engineering Standards (CG-521), 2100 2nd St. SW., Stop 7126, Washington, DC 20593-7126, telephone 202-372-1405, and is available from the sources listed in this section.

(b) American Society for Testing and Materials (ASTM), 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, telephone 610-832-9585, <http://www.astm.org>.

(1) ASTM F 1121-87 (Reapproved 1993), Standard Specification for International Shore Connections for Marine Fire Applications, 1987, IBR approved for § 34.10-15 ("ASTM F 1121").

(2) [Reserved]

(c) National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169-7471, telephone 617-770-3000, <http://www.nfpa.org>.

(1) NFPA 13-1996, Standard for the Installation of Sprinkler Systems, IBR approved for § 34.30-1 ("NFPA 13-1996").

(2) NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems, (2008 Edition), IBR approved for § 34.05-5(a)(4) ("NFPA 2001").

16. In § 34.05-5, revise the section heading and paragraphs (a)(3) through (7) to read as follows:

§ 34.05-5 Fire extinguishing systems – T/ALL.

(a) * * *

(3) Lamp and paint lockers and similar spaces. A carbon dioxide or clean agent system as described in 46 CFR subpart 95.16 or a water spray system must be installed in all lamp and paint lockers, oil rooms, and similar spaces.

(4) Pump rooms. A carbon dioxide or clean agent system as described in 46 CFR subpart 95.16, a foam spray system, or a water spray system must be installed for the protection of all pump rooms. If a clean agent system is installed for the pump room of a tank ship carrying chemical cargos, the amount of extinguishing agent must be determined by using the agent design concentration determined by the cup burner method, described in NFPA 2001 (incorporated by reference; see § 34.01-15) for the cargo requiring the greatest amount of agent.

(5) Boiler rooms. On tankships contracted for on or after November 19, 1952, a carbon dioxide or clean agent system as described in 46 CFR subpart 95.16 or a foam system must be installed to protect any space containing a main or auxiliary oil fired boiler, the boiler fuel oil service pump, or any fuel oil units such as heaters, strainers, valves, manifolds, etc., that are subject to the discharge pressure of the fuel oil service pumps.

(6) Machinery spaces. A carbon dioxide or clean agent system as described in 46 CFR subpart 95.16 must be installed to protect any machinery space containing an internal combustion-propelling engine that uses fuel having a flashpoint of less than 110 degrees Fahrenheit.

(7) Internal combustion installations. A fire extinguishing system must be provided for an internal combustion installation and:

(i) The system must be a carbon dioxide or clean agent system as described in 46 CFR subpart 95.16;

(ii) On vessels of 1,000 gross tons and over on an international voyage, the construction or conversion of which is contracted for on or after May 26, 1965, a carbon dioxide or clean agent system as described in 46 CFR subpart 95.16 must be installed in any space containing internal combustion or gas turbine main propulsion machinery, auxiliaries with an aggregate

power of 1,000 b.h.p. or greater, or their fuel oil units, including purifiers, valves, and manifolds;
and

(iii) On vessels of 1,000 gross tons and over, the construction, conversion or automation of which is contracted for on or after January 1, 1968, a carbon dioxide or clean agent system as described in 46 CFR subpart 95.16 must be installed in any space containing internal combustion or gas turbine main propulsion machinery, auxiliaries with an aggregate power of 1,000 b.h.p. or greater, or their fuel oil units, including purifiers, valves and manifolds.

* * * * *

17. Add § 34.15-50 to read as follows:

§ 34.15-50 Lockout valves-T/ALL

(a) A lockout valve must be provided on any carbon dioxide extinguishing system protecting a space over 6,000 cubic feet in volume and installed or altered after July 9, 2013. “Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

(b) The lockout valve must be a manually operated valve located in the discharge manifold prior to the stop valve or selector valves. When in the closed position, the lockout valve must provide complete isolation of the system from the protected space or spaces, making it impossible for carbon dioxide to discharge in the event of equipment failure during maintenance.

(c) The lockout valve design or locking mechanism must make it obvious whether the valve is open or closed.

(d) A valve is considered a lockout valve if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it.

(e) The master or person-in-charge must ensure that the valve is locked open at all times, except while maintenance is being performed on the extinguishing system, when the valve must be locked in the closed position.

(f) Lockout valves added to existing systems must be approved by the Commandant as part of the installed system.

18. Add § 34.15-60 to read as follows:

§ 34.15-60 Odorizing units-T/ALL.

Each carbon dioxide extinguishing system installed or altered after July 9, 2013, must have an approved odorizing unit to produce the scent of wintergreen, the detection of which will serve as an indication that carbon dioxide gas is present in a protected area and any other area into which the carbon dioxide may migrate. “Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

PART 35—OPERATIONS

19. The authority citation for part 35 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 3306, 3703, 6101; 49 U.S.C. 5103, 5106; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; E.O. 12777, 56 FR 54757, 3 CFR, 1991 Comp., p. 351; Department of Homeland Security Delegation No. 0170.1.

20. Revise the subpart 35.01 heading to read as follows:

Subpart 35.01—General Provisions; Special Operating Requirements

21. Add § 35.01-2 to read as follows:

§ 35.01-2 Preemptive effect.

The regulations in this part have preemptive effect over State or local regulations in the same field.

22. Revise § 35.40-7 to read as follows:

§ 35.40-7 Carbon dioxide and clean agent alarms-T/ALL.

Each carbon dioxide or clean agent fire extinguishing alarm installed after November 19, 1952, must be conspicuously marked: “WHEN ALARM SOUNDS VACATE AT ONCE. [CARBON DIOXIDE / CLEAN AGENT - as appropriate] BEING RELEASED.”

23. Add § 35.40-8 to read as follows:

§ 35.40-8 Carbon dioxide warning signs-T/ALL.

Each entrance to a space storing carbon dioxide cylinders, a space protected by carbon dioxide systems, or any space into which carbon dioxide might migrate must be conspicuously marked as follows:

(a) Spaces storing carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. VENTILATE THE AREA BEFORE ENTERING. A HIGH CONCENTRATION CAN OCCUR IN THIS AREA AND CAN CAUSE SUFFOCATION.”.

(b) Spaces protected by carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED, DO NOT ENTER UNTIL VENTILATED. LOCK OUT SYSTEM WHEN SERVICING.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

(c) Spaces into which carbon dioxide might migrate – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. DISCHARGE INTO NEARBY SPACE CAN COLLECT

HERE. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED VACATE IMMEDIATELY.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

24. Revise § 35.40-10 to read as follows:

§ 35.40-10 Steam, foam, carbon dioxide, or clean agent fire smothering apparatus-TB/ALL.

Each steam, foam, carbon dioxide, or clean agent fire fighting apparatus must be marked “[CARBON DIOXIDE/STEAM/FOAM/CLEAN AGENT – as appropriate] FIRE APPARATUS” in red letters at least 2 inches high. Branch pipe valves leading to the several compartments must be distinctly marked to indicate the compartments or parts of the vessel to which they lead.

PART 62—VITAL SYSTEM AUTOMATION

25. The authority citation for part 62 continues to read as follows:

Authority: 46 U.S.C. 3306, 3703, 8105; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

26. In § 62.01-1, revise the section heading and add a second sentence to read as follows:

§ 62.01-1 Purpose, preemptive effect.

* * * The regulations in this part have preemptive effect over State or local regulations in the same field.

27. In § 62.25-20, revise paragraph (d)(1)(ii) to read as follows:

§ 62.25-20 Instrumentation, alarms, and centralized stations.

* * * * *

(d) * * *

(1) * * *

(ii) Fire, general alarm, carbon dioxide/Halon 1301/clean agent fire extinguishing system, vital machinery, flooding, engineers' assistance-needed, and non-vital alarms.

* * * * *

PART 71—INSPECTION AND CERTIFICATION

28. The authority citation for part 71 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 2113, 3205, 3306, 3307; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; E.O. 12777, 56 FR 54757, 3 CFR, 1991 Comp., p. 351; Department of Homeland Security Delegation No. 0170.1.

29. Revise the subpart 71.01 subpart heading to read as follows:

Subpart 71.01—General Provisions; Certificate of Inspection

§ 71.01-1 [Redesignated as § 71.01-2]

30. Redesignate existing § 71.01-1 as § 71.01-2, and add new § 71.01-1 to read as follows:

§ 71.01-1 Preemptive effect.

The regulations in this part have preemptive effect over State or local regulations in the same field.

31. In § 71.20-20, revise paragraph (b) to read as follows:

§ 71.20-20 Specific tests and inspections.

* * * * *

(b) Installation of carbon dioxide or clean agent extinguishing piping in accordance with 46 CFR 76.15-15 and 46 CFR subpart 95.16.

* * * * *

32. In § 71.25-20, revise the section heading and Table 71.25-20(a)(2) to read as follows:

§ 71.25-20 Fire detecting and extinguishing equipment.

(a) * * *

(2) * * *

Table 71.25–20(a)(2)

Type system	Test
Foam	Systems utilizing a soda solution must have that solution replaced. In all cases, ascertain that powder is not caked.
Carbon dioxide	Weigh cylinders. Recharge cylinder if weight loss exceeds 10 percent of the weight of the charge. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer’s instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed carbon dioxide systems must be tested or renewed, as required by 46 CFR 147.60 and 147.65.
Halon 1301 and halocarbon	<p>Recharge or replace if weight loss exceeds 5 percent of the weight of the charge or if cylinder has a pressure gauge, recharge cylinder if pressure loss exceeds 10 percent, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer’s instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections to Halon 1301 and halocarbon cylinders must be tested or renewed, as required by 46 CFR 147.60 and 147.65 or 147.67.</p> <p>NOTE: Halon 1301 system approvals have expired, but existing systems may be retained if they are in good and serviceable condition to the satisfaction of the Coast Guard inspector.</p>
Inert gas	Recharge or replace cylinder if cylinder pressure loss exceeds 5 percent of the specified gauge pressure, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed inert extinguishers must be tested or renewed, as required by 46 CFR 147.60 and 147.66.
Water mist	Maintain system in accordance with the maintenance instructions in the system manufacturer’s design, installation, operation, and maintenance manual.

* * * * *

33. In § 71.65-5, revise paragraph (d)(6) to read as follows:

§ 71.65-5 Plans and specifications required for new construction.

* * * * *

(d) * * *

(6) Extinguishing systems, including fire main, carbon dioxide, clean agent, foam, and sprinkling systems.

* * * * *

PART 76—FIRE PROTECTION EQUIPMENT

34. The authority citation for part 76 continues to read as follows:

Authority: 46 U.S.C. 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

35. In § 76.01-1, revise the section heading and add paragraph (b) to read as follows:

§ 76.01-1 General; preemptive effect.

* * * * *

(b) The regulations in this part have preemptive effect over State or local regulations in the same field.

36. Revise § 76.05-1 to read as follows:

§ 76.05-1 Fire detecting systems.

(a) On the following vessels, approved fire detecting systems must be installed in the locations indicated by Table 76.05–1(a):

(1) Any vessel on an international voyage;

(2) Any vessel, not on an international voyage, of more than 150 feet in length having sleeping accommodations for passengers; and

(3) Any vessel, not on an international voyage, of 150 feet or less in length that has sleeping accommodations for 50 or more passengers; such vessels are not required to have a detecting system in the cargo spaces.

Table 76.05–1(a)

Space	Detecting systems	Fixed extinguishing systems
<i>Safety areas</i>		
Wheelhouse or fire-control room	None required. ¹	None required. ¹
Stairway and elevator enclosures	None required. ¹	None required. ¹
Communication corridors	None required. ¹	None required. ¹
Lifeboat embarkation and lowering stations	None required. ¹	None required. ¹
Radio room	None required. ¹	None required. ¹
<i>Accommodations</i>		
Staterooms, toilet spaces, isolated pantries, etc.	None required. ¹	None required. ¹
Offices, lockers, and isolated storerooms	Electric, pneumatic, or automatic sprinkling. ¹	None required. ¹
Public spaces	None required with 20-minute patrol. Electric, pneumatic, or automatic sprinkling with 1 hour patrol. ¹	None required. ¹
Open decks or enclosed promenades	None required.	None required.
<i>Service spaces</i>		
Galleys	None required. ¹	None required. ¹
Main pantries	None required. ¹	None required. ¹
Motion picture booths and film lockers	Electric, pneumatic, or automatic sprinkling. ^{1,2}	None required. ¹
Paint and lamp rooms	Smoke detecting. ²	Carbon dioxide ³ or

		clean agent system as described in 46 CFR subpart 95.16.
Inaccessible baggage, mail, and specie rooms and storerooms	Smoke detecting. ²	Carbon dioxide. ³
Accessible baggage, mail, and specie rooms and storerooms	Electric, pneumatic, or automatic sprinkling.	None required. ¹
Refrigerated storerooms	None required.	None required.
Carpenter, valet, photographic, and printing shops, sales rooms, etc.	Electric, pneumatic, or automatic sprinkling.	None required. ¹
<i>Machinery spaces</i>		
Coal fired boilers: Bunker and boiler space	None required.	None required. ¹
Oil fired boilers: Spaces containing oil fired boilers either main or auxiliary, their fuel oil service pumps, and/or such other fuel oil units as the heaters, strainers, valves, manifolds, etc., that are subject to the discharge pressure of the fuel oil service pumps, together with adjacent spaces to which oil can drain	None required.	Carbon dioxide or clean agent system as described in 46 CFR subpart 95.16 or foam. ⁴
Internal combustion or gas turbine propelling machinery spaces	None required.	Carbon dioxide or clean agent system as described in 46 CFR subpart 95.16. ⁵
Electric propulsive motors or generators of open type	None required.	None required.
Enclosed ventilating systems for motors and generators of electric propelling machinery	None required.	Carbon dioxide or clean agent system as described in 46 CFR subpart 95.16 (in ventilating system). ⁶
Auxiliary spaces, internal combustion, or gas turbine	None required.	Carbon dioxide or clean agent system as described in 46 CFR subpart 95.16. ⁷
Auxiliary spaces, electric motors, or generators	None required.	None required.
Auxiliary spaces, steam	None required.	None required.
Trunks to machinery spaces	None required.	None required.
Fuel tanks	None required.	None required. ⁸

<i>Cargo spaces</i>		
Inaccessible during voyage (combustible cargo), including trunks (excluding tanks)	Smoke detecting.	Carbon dioxide. ³
Accessible during voyage (combustible cargo)	Smoke detecting, electric, pneumatic or automatic sprinkling.	Automatic or manual sprinkling.
Vehicular deck (except where no overhead deck is 30 feet in length or less)	None required.	Manual sprinkling.
Cargo oil tanks	None required.	Carbon dioxide or foam. ³
Specially suitable for vehicles	Smoke detecting, electric, pneumatic or automatic sprinkling.	Carbon dioxide, automatic or manual sprinkling.

Notes to Table 76.01-5(a)

¹Vessels of 100 gross tons and over contracted for, on, or before May 27, 1936, and having combustible joiner work must be fitted with an automatic sprinkling system, except in relatively incombustible spaces.

²On vessels contracted for prior to November 19, 1952, electric or pneumatic detecting may be substituted.

³On vessels contracted for prior to January 1, 1962, a steam smothering system may be accepted. However, although existing steam smothering systems may be repaired, replaced, or extended, no new system contracted for on or after January 1, 1962, will be permitted.

⁴Protection of auxiliary boilers, fuel oil units, valves, and manifolds are not required on vessels contracted for prior to November 19, 1952.

⁵Not required on vessels less than 300 gross tons (except on an international voyage) using fuel with a flashpoint higher than 110° F., where the space is normally manned.

⁶Not required on vessels contracted for prior to November 19, 1952.

⁷Not required on vessels less than 300 gross tons nor on vessels contracted for prior to November 19, 1952, except when fuel, including starting fuel, has a flashpoint of 110 °F. or less.

⁸When fuel with a flashpoint of 110 °F. or lower is used, the space containing the fuel tanks must be protected by a carbon dioxide or clean agent system as described in 46 CFR subpart 95.16.

(b) The arrangements and details of the fire detecting systems must meet the requirements in 46 CFR subparts 76.25 through 76.33.

37. In § 76.10-5, revise paragraph (h) to read as follows:

§ 76.10-5 Fire pumps.

* * * * *

(h) If a vessel uses main or auxiliary oil fired boilers or internal combustion propulsion machinery, and is required to have two fire pumps, the pumps must be in separate spaces and the arrangement of pumps, sea connections, and sources of power must be arranged to ensure that a fire in any one space will not put all of the fire pumps out of operation. However, in vessels of less than 300 feet in length, when it is shown to the satisfaction of the Commandant that it is unreasonable or impracticable to meet this requirement due to the size or arrangement of the vessel, or for other reasons, the installation of a total flooding carbon dioxide or clean agent extinguishing system may be accepted as an alternate method of extinguishing any fire that affects the powering and operation of at least one of the required fire pumps.

38. Add § 76.15-50 to read as follows:

§ 76.15-50 Lockout valves.

(a) A lockout valve must be provided on any carbon dioxide extinguishing system protecting a space over 6,000 cubic feet in volume and installed or altered after July 9, 2013. “Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

(b) The lockout valve must be a manually operated valve located in the discharge manifold prior to the stop valve or selector valves. When in the closed position, the lockout valve must provide complete isolation of the system from the protected space or spaces, making

it impossible for carbon dioxide to discharge in the event of equipment failure during maintenance.

(c) The lockout valve design or locking mechanism must make it obvious whether the valve is open or closed.

(d) A valve is considered a lockout valve if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it.

(e) The master or person-in-charge must ensure that the valve is locked open at all times, except while maintenance is being performed on the extinguishing system, when the valve must be locked in the closed position.

(f) Lockout valves added to existing systems must be approved by the Commandant as part of the installed system.

39. Add § 76.15-60 to read as follows:

§ 76.15-60 Odorizing units.

Each carbon dioxide extinguishing system installed or altered after July 9, 2013, must have an approved odorizing unit to produce the scent of wintergreen, the detection of which will serve as an indication that carbon dioxide gas is present in a protected area and any other area into which the carbon dioxide may migrate. “Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

PART 78—OPERATIONS

40. The authority citation for part 78 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 2103, 3306, 6101; 49 U.S.C. 5103, 5106; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; E.O. 12777, 56 FR 54757, 3 CFR, 1991 Comp., p. 351; Department of Homeland Security Delegation No. 0170.1.

41. In § 78.01-1, revise the section heading and add paragraph (b) to read as follows:

§ 78.01-1 General; preemptive effect.

* * * * *

(b) The regulations in this part have preemptive effect over State or local regulations in the same field.

42. Revise § 78.47-9 to read as follows:

§ 78.47-9 Carbon dioxide and clean agent alarms.

Each carbon dioxide or clean agent fire extinguishing alarm must be conspicuously marked: “WHEN ALARM SOUNDS VACATE AT ONCE. CARBON DIOXIDE OR CLEAN AGENT BEING RELEASED.”.

43. Add § 78.47-11 to read as follows:

§ 78.47-11 Carbon dioxide warning signs.

Each entrance to a space storing carbon dioxide cylinders, a space protected by carbon dioxide systems, or any space into which carbon dioxide might migrate must be conspicuously marked as follows:

(a) Spaces storing carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. VENTILATE THE AREA BEFORE ENTERING. A HIGH CONCENTRATION CAN OCCUR IN THIS AREA AND CAN CAUSE SUFFOCATION.”.

(b) Spaces protected by carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED, DO NOT ENTER UNTIL VENTILATED. LOCK OUT SYSTEM WHEN

SERVICING.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

(c) Spaces into which carbon dioxide might migrate – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. DISCHARGE INTO NEARBY SPACE CAN COLLECT HERE. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED VACATE IMMEDIATELY.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

44. Revise § 78.47-17 to read as follows:

§ 78.47-17 Fire extinguishing system controls.

Each control cabinet or space containing valves or manifolds for a fire extinguishing system must be distinctly marked in conspicuous red letters at least 2 inches high: “[CARBON DIOXIDE/STEAM/FOAM/WATER SPRAY/MANUAL SPRINKLING/AUTOMATIC SPRINKLING/CLEAN AGENT – as appropriate] FIRE SYSTEM.”.

PART 91—INSPECTION AND CERTIFICATION

45. The authority citation for part 91 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 3205, 3306, 3307; 46 U.S.C. Chapter 701; Executive Order 12234; 45 FR 58801; 3 CFR, 1980 Comp., p. 277; Executive Order 12777, 56 FR 54757, 3 CFR, 1991 Comp., p. 351; Department of Homeland Security Delegation No. 0170.1.

46. In, revise the subpart 91.01 subpart heading to read as follows:

Subpart 91.01—General Provisions; Certificate of Inspection

§ 91.01-1 [Redesignated as § 91.01-2]

47. Redesignate existing § 91.01-1 as § 91.01-2, and add new § 91.01-1 to read as follows:

§ 91.01-1 Preemptive effect.

The regulations in this part have preemptive effect over State or local regulations in the same field.

48. In § 91.20-20, revise paragraph (b) to read as follows:

§ 91.20-20 Specific tests and inspections.

* * * * *

(b) For installation of carbon dioxide fire extinguishing system piping, see 46 CFR 95.15-15. For clean agent fire extinguishing piping, see 46 CFR 95.16-15.

* * * * *

49. In § 91.25-20, revise the section heading and Table 91.25-20(a)(2) to read as follows:

§ 91.25-20 Fire extinguishing equipment.

(a) * * *

(2) * * *

Table 91.25–20(a)(2)

Type system	Test
Foam	Systems utilizing a soda solution must have that solution replaced. In all cases, ascertain that powder is not caked.
Carbon dioxide	Weigh cylinders. Recharge cylinder if weight loss exceeds 10 percent of the weight of the charge. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer’s instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed carbon dioxide systems must be tested or renewed, as required by 46 CFR 147.60 and 147.65.
Halon 1301 and halocarbon	Recharge or replace if weight loss exceeds 5 percent of the weight of the charge or if cylinder has a pressure gauge, recharge cylinder if pressure loss exceeds 10 percent, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer’s instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections to Halon 1301 and halocarbon cylinders must be tested or renewed, as required by 46 CFR 147.60 and 147.65 or 147.67.

	NOTE: Halon 1301 system approvals have expired, but existing systems may be retained if they are in good and serviceable condition to the satisfaction of the Coast Guard inspector.
Inert gas	Recharge or replace cylinder if cylinder pressure loss exceeds 5 percent of the specified gauge pressure, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed inert extinguishers must be tested or renewed, as required by 46 CFR 147.60 and 147.66.
Water mist	Maintain system in accordance with the maintenance instructions in the system manufacturer's design, installation, operation, and maintenance manual.

* * * * *

50. In § 91.55-5, revise paragraph (d)(4) to read as follows:

§ 91.55-5 Plans and specifications required for new construction.

* * * * *

(d) * * *

(4) Details of extinguishing systems, including fire mains, carbon dioxide, clean agent, foam, and sprinkling systems.

* * * * *

PART 95—FIRE PROTECTION EQUIPMENT

51. The authority citation for part 95 continues to read as follows:

Authority: 46 U.S.C. 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

52. In § 95.01-1, revise the section heading and add paragraph (b) to read as follows:

§ 95.01-1 General; preemptive effect.

* * * * *

(b) The regulations in this part have preemptive effect over State or local regulations in the same field.

53. In § 95.05-10, revise paragraphs (e)(3)(ii) and (f) to read as follows:

§ 95.05-10 Fixed fire extinguishing systems.

* * * * *

(e) * * *

(3) * * *

(ii) On vessels of 1,000 gross tons and greater, a fixed carbon dioxide or clean agent system as described in 46 CFR subpart 95.16 must be installed in any space that contains internal combustion or gas turbine main propulsion machinery, or auxiliary machinery with an aggregate power of 1,000 b.h.p. or greater, or the fuel oil units of such machinery, including purifiers, valves, and manifolds.

(f) On vessels contracted for on or after November 19, 1952, where an enclosed ventilating system is installed for electric propulsion motors or generators, a fixed carbon dioxide extinguishing system must be installed in such a system.

54. In § 95.10-5, in paragraph (h), revise the second sentence to read as follows:

§ 95.10-5 Fire pumps.

* * * * *

(h) * * * However, when it is shown to the satisfaction of the Commandant that it is unreasonable or impracticable to meet this requirement due to the size or arrangement of the vessel, or for other reasons, the installation of a total flooding carbon dioxide or clean agent system may be accepted as an alternate method of extinguishing any fire that could affect the powering and operation of at least one of the required fire pumps.

55. In § 95.15-5, revise paragraphs (e)(1) and (2) to read as follows:

§ 95.15-5 Quantity, pipe sizes, and discharge rates.

* * * * *

(e) * * *

(1) The number of pounds of carbon dioxide required must be equal to the gross volume of the largest space which is capable of being sealed divided by 22. In no case, however, may the quantity be less than that required by paragraph (c)(2) of this section.

(2) The discharge of two thirds of the required quantity of carbon dioxide must be completed within 10 minutes. Any faster discharge rate is also acceptable.

* * * * *

56. Revise § 95.15-30 to read as follows:

§ 95.15-30 Alarms.

(a) A protected space must be fitted with an approved audible alarm if:

(1) The space is normally accessible to persons onboard while the vessel is being navigated; and

(2) Is not a paint locker or similar small space.

(b) The alarm must:

(1) Sound automatically and audibly for at least 20 seconds before carbon dioxide is discharged into the space;

(2) Be conspicuously and centrally located and be marked as required by 46 CFR 97.37-9; and

(3) Use stored gas power provided by the extinguishing agent, gas from pilot cylinders, or gas from cylinders specifically provided to power the alarms.

(c) For systems installed on or after July 1, 1957, alarms are mandatory only for systems required to be fitted with a delayed discharge.

57. Add § 95.15-50 to read as follows:

§ 95.15-50 Lockout valves.

(a) A lockout valve must be provided on any carbon dioxide extinguishing system protecting a space over 6,000 cubic feet in volume and installed or altered after July 9, 2013. “Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

(b) The lockout valve must be a manually operated valve located in the discharge manifold prior to the stop valve or selector valves. When in the closed position, the lockout valve must provide complete isolation of the system from the protected space or spaces, making it impossible for carbon dioxide to discharge in the event of equipment failure during maintenance.

(c) The lockout valve design or locking mechanism must make it obvious whether the valve is open or closed.

(d) A valve is considered a lockout valve if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it.

(e) The master or person-in-charge must ensure that the valve is locked open at all times, except while maintenance is being performed on the extinguishing system, when the valve must be locked in the closed position.

(f) Lockout valves added to existing systems must be approved by the Commandant as part of the installed system.

58. Add § 95.15-60 to read as follows:

§ 95.15-60 Odorizing units.

Each carbon dioxide extinguishing system installed or altered after July 9, 2013, must have an approved odorizing unit to produce the scent of wintergreen, the detection of which will serve as an indication that carbon dioxide gas is present in a protected area and any other area into which the carbon dioxide may migrate. “Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

59. Add subpart 95.16 to read as follows:

Subpart 95.16–Fixed Clean Agent Gas Extinguishing Systems, Details

Sec.

- 95.16-1 Application.
- 95.16-5 Controls.
- 95.16-10 Piping, fittings, valves, nozzles.
- 95.16-15 Extinguishing agent: quantity.
- 95.16-20 Extinguishing agent: cylinder storage.
- 95.16-25 Manifold and cylinder arrangements.
- 95.16-30 Enclosure openings.
- 95.16-35 Pressure relief.
- 95.16-40 Locked spaces.
- 95.16-45 Pre-discharge alarms and time delay devices.
- 95.16-50 Instructions.
- 95.16-60 System piping installation testing.
- 95.16-90 Installations contracted for prior to July 9, 2012.

Subpart 95.16–Fixed Clean Agent Gas Extinguishing Systems, Details

§ 95.16-1 Application.

- (a) “Clean agent” means a halocarbon or inert gas used as a fire extinguishing agent.
- (b) A clean agent extinguishing system must comply with this part. Systems contracted for prior to July 9, 2012, may, as an alternative, comply with 46 CFR 95.16-90.
- (c) Each clean agent system must:

(1) Be of a total flooding type to protect against Class B and Class C hazards as defined in 46 CFR 95.50-5;

(2) Address and minimize any hazard to personnel created by the effects of extinguishing agent decomposition products and combustion products, especially the effects of decomposition product hydrogen fluoride (HF), if applicable;

(3) Be accompanied by an approved manufacturer's design, installation, operation, and maintenance manual;

(4) Be used only to protect enclosed spaces;

(5) Not employ electric power for system actuation or controls; and

(6) Not use any source of power for alarms in protected spaces, other than the extinguishing agent, gas from pilot cylinders, or gas from cylinders specifically provided to power the alarms.

§ 95.16-5 Controls.

(a) At least one releasing station must be installed near the main entrance/exit to the protected space.

(b) System controls must be of an approved type and be suitably protected from damage and located outside the protected space.

(c) Systems must have releasing stations consisting of one control to operate the stop valve to the protected space and a second control to release at least the required amount of agent. These two controls must be located in a box or other enclosure clearly identified for the particular space.

(d) Systems protecting a single space not exceeding 6,000 cubic feet in gross volume may be installed without a stop valve if a suitable horizontal means of escape from the space exists.

(e) Controls may not be located in any space that could be cut off from the operator in the event of fire in the protected space.

(f) Where the extinguishing agent can be released by remote control, the system must have a manual local control at the cylinders.

(g) Systems with remotely operated releasing controls must have mechanical override features.

(h) Automatic discharge arrangements may be used for spaces having a gross volume less than 6,000 cubic feet. However, automatic discharge is required for spaces having a gross volume less than 6,000 cubic feet where the agent is stored in the protected space, as allowed by 46 CFR 95.16-20.

(i) A system designed to use gas pressure from one or more agent storage cylinders and provide pilot pressure to actuate the release of extinguishing agent from other storage cylinders that contain three or more total storage cylinders must be equipped with at least two designated pilot cylinders, each of which is capable of manual control at the pilot cylinder.

§ 95.16-10 Piping, fittings, valves, nozzles.

(a) Piping, fittings, and valves must be:

(1) In accordance with the manufacturer's approved design, installation, operation, and maintenance manual;

(2) Securely supported and when necessary protected against damage;

(3) Protected inside and out against corrosion; and

(4) Equipped with:

(i) Dead end lines (dirt traps) that extend at least 2 inches beyond the last nozzle of each distribution line and that are closed with a cap or plug; and

(ii) Drains and dirt traps, fitted where necessary to prevent dirt or moisture accumulation and located in accessible locations where possible.

(b) Piping requirements. Piping must be:

(1) Used exclusively for extinguishing system purposes;

(2) Protected by a pressure relief valve in sections where gas pressure can be trapped between closed valves; and

(3) Welded if it passes through living quarters.

(c) Piping prohibitions. Piping must not:

(1) Use rolled groove or cut groove ends; or

(2) Be fitted with drains or other openings if it passes through living quarters.

(d) Valve requirements. Valves for system operation must be:

(1) Outside the protected space, and

(2) Marked, if serving a branch line, to indicate the space the branch line serves.

(e) Valve prohibitions. Valves may not be located in any space that could be cut off from the operator in the event of fire in the protected space.

§ 95.16-15 Extinguishing agent: quantity.

A separate supply need not be provided for each space protected, but the total available supply must be at least sufficient for the space requiring the greatest amount.

§ 95.16-20 Extinguishing agent: cylinder storage.

(a) Unless installed as required in paragraph (b) of this section, the agent must be stored outside of the protected space. Common bulkheads and decks located between the cylinder storage room and the protected spaces must meet the insulation criteria for Class A-60, as defined in 46 CFR 72.05-10.

(b) The cylinders may be stored inside the protected space, if:

(1) The space does not exceed 6,000 cubic feet gross volume; and

(2) The system can be automatically operated by a pneumatic heat actuator as well as a remote manual control.

(c) The cylinder storage space must be properly ventilated and designed to preclude an anticipated ambient temperature in excess of 130° Fahrenheit.

(d) The cylinders must be securely fastened and supported as directed in the manufacturer's approved design, installation, operation, and maintenance manual, and where necessary protected against damage.

(e) The cylinders must be mounted so they are readily accessible and capable of easy removal for recharging and inspection and for weighing in the case of halocarbon system cylinders.

(f) The cylinders must be installed to provide a space of at least 2 inches between the deck and the bottom of the cylinders. A tray or other bottom support located 2 inches above the deck is an acceptable arrangement.

(g) The cylinders must be mounted upright, unless otherwise specified in the instruction manual.

(h) All cylinder storage room doors must open outward.

§ 95.16-25 Manifold and cylinder arrangements.

(a) A check valve must be provided between each cylinder and manifold or distribution piping. The valve must be permanently marked to indicate the direction of flow.

(b) If the same cylinder is used to protect more than one space, normally, closed stop valves must be provided to direct the agent into each protected space.

(c) Each cylinder must be fabricated, tested, and marked in accordance with 46 CFR 147.60(b) and 49 CFR part 180.

(d) The cylinders in a common manifold must be:

(1) Of the same size;

(2) Filled with the same amount of agent; and

(3) Pressurized to the same working pressure.

§ 95.16-30 Enclosure openings.

(a) If mechanical ventilation is provided for in a protected space, the ventilation system must automatically shut down prior to discharge of the system to that space.

(b) If natural ventilation is provided for in a space protected by a clean agent extinguishing system, the ventilation must be capable of being easily and effectively closed off.

(c) All other openings to a protected space must be capable of being closed. Doors, shutters, or dampers must be installed for openings in the lower portion of the space. Openings in the upper portion of the space must be capable of being closed off either by permanently installed means or by the use of canvas or other material normally carried on the vessel.

§ 95.16-35 Pressure relief.

Tight compartments, like refrigeration spaces and paint lockers, must have a way to relieve the accumulation of excessive pressure within the compartment when the extinguishing agent is injected.

§ 95.16-40 Locked spaces.

If a space or enclosure containing extinguishing agent supply or controls is lockable, a key to the space or enclosure must be in a break glass type box conspicuously located adjacent to the opening.

§ 95.16-45 Pre-discharge alarms and time delay devices.

(a) Each system protecting a space with greater than 6,000 cubic feet gross volume or a space less than 6,000 cubic feet gross volume without a suitable horizontal escape route must have a pneumatic pre-discharge alarm and time delay.

(1) The time delay period must:

(i) Last at least 20 seconds;

(ii) Be approved by the Officer in Charge, Marine Inspection during system installation;

and

(iii) Provide enough time for one person to walk from the farthest area of the protected space to the primary exit.

(2) The time delay device must be pneumatically operated and have an accuracy of -0/+20 percent of the rated time delay period throughout the operating temperature range and range of delay settings.

(b) The pre-discharge alarm must:

(1) Sound for the duration of the time delay;

(2) Be conspicuously and centrally located in the protected space and marked as required by 46 CFR 97.37-9;

(3) Depend on the extinguishing agent, gas from a pilot cylinder, or a nitrogen cylinder specifically provided to power the alarm for its source of power; and

(4) Be audible over running machinery.

§ 95.16-50 Instructions.

(a) Simple, complete operating instructions must be conspicuously located at or near any release station and in the extinguishing agent cylinder storage room.

(b) On a system in which extinguishing agent cylinders are stored outside the protected space, operating instructions must also:

(1) Include a schematic diagram of the system; and

(2) Describe alternate methods of discharging the extinguishing agent into protected spaces should the manual releases or stop valve controls fail to operate.

§ 95.16-60 System piping installation testing.

(a) Halocarbon systems. A pressure test using the extinguishing agent, air or inert gas, must be conducted on halocarbon system discharge piping on completion of piping installation and before extinguishing agent cylinders are connected.

(1) Except as otherwise specified in this section:

(i) Piping from the cylinders to the stop valves or selector valves must be subjected to a pressure of 1-1/2 times the cylinder charging pressure at 70° Fahrenheit; and

(ii) The leakage during a 2-minute period must not exceed a pressure drop of 10 percent of the test pressure.

(2) Individual branch lines to a protected space must be tested as described in paragraph (a)(1) of this section, except that:

(i) The pressure must be 150 pounds per square inch; and

(ii) Distribution piping must be capped within the protected space at the first joint upstream of the nozzles.

(3) Pneumatic actuation piping must be tested as described in paragraph (a)(1) of this section.

(b) Inert gas systems. A pressure test using air or inert gas must be conducted on each inert gas system's piping on completion of piping installation and before extinguishing agent cylinders are connected.

(1) Except as otherwise specified in this section:

(i) Piping from the cylinders to the stop valves or selector valves must be subjected to a pressure of 1,000 pounds per square inch (psi) at 70° Fahrenheit; and

(ii) The leakage during a 2-minute period must not exceed a pressure drop of 100 psi.

(2) Individual branch lines to a protected space must be tested as described in paragraph (b)(1) of this section, except that:

(i) The pressure must be 600 psi; and

(ii) Distribution piping must be capped within the protected space at the first joint upstream of the nozzles.

(3) Pneumatic actuation piping must be tested as described in paragraph (b)(1) of this section.

(c) Small independent systems. In lieu of test requirements in paragraphs (a) or (b) of this section, a small independent halocarbon or inert gas system, like those found in emergency generator rooms and paint lockers, may be tested by blowing out the piping with air pressure of at least 100 psi, if:

(1) There are no valves in the system discharge piping; and

(2) There is not more than one change in direction between the agent container and the discharge nozzle.

§ 95.16-90 Installations contracted for prior to July 9, 2012.

Installations contracted for prior to July 9, 2012, must meet the requirements of this subpart unless previously approved existing arrangements, materials, and facilities are:

(a) Maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection; and

(b) Subjected to no more than minor repairs or alterations implemented to the same standards as the original installation.

PART 97—OPERATIONS

60. The authority citation for part 97 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 2103, 3306, 6101; 49 U.S.C. 5103, 5106; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; E.O. 12777, 56 FR 54757; 3 CFR, 1991 Comp., p. 351; Department of Homeland Security Delegation No. 0170.1.

61. In § 97.01-1, revise the section heading and add paragraph (b) to read as follows:

§ 97.01-1 General; preemptive effect.

* * * * *

(b) The regulations in this part have preemptive effect over State or local regulations in the same field.

62. Revise § 97.37-9 to read as follows:

§ 97.37-9 Carbon dioxide and clean agent alarms.

Each carbon dioxide or clean agent fire extinguishing alarm must be conspicuously marked: “WHEN ALARM SOUNDS VACATE AT ONCE. CARBON DIOXIDE OR CLEAN AGENT BEING RELEASED.”.

63. Add § 97.37-11 to read as follows:

§ 97.37-11 Carbon dioxide warning signs.

Each entrance to a space storing carbon dioxide cylinders, a space protected by carbon dioxide systems, or any space into which carbon dioxide might migrate must be conspicuously marked as follows:

(a) Spaces storing carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. VENTILATE THE AREA BEFORE ENTERING. A HIGH CONCENTRATION CAN OCCUR IN THIS AREA AND CAN CAUSE SUFFOCATION.”.

(b) Spaces protected by carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED, DO NOT ENTER UNTIL VENTILATED. LOCK OUT SYSTEM WHEN SERVICING.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

(c) Spaces into which carbon dioxide might migrate – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. DISCHARGE INTO NEARBY SPACE CAN COLLECT HERE. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED VACATE IMMEDIATELY.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

64. Revise § 97.37-13 to read as follows:

§ 97.37-13 Fire extinguishing system controls.

The control cabinets or spaces containing valves or manifolds for the various fire extinguishing systems must be distinctly marked in conspicuous red letters at least 2 inches high: “[STEAM/CARBON DIOXIDE/CLEAN AGENT/FOAM/WATER SPRAY – as appropriate] FIRE APPARATUS.”.

PART 107—INSPECTION AND CERTIFICATION

65. The authority citation for part 107 continues to read as follows:

Authority: 43 U.S.C. 1333; 46 U.S.C. 3306, 3307; 46 U.S.C. 3316; Department of Homeland Security Delegation No. 0170.1; §107.05 also issued under the authority of 44 U.S.C. 3507.

66. In § 107.01, revise the section heading, redesignate the existing text as paragraph (a), and add paragraph (b) to read as follows:

§ 107.01 Purpose; preemptive effect.

* * * * *

(b) The regulations in this part have preemptive effect over State or local regulations in the same field.

67. In § 107.231, add paragraph (w) to read as follows:

§ 107.231 Inspection for certification.

* * * * *

(w) Piping for each halocarbon and inert gas extinguishing system must be tested in accordance with 46 CFR 95.16-60.

* * * * *

68. In § 107.235, revise the section heading and paragraph (b) and remove the note at the end of the section.

The revisions read as follows:

§ 107.235 Servicing of hand portable fire extinguishers, semi-portable fire extinguishers and fixed fire extinguishing systems.

* * * * *

(b) Each fixed fire extinguishing system must be examined for excessive corrosion and general condition and checked and serviced as indicated, depending on the extinguishing agent used by the system.

(1) Carbon dioxide: Weigh cylinders. Recharge cylinder if weight loss exceeds 10 percent of the weight of the charge. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed carbon dioxide systems must be tested or renewed, as required by 46 CFR 147.60 and 147.65.

(2) Halon 1301 or Halocarbon: Recharge or replace if weight loss exceeds 5 percent of the weight of the charge or, if cylinder has a pressure gauge, recharge cylinder if pressure loss exceeds 10 percent, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible Halon 1301 and halocarbon connections must be tested or renewed as required by 46 CFR 147.60 and 147.65 or 147.67. Note that Halon 1301 system approvals have expired, but that existing systems may be retained if they are in good and serviceable condition to the satisfaction of the Coast Guard inspector.

(3) Inert gas: Recharge or replace cylinder if cylinder pressure loss exceeds 5 percent of specified gauge pressure, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are

unobstructed. Cylinders must be tested and marked, and all flexible connections must be tested or renewed as required by 46 CFR 147.60 and 147.66.

(4) Foam, except premix systems: Discharge foam for approximately 15 seconds from a nozzle designated by the marine inspector. Discharge water from all other lines and nozzles. Submit a sample of the foam liquid to the manufacturer or its authorized representative for determination of specific gravity, pH, percentage of water dilution, and solid content and for certification as a suitable firefighting foam.

(5) Premix aqueous film forming foam: Remove the pressure cartridge and replace the cartridge if the seal is punctured, sampling the premix solution in accordance with the manufacturer's instructions, and replacing any cylinders that are discharged.

PART 108—DESIGN AND EQUIPMENT

69. The authority citation for part 108 continues to read as follows:

Authority: 43 U.S.C. 1333; 46 U.S.C. 3102, 3306; Department of Homeland Security Delegation No. 0170.1.

70. Add § 108.102 to read as follows:

§ 108.102 Preemptive effect.

The regulations in this part have preemptive effect over State or local regulations in the same field.

71. Add § 108.444 to read as follows:

§ 108.444 Lockout valves.

(a) A lockout valve must be provided on any carbon dioxide extinguishing system protecting a space over 6,000 cubic feet in volume and installed or altered after July 9, 2013.

“Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

(b) The lockout valve must be a manually operated valve located in the discharge manifold prior to the stop valve or selector valves. When in the closed position, the lockout valve must provide complete isolation of the system from the protected space or spaces, making it impossible for carbon dioxide to discharge in the event of equipment failure during maintenance.

(c) The lockout valve design or locking mechanism must make it obvious whether the valve is open or closed.

(d) A valve is considered a lockout valve if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it.

(e) The master or person-in-charge must ensure that the valve is locked open at all times, except while maintenance is being performed on the extinguishing system, when the valve must be locked in the closed position.

(f) Lockout valves added to existing systems must be approved by the Commandant as part of the installed system.

72. Add § 108.446 to read as follows:

§ 108.446 Odorizing units.

Each carbon dioxide extinguishing system installed or altered after July 9, 2013, must have an approved odorizing unit to produce the scent of wintergreen, the detection of which will serve as an indication that carbon dioxide gas is present in a protected area and any other area into which the carbon dioxide may migrate. “Altered” means modified or refurbished beyond

the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

73. Add § 108.626 to read as follows:

§ 108.626 Carbon dioxide warning signs.

Each entrance to a space storing carbon dioxide cylinders, a space protected by carbon dioxide systems, or any space into which carbon dioxide might migrate must be conspicuously marked as follows:

(a) Spaces storing carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. VENTILATE THE AREA BEFORE ENTERING. A HIGH CONCENTRATION CAN OCCUR IN THIS AREA AND CAN CAUSE SUFFOCATION.”.

(b) Spaces protected by carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED, DO NOT ENTER UNTIL VENTILATED. LOCK OUT SYSTEM WHEN SERVICING.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

(c) Spaces into which carbon dioxide might migrate – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. DISCHARGE INTO NEARBY SPACE CAN COLLECT HERE. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED VACATE IMMEDIATELY.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

74. In § 108.627, revise the section heading to to read as follows:

§ 108.627 Carbon dioxide and clean agent alarms.

* * * * *

75. In § 108.631, revise paragraph (a) to read as follows:

§ 108.631 Fixed fire extinguishing system controls.

(a) Each cabinet or space that contains a valve, control, or manifold of a fixed fire extinguishing system must be marked in conspicuous red letters at least 2 inches high:

“[CARBON DIOXIDE/CLEAN AGENT/FOAM/WATER SPRAY – as appropriate] FIRE APPARATUS.”.

* * * * *

PART 112—EMERGENCY LIGHTING AND POWER SYSTEMS

76. 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.

77. In § 112.05-1, revise the section heading and add paragraph (d) to read as follows:

§ 112.05-1 Purpose; preemptive effect.

* * * * *

(d) The regulations in this part have preemptive effect over State or local regulations in the same field.

78. In § 112.15-5, revise paragraph (v) to read as follows:

§ 112.15-5 Final emergency loads.

* * * * *

(v) Each smoke extraction fan, not including smoke detector sampling, and carbon dioxide or clean agent exhaust fans for spaces.

PART 115—INSPECTION AND CERTIFICATION

79. The authority citation for part 115 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 2103, 3205, 3306, 3307; 49 U.S.C. App. 1804; E.O. 11735, 38 FR 21243, 3 CFR, 1971–1975 Comp., p. 743; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1

80. In, revise the subpart A heading to read as follows:

Subpart A—General Provisions; Certificate of Inspection

§§ 115.2 through 115.99 [Reserved]

81. In subpart A, add reserved §§ 115.2 through 115.99 and add § 115.1 to read as follows:

§ 115.1 Preemptive effect.

The regulations in this part have preemptive effect over State or local regulations in the same field.

82. In § 115.810, revise Table 115.810(b) to read as follows:

§ 115.810 Fire protection.

* * * * *

(b) * * *

Table 115.810(b)—Semiportable and Fixed Fire Extinguishing Systems

Type system	Test
Carbon dioxide	Weigh cylinders. Recharge cylinder if weight loss exceeds 10 percent of the weight of the charge. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer’s instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed carbon dioxide systems must be tested or renewed, as required by 46 CFR 147.60 and 147.65.
Halon 1301 and halocarbon	Recharge or replace if weight loss exceeds 5 percent of the weight of the charge or if cylinder has a pressure gauge, recharge cylinder if pressure loss exceeds 10 percent, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other

	nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections to Halon 1301 and halocarbon cylinders must be tested or renewed, as required by 46 CFR 147.60 and 147.65 or 147.67. Note that Halon 1301 system approvals have expired, but that existing systems may be retained if they are in good and serviceable condition to the satisfaction of the Coast Guard inspector.
Dry chemical (cartridge operated)	Examine pressure cartridge and replace if end is punctured, has leaked, or is otherwise unsuitable. Inspect hose and nozzle to see if they are clear. Insert charged cartridge. Ensure dry chemical is free flowing, not caked, and extinguisher contains full charge.
Dry chemical (stored pressure)	See that pressure gauge is in the operating range. If not, or if the seal is broken, weigh or otherwise determine that extinguisher is fully charged with dry chemical. Recharge cylinder if pressure is low or if dry chemical is needed.
Foam (stored pressure)	See that the pressure gauge is in the operating range. If not, or if the seal is broken, weigh or otherwise determine that extinguisher is fully charged with foam. Recharge cylinder if pressure is low or if foam is needed. Replace premixed agent every 3 years.
Inert gas	Recharge or replace cylinder if cylinder pressure loss exceeds 5 percent of the specified gauge pressure, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed inert extinguishers must be tested or renewed as required by 46 CFR 147.60 and 147.66.
Water mist	Maintain system in accordance with maintenance instructions in system manufacturer's design, installation, operation, and maintenance manual.

* * * * *

PART 118—FIRE PROTECTION EQUIPMENT

83. The authority citation for part 118 continues to read as follows:

Authority: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

84. In § 118.115, revise the section heading and add paragraph (d) to read as follows:

§ 118.115 Applicability; preemptive effect.

* * * * *

(d) The regulations in this part have preemptive effect over State or local regulations in the same field.

85. In § 118.410, add paragraphs (f)(7) through (12) and (h) to read as follows:

§ 118.410 Fixed gas fire extinguishing systems.

* * * * *

(f) * * *

(7) A lockout valve must be provided on any carbon dioxide extinguishing system protecting a space over 6,000 cubic feet in volume and installed or altered after [July 9, 2013]. “Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

(8) The lockout valve must be a manually operated valve located in the discharge manifold prior to the stop valve or selector valves. When in the closed position, the lockout valve must provide complete isolation of the system from the protected space or spaces, making it impossible for carbon dioxide to discharge in the event of equipment failure during maintenance.

(9) The lockout valve design or locking mechanism must make it obvious whether the valve is open or closed.

(10) A valve is considered a lockout valve if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it.

(11) The master or person-in-charge must ensure that the valve is locked open at all times, except while maintenance is being performed on the extinguishing system, when the valve must be locked in the closed position.

(12) Lockout valves added to existing systems must be approved by the Commandant as part of the installed system.

* * * * *

(h) Each carbon dioxide extinguishing system installed or altered after July 9, 2013, must have an approved odorizing unit to produce the scent of wintergreen, the detection of which will serve as an indication that carbon dioxide gas is present in a protected area and any other area into which the carbon dioxide may migrate. "Altered" means modified or refurbished beyond the maintenance required by the manufacturer's design, installation, operation and maintenance manual.

* * * * *

PART 119—MACHINERY INSTALLATION

86. The authority citation for part 119 continues to read as follows:

Authority: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

87. In § 119.100, revise the section heading and add a third sentence to read as follows:

§ 119.100 Intent; preemptive effect.

* * * The regulations in this part have preemptive effect over State or local regulations in the same field.

88. In § 119.710, revise paragraph (a)(3) to read as follows:

§ 119.710 Piping for vital systems.

(a) * * *

(3) Carbon dioxide, Halon 1301, and clean agent systems;

* * * * *

PART 122—OPERATIONS

89. The authority citation for part 122 continues to read as follows:

Authority: 46 U.S.C. 2103, 3306, 6101; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

90. In § 122.115, revise the section heading and add paragraph (d) to read as follows:

§ 122.115 Applicability; preemptive effect.

* * * * *

(d) The regulations in this part have preemptive effect over State or local regulations in the same field.

91. In § 122.612, add paragraph (i) to read as follows:

§ 122.612 Fire protection equipment.

* * * * *

(i) Carbon dioxide warning signs. Each entrance to a space storing carbon dioxide cylinders, a space protected by carbon dioxide systems, or any space into which carbon dioxide might migrate must be conspicuously marked as follows:

(1) Spaces storing carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. VENTILATE THE AREA BEFORE ENTERING. A HIGH CONCENTRATION CAN OCCUR IN THIS AREA AND CAN CAUSE SUFFOCATION.”.

(2) Spaces protected by carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED, DO NOT ENTER UNTIL VENTILATED. LOCK OUT SYSTEM WHEN SERVICING.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

(3) Spaces into which carbon dioxide might migrate – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. DISCHARGE INTO NEARBY SPACE CAN COLLECT HERE. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED VACATE IMMEDIATELY.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

PART 131—OPERATIONS

92. The authority citation for part 131 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 3306, 6101, 10104; E.O. 12234, 3 CFR, 1980 Comp., p. 277; E.O. 12777, 3 CFR, 1991 Comp., p. 351; Department of Homeland Security Delegation No. 0170.1.

93. Revise the subpart A heading to read as follows:

Subpart A—General Provisions; Notice of Casualty and Records of Voyage

§§ 131.101 through 131.109 [Reserved]

94. In subpart A, add reserved §§ 131.101 through 131.109 and add § 131.100 to read as follows:

§ 131.100 Preemptive effect.

The regulations in this part have preemptive effect over State or local regulations in the same field.

95. Revise § 131.815 to read as follows:

§ 131.815 Carbon dioxide and clean agent alarms.

Each carbon dioxide or clean agent fire extinguishing alarm must be conspicuously marked: “WHEN ALARM SOUNDS VACATE AT ONCE. CARBON DIOXIDE OR CLEAN AGENT BEING RELEASED.”.

96. Add § 131.817 to read as follows:

§ 131.817 Carbon dioxide warning signs.

Each entrance to a space storing carbon dioxide cylinders, a space protected by carbon dioxide systems, or any space into which carbon dioxide might migrate must be conspicuously marked as follows:

(a) Spaces storing carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. VENTILATE THE AREA BEFORE ENTERING. A HIGH CONCENTRATION CAN OCCUR IN THIS AREA AND CAN CAUSE SUFFOCATION.”.

(b) Spaces protected by carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED, DO NOT ENTER UNTIL VENTILATED. LOCK OUT SYSTEM WHEN SERVICING.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

(c) Spaces into which carbon dioxide might migrate – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. DISCHARGE INTO NEARBY SPACE CAN COLLECT HERE. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED VACATE IMMEDIATELY.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

97. Revise § 131.825 to read as follows:

§ 131.825 Fixed fire extinguishing system controls.

Each control cabinet or space containing a valve or manifold for a fire extinguishing system must be distinctly marked in conspicuous red letters at least 2 inches high: “[CARBON DIOXIDE/HALON/CLEAN AGENT] FIRE APPARATUS”, as appropriate.

PART 132—FIRE-PROTECTION EQUIPMENT

98. The authority citation for part 132 continues to read as follows:

Authority: 46 U.S.C. 3306, 3307; Department of Homeland Security Delegation No. 0170.1.

99. Revise the subpart A heading to read as follows:

Subpart A—General Provisions; Fire Main

100. In § 132.100, revise the section heading and add paragraph (d) to read as follows:

§ 132.100 General; preemptive effect.

* * * * *

(d) The regulations in this part have preemptive effect over State or local regulations in the same field.

101. In § 132.350, revise Table 132.350 to read as follows:

* * * * *

Table 132.350—Tests of Semiportable and Fixed Fire-Extinguishing Systems

Type of system	Test
Carbon dioxide	Weigh cylinders. Recharge cylinder if weight loss exceeds 10 percent of the weight of the charge. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer’s instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed carbon dioxide systems must be tested or renewed, as required by 46 CFR 147.60 and 147.65.
Halon 1301	Recharge or replace if weight loss exceeds 5 percent of the weight of the charge

and halocarbon	or if cylinder has a pressure gauge, recharge cylinder if pressure loss exceeds 10 percent, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections to Halon 1301 and halocarbon cylinders must be tested or renewed, as required by 46 CFR 147.60 and 147.65 or 147.67. Note that Halon 1301 system approvals have expired, but that existing systems may be retained if they are in good and serviceable condition to the satisfaction of the Coast Guard inspector.
Dry chemical (cartridge-operated)	Examine pressure cartridge and replace if end is punctured or if cartridge has leaked or is otherwise unsuitable. Inspect hose and nozzle to see that they are clear. Insert charged cartridge. Ensure that dry chemical is free-flowing (not caked) and that extinguisher contains full charge.
Dry chemical (stored pressure)	See that pressure gauge is in operating range. If not, or if seal is broken, weigh or otherwise determine that extinguisher is fully charged with dry chemical. Recharge if pressure is low or if dry chemical is needed.
Foam (stored pressure)	See that any pressure gauge is in the operating range. If it is not, or if seal is broken, weigh or otherwise determine that extinguisher is fully charged with foam. Recharge if pressure is low or if foam is needed. Replace premixed agent every 3 years.
Inert gas	Recharge or replace cylinder if cylinder pressure loss exceeds 5 percent of the specified gauge pressure, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed inert extinguishers must be tested or renewed as required by 46 CFR 147.60 and 147.66.
Water mist	Maintain system in accordance with the maintenance instructions in the system manufacturer's design, installation, operation, and maintenance manual.

* * * * *

PART 147—HAZARDOUS SHIPS' STORES

102. The authority citation for part 147 continues to read as follows:

Authority: 46 U.S.C. 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

103. In § 147.1, revise the section heading and add paragraph (d) to read as follows:

§ 147.1 Purpose; applicability; preemptive effect.

* * * * *

(d) The regulations in this part have preemptive effect over State or local regulations in the same field.

104. Revise § 147.7 to read as follows:

§ 147.7 Incorporation by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish notice of change in the Federal Register and the material must be available to the public. All approved material is available for inspection at the Coast Guard, Office of Operating and Environmental Standards (CG-522), 2100 2nd Street SW., Stop 7126, Washington, DC 20593-7126, and is available from the sources listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030 or go to

http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(b) American Boat and Yacht Council, Inc. (ABYC), 613 Third Street, Suite 10, Annapolis, MD 21403, telephone 410-990-4460, *www.abyc.org*.

(1) ABYC H-25-81, Portable Fuel Systems and Portable Containers for Flammable Liquids, (May 12, 1981), ("ABYC H-25-81"), IBR approved for § 147.45.

(2) [Reserved].

(c) American Society of Heating, Refrigerating, and Air-Conditioning Engineers, Inc. (ASHRAE), Publication Sales Department, 1791 Tullie Circle, NE., Atlanta, GA 30329, telephone 404-636-8400, *www.ashrae.org*.

(1) ANSI/ASHRAE 34–78, Number Designation of Refrigerants (approved 1978), ("ANSI/ASHRAE 34-78"), IBR approved for § 147.90.

(2) [Reserved].

(d) National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA, 02169-7471, telephone 617-770-3000, *www.nfpa.org*.

(1) NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems, 2008 Edition, ("NFPA 2001"), IBR approved for §§ 147.66 and 147.67.

(2) [Reserved].

(e) Public Health Service, Department of Health and Human Services (DHHS), Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

(1) DHHS Publication No. (PHS) 84–2024, The Ship's Medicine Chest and Medical Aid at Sea (revised 1984), ("DHHS Publication No. (PHS) 84-2024"), IBR approved for § 147.105.

(2) [Reserved].

(f) Underwriters Laboratories, Inc. (UL), 333 Pfingsten Road, Northbrook, IL 60062, telephone 847-272-8800, *www.ul.com*.

(1) UL 30, Standard for Metal Safety Cans, 7th Ed. (revised March 3, 1987), ("UL 30"), IBR approved for § 147.45.

(2) UL 1185, Standard for Portable Marine Fuel Tanks, Second Edition, revised July 6, 1984, ("UL 1185"), IBR approved for § 147.45.

(3) UL 1313, Standard for Nonmetallic Safety Cans for Petroleum Products, 1st Ed. (revised March 22, 1985), ("UL 1313"), IBR approved for § 147.45.

(4) UL 1314, Standard for Special-Propose Containers, 1st Ed. (revised February 7, 1984), ("UL 1314"), IBR approved for § 147.45.

105. In § 147.45, revise paragraphs (f)(4) through (6) to read as follows:

§ 147.45 Flammable and combustible liquids.

* * * * *

(f) * * *

(4) A portable outboard fuel tank meeting the specifications of ABYC H-25-81 (incorporated by reference, see § 147.7) or one identified by Underwriters Laboratories as meeting the specifications of UL 1185 (incorporated by reference, see § 147.7);

(5) A portable safety container identified by Underwriters Laboratories as meeting the specifications of UL 30 or UL 1313 (both incorporated by reference, see § 147.7); or

(6) A portable safety container identified by Underwriters Laboratories as meeting the requirements of UL 1314 (incorporated by reference, see § 147.7).

* * * * *

106. In § 147.60, revise paragraph (a)(4) to read as follows:

§ 147.60 Compressed gases.

* * * * *

(a) * * *

(4) Except as provided in 46 CFR 147.65, 147.66, and 147.67, maintained and retested in accordance with 49 CFR 180.

* * * * *

107. Add § 147.66 to read as follows:

§ 147.66 Inert gas fire extinguishing systems.

(a) Inert gas cylinders forming part of a clean agent fixed fire extinguishing system must be retested every five years, except that cylinders with a water capacity of 125 pounds or less may be retested every 10 years in accordance with 49 CFR 180.209(b).

(b) An inert gas cylinder must be removed from service if it:

- (1) Leaks;
- (2) Is dented, bulging, severely corroded, or otherwise weakened;
- (3) Has lost more than 5 percent of its tare weight; or
- (4) Has been involved in a fire.

(c) Flexible connections between cylinders and discharge piping for fixed inert gas fire extinguishing systems must be renewed or retested in accordance with section 7.3 of NFPA 2001 (incorporated by reference, see § 147.7).

108. Add § 147.67 to read as follows:

§ 147.67 Halocarbon fire extinguishing systems.

(a) Each halocarbon cylinder forming part of a clean agent fixed fire extinguishing system must be:

(1) Retested at least once every 12 years and before recharging if it has been discharged and more than five years have elapsed since the last test; or

(2) As an alternative, a cylinder conforming to the requirements of 49 CFR 180.209(g) may be given the complete external visual inspection in lieu of hydrostatic testing provided for by that section.

(b) A halocarbon cylinder must be removed from service if it:

- (1) Leaks;
- (2) Is dented, bulging, severely corroded, or otherwise weakened;

- (3) Has lost more than 5 percent of its tare weight; or
- (4) Has been involved in a fire.

(c) Flexible connections between cylinders and discharge piping for halocarbon fire extinguishing systems must be renewed or retested in accordance with section 7.3 of NFPA 2001 (incorporated by reference, see § 147.7).

PART 162—ENGINEERING EQUIPMENT

109. The authority citation for part 162 continues to read as follows:

Authority: 33 U.S.C. 1321(j), 1903; 46 U.S.C. 3306, 3703, 4104, 4302; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; E.O. 11735, 38 FR 21243, 3 CFR, 1971–1975 Comp., p. 793; Department of Homeland Security Delegation No. 0170.1.

110. Revise the subpart 162.017 heading to read as follows:

Subpart 162.017—General Provisions; Valves, Pressure-Vacuum Relief, for Tank Vessels

111. Revise § 162.017-1 to read as follows:

§ 162.017-1 Preemptive effect; incorporation by reference.

(a) The regulations in this part have preemptive effect over State or local regulations in the same field.

(b) 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. To enforce any edition other than that specified in this section, the Coast Guard must publish notice of change in the Federal Register and the material must be available to the public. All approved material is available for inspection at the U.S. Coast Guard, Office of Design and Engineering Standards (CG-521), 2100 2nd St., SW., Stop 7126, Washington, DC 20593-7126, and is available from the sources listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-

741–6030 or go to

http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(c) International Organization for Standardization (ISO) , Case postal 56, CH–1211 Geneva 20, Switzerland, telephone +41 22 749 01 11, *www.iso.org*.

(1) ISO 15364, Ships and Marine Technology—Pressure/Vacuum Valves for Cargo Tanks, First Edition (Sep. 1, 2000), (“ISO 15364”), IBR approved for § 162.017–3.

(2) [Reserved]

112. Add subpart 162.161 to read as follows:

Subpart 162.161--Fixed Clean Agent Fire Extinguishing Systems

Sec.

162.161-1 Scope.

162.161-2 Incorporation by reference.

162.161-3 Materials.

162.161-4 Construction.

162.161-5 Instruction manual for design, installation, operation, and maintenance.

162.161-6 Tests for approval.

162.161-7 Inspections at production.

162.161-8 Marking.

162.161-9 Procedure for approval.

Subpart 162.161--Fixed Clean Agent Fire Extinguishing Systems

§ 162.161-1 Scope.

(a) This subpart applies to each engineered fixed fire extinguishing system using a halocarbon or an inert gas as an agent. It does not apply to pre-engineered systems.

(b) Each system must be designed for protection against fires in both Class B flammable liquids and Class C energized electrical equipment, as those hazard classes are defined in NFPA 2001 (incorporated by reference, see § 162.161-2).

(c) Each system must meet the requirements of this subpart, be listed or approved by an independent laboratory approved by the Coast Guard and listed at <http://cgmix.uscg.mil/>, bear the mark of the laboratory, and be approved by the Coast Guard under 46 CFR 159.005-13.

§ 162.161-2 Incorporation by reference.

(a) Certain material is incorporated by reference into this subpart with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish a notice of change in the Federal Register and the material must be available to the public. All approved material is available for inspection at U.S. Coast Guard, Office of Operating and Environmental Standards (CG-522), 2100 2nd Street SW., Stop 7126, Washington, DC 20593-7126, and is available from the sources indicated in this section, and is available from the sources listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030 or go to http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

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

(1) MSC/Circ. 848, Revised Guidelines for The Approval of Equivalent Fixed Gas Fire-Extinguishing Systems, as Referred to in SOLAS 74, for Machinery Spaces and Cargo Pump-Rooms (June 8, 1998), ("MSC/Circ. 848"), IBR approved for § 162.161-6.

(2) MSC.1/Circ. 1267, Amendments to Revised Guidelines for the Approval of Equivalent Fixed Gas Fire-Extinguishing Systems, as Referred to in SOLAS 74, for Machinery

Spaces and Cargo Pump-Rooms (MSC/Circ. 848) (June 4, 2008), ("MSC.1/Circ. 1267"), IBR approved for § 162.161-6.

(c) National Fire Protection Association (NFPA), 1 Batterymarch Park, Quincy, MA 02169-7471, telephone 617-770-3000, <http://www.nfpa.org>.

(1) NFPA 2001, Standard on Clean Agent Fire Extinguishing Systems, 2008 Edition, ("NFPA 2001"), IBR approved for §§ 162.161-1 and 162.161-3.

(2) [Reserved].

(d) Underwriters Laboratories, Inc. (UL), 333 Pfingsten Road, Northbrook, IL 60062, telephone 847-272-8800, www.ul.com.

(1) UL 2127, Standard for Safety for Inert Gas Clean Agent Extinguishing System Units (Revised March 22, 2001), ("UL 2127"), IBR approved for §§ 162.161-5, 162.161-6 and 162.161-7.

(2) UL 2166, Standard for Safety for Halocarbon Clean Agent Extinguishing System Units (Revised March 22, 2001), ("UL 2166"), IBR approved for §§ 162.161-5, 162.161-6 and 162.161-7.

§ 162.161-3 Materials.

(a) All system components must meet the requirements of NFPA 2001 (incorporated by reference, see § 162.161-2) and be made of metal, except for bushings, o-rings, and gaskets. Aluminum or aluminum alloys may not be used.

(b) Metal components must:

(1) Have a solidus melting point of at least 1700° Fahrenheit;

(2) Be corrosion resistant; and

(3) Be galvanically compatible with each adjoining metal component, or if galvanically incompatible, be separated by a bushing, o-ring, gasket, or similar device.

(c) Each extinguishing agent must be:

(1) Listed as an acceptable total flooding agent for occupied areas on the Environmental Protection Agency's Significant New Alternative Products (SNAP) list, 40 CFR part 82, subpart G, Appendix A; and

(2) Identified as an extinguishing agent in NFPA 2001 (incorporated by reference, see § 162.161-2).

(d) The extinguishing concentration of extinguishing agent required for each system must be determined by the cup burner method, described in NFPA 2001 (incorporated by reference, see § 162.161-2), for the specific fuel requiring the highest extinguishing concentration.

(e) The design concentration of the agent required for each protected space must be calculated using a safety factor of 1.3 times the extinguishing concentration. The quantity must be calculated at the minimum expected ambient temperature using the design concentration based on either:

(1) Gross volume, including the casing, bilge, and free air contained in air receivers; or

(2) Net volume, calculated as shown in NFPA 2001 (incorporated by reference, see § 162.161-2), including the casing, bilge, and free air contained in air receivers, if one of the following is satisfactorily performed:

(i) Full discharge test; or

(ii) Enclosure integrity procedure in accordance with Annex C of NFPA 2001; for discharge or enclosure integrity tests, the minimum concentration hold time must be 15 minutes,

and the extinguishing agent concentration at the end of the hold time must be at least 85 percent of the design concentration.

(f) If fuel can drain from the compartment being protected to an adjacent compartment or if the compartments are not entirely separate, the quantity must be sufficient for both compartments.

§ 162.161-4 Construction.

(a) Each pressure vessel must comply with 46 CFR 147.60(a) and (b).

(b) Each system must be capable of operation without an external power source.

(c) Manual actuation for the system must be by mechanical or pneumatic means.

(d) Automatically actuated systems must be released by pneumatic or fusible element detection systems.

(e) Each system installed with the extinguishing agent cylinders stored inside a protected space of 6,000 cubic feet or less must use automatic actuation as the primary means of actuation and have a remote backup manual mechanical actuator.

(f) Each container charged with nitrogen must have a pressure gauge.

§ 162.161-5 Instruction manual for design, installation, operation, and maintenance.

(a) The manufacturer must prepare a system instruction manual for design, installation, operation, and maintenance of the system. The manual must be reviewed and accepted by an independent laboratory listed in 46 CFR 162.161-10 and approved by the Coast Guard under 46 CFR 159.005-13.

(b) The manual must include:

(1) The design information as required in the Design Manual as detailed in UL 2166 (incorporated by reference, see § 162.161-2) for halocarbon systems and UL 2127 (incorporated by reference, see § 162.161-2) for inert gas systems;

(2) Installation, operation, and maintenance instructions as required in the Installation, Operation, and Maintenance Instruction Manual detailed in UL 2166 for halocarbon systems and UL 2127 for inert gas systems;

(3) Identification of the computer program listed or approved by the independent laboratory for designing the system;

(4) A sample diagram and calculation for a marine system for a large inspected vessel with several spaces to be protected by the same system;

(5) The approval number issued by the Coast Guard for the system under 46 CFR 159.005-13;

(6) A parts list with manufacturer's part numbers and a description of each system component;

(7) An index of chapters; and

(8) Issue and revision dates for each page.

(c) The manufacturer of each system must provide at least one copy of the system manual with each system.

§ 162.161-6 Tests for approval.

Prior to approval by an independent laboratory each system must:

(a) Satisfy the test method of MSC/Circ.848 as amended by MSC.1/Circ. 1267 (both incorporated by reference, see § 162.161-2), except that:

(1) The Fire Type A (Tell tale) test must be conducted when the charged system cylinders have been conditioned for 24 hours at 32° Fahrenheit or at the expected service temperature, if lower than 32° F.

(2) [Reserved].

(b) Satisfy the following test requirements as indicated in UL 2166 (incorporated by reference, see § 162.161-2) for halocarbon systems or UL 2127 for inert gas systems (incorporated by reference, see § 162.161-2):

(1) Nozzle distribution;

(2) Flow calculation method verification to determine that the manufacturer's calculation method accurately predicts the discharge time, nozzle pressure, and distribution of the extinguishing agent;

(3) Salt spray corrosion resistance for marine-type systems;

(4) Vibration resistance of installed components for marine-type systems; and

(5) Any additional tests contained in UL 2166 for halocarbon systems or UL 2127 for inert gas systems, as required for listing by the independent laboratory.

(c) Equivalent length of installed components must be identified and included in the test report in accordance with UL 2166 (incorporated by reference, see § 162.161-2) for halocarbon systems or UL 2127 (incorporated by reference, see § 162.161-2) for inert gas systems.

§ 162.161-7 Inspections at production.

(a) The system must be inspected in accordance with this section and 46 CFR 159.007-1 through 159.007-13, and tested using any additional tests that the Commandant (CG-5214) may deem necessary to maintain control of quality and to ensure compliance with this subpart.

(b) The manufacturer must:

- (1) Institute procedures to maintain control over the materials used, over the manufacturing of the systems, and over the finished systems;
- (2) Admit the independent laboratory inspector and any representative of the Coast Guard to any place where work is being done on systems and any place where parts or complete systems are stored;
- (3) Allow the independent laboratory inspector and any representative of the Coast Guard to take samples of systems for tests prescribed by this subpart; and
- (4) Conduct a leakage test on each system cylinder-valve assembly in accordance with subsections 57.1 through 57.4.2 of UL 2166 (incorporated by reference, see § 162.161-2) for halocarbon systems or subsection 55.4 of UL 2127 (incorporated by reference, see § 162.161-2) for inert gas systems.

§ 162.161-8 Marking.

The following information must be displayed on a permanent metal or pressure-sensitive nameplate attached to each agent storage cylinder/valve assembly:

- (a) Manufacturer's name, address, and telephone number;
- (b) Coast Guard approval number assigned to the system under 46 CFR 159.005-13;
- (c) Identifying mark of the laboratory;
- (d) Reference to the laboratory's listing standard;
- (e) Type of extinguishing agent;
- (f) Operating pressure at 70° Fahrenheit;
- (g) Storage temperature range;
- (h) Factory test pressure of the cylinder;

(i) Reference to the manufacturer's marine design, installation, operation, and maintenance manual;

(j) Weight of agent charge and gross weight of cylinder/valve assembly;

(k) Minimum maintenance instructions; and

(l) Any other information required by the laboratory or another government agency.

§ 162.161-9 Procedure for approval.

(a) Preapproval review is required as detailed in 46 CFR 159.005-5 and 159.005-7.

(b) Applications for approval must be submitted in accordance with 46 CFR 159.005-9 through 159.005-12 to the Commandant (CG-5214). In addition to the listed requirements:

(1) Evidence must be shown that an acceptable follow-up factory inspection program is in place in each factory location. This could be demonstrated by providing an original copy of the contract for a follow-up program between the manufacturer and the independent laboratory. The follow-up program must include provisions that prohibit changes to the approved equipment without review and approval by the independent laboratory.

(2) Two design, installation, operation and maintenance manuals must be submitted.

PART 167—PUBLIC NAUTICAL SCHOOL SHIPS

113. The authority citation for part 167 continues to read as follows:

Authority: 46 U.S.C. 3306, 3307, 6101, 8105; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

114. In § 167.01-5, revise the section heading and add paragraph (d) to read as follows:

§ 167.01-5 Applicability; preemptive effect.

* * * * *

(d) The regulations in this part have preemptive effect over State or local regulations in the same field.

115. In § 167.45-1, revise the section heading and paragraphs (a)(3), (7), (8), and (9) to read as follows:

§ 167.45-1 Steam, carbon dioxide, Halon 1301, and clean agent fire extinguishing systems.

(a) * * *

(3) Cabinets, boxes, or casings enclosing manifolds or valves must be marked in conspicuous red letters at least 2 inches high: “[STEAM/CARBON DIOXIDE/HALON/CLEAN AGENT – as appropriate] FIRE APPARATUS.”.

* * * * *

(7) At annual inspections, each carbon dioxide cylinder, whether fixed or portable, each Halon 1301 cylinder, and each clean agent cylinder must be examined externally and replaced if excessive corrosion is found; and:

(i) Each carbon dioxide cylinder must be weighed and recharged if its weight loss exceeds 10 percent of the charge;

(ii) Each Halon 1301 and halocarbon cylinder must be weighed and checked, and recharged or replaced if weight loss exceeds 5 percent of required weight of charge or if cylinder pressure loss exceeds 10 percent of specified gauge pressure, adjusted for temperature; and

(iii) Each inert gas cylinder must be checked and recharged or replaced if cylinder pressure loss exceeds 5 percent of specified gauge pressure adjusted for temperature.

(8) Carbon dioxide, Halon 1301, and clean agent cylinders carried on board nautical school ships must be tested and marked in accordance with the requirements of 46 CFR 147.60, 147.65, 147.66, and 147.67.

(9) On all systems test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed.

* * * * *

116. In § 167.45-45, revise the section heading and add paragraphs (d) and (e) to read as follows:

§ 167.45-45 Carbon dioxide fire extinguishing system requirements.

* * * * *

(d)(1) A lockout valve must be provided on any carbon dioxide extinguishing system protecting a space over 6,000 cubic feet in volume and installed or altered after July 9, 2013.

“Altered” means modified or refurbished beyond the maintenance required by the manufacturer's design, installation, operation and maintenance manual.

(2) The lockout valve must be a manually operated valve located in the discharge manifold prior to the stop valve or selector valves. When in the closed position, the lockout valve must provide complete isolation of the system from the protected space or spaces, making it impossible for carbon dioxide to discharge in the event of equipment failure during maintenance.

(3) The lockout valve design or locking mechanism must make it obvious whether the valve is open or closed.

(4) A valve is considered a lockout valve if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it.

(5) The master or person-in-charge must ensure that the valve is locked open at all times, except while maintenance is being performed on the extinguishing system, when the valve must be locked in the closed position.

(6) Lockout valves added to existing systems must be approved by the Commandant as part of the installed system.

(e) Each carbon dioxide extinguishing system installed or altered after [July 9, 2013, must have an approved odorizing unit to produce the scent of wintergreen, the detection of which will serve as an indication that carbon dioxide gas is present in a protected area and any other area into which the carbon dioxide may migrate. "Altered" means modified or refurbished beyond the maintenance required by the manufacturer's design, installation, operation and maintenance manual.

117. In § 167.55-5, add paragraphs (c)(1) and (2) to read as follows:

§ 167.55-5 Marking of fire and emergency equipment.

* * * * *

(c) * * *

(1) Steam, foam, carbon dioxide, Halon, or clean agent fire smothering apparatus.

Steam, foam, carbon dioxide, Halon, or clean agent fire smothering apparatus must be marked "[STEAM/FOAM/CARBON DIOXIDE/HALON/CLEAN AGENT – as appropriate] FIRE APPARATUS," in red letters at least 2 inches high, and the valves of all branch piping leading to the several compartments must be distinctly marked to indicate the compartments or parts of the nautical school ship to which they lead.

(2) Each entrance to a space storing carbon dioxide cylinders, a space protected by carbon dioxide systems, or any space into which carbon dioxide might migrate must be conspicuously marked as follows:

(i) Spaces storing carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. VENTILATE THE AREA BEFORE ENTERING. A HIGH CONCENTRATION CAN OCCUR IN THIS AREA AND CAN CAUSE SUFFOCATION.”.

(ii) Spaces protected by carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED, DO NOT ENTER UNTIL VENTILATED. LOCK OUT SYSTEM WHEN SERVICING.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

(iii) Spaces into which carbon dioxide might migrate – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. DISCHARGE INTO NEARBY SPACE CAN COLLECT HERE. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED VACATE IMMEDIATELY.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

* * * * *

PART 169—SAILING SCHOOL VESSELS

118. The authority citation for part 169 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 3306, 6101; Pub. L. 103–206, 107 Stat. 2439; E.O. 11735, 38 FR 21243, 3 CFR, 1971–1975 Comp., p. 793; Department of Homeland Security Delegation No. 0170.1; §169.117 also issued under the authority of 44 U.S.C. 3507.

119. In § 169.101, revise the section heading and add a second sentence to read as follows:

§ 169.101 Purpose; preemptive effect.

* * * The regulations in this part have preemptive effect over State or local regulations in the same field.

120. In § 169.247, revise Table 169.247(a)(2) and add reserved paragraph (b) to read as follows:

§ 169.247 Firefighting equipment.

* * * * *

Table 169.247(a)(2)—Fixed Systems

Type system	Test
Carbon dioxide	Weigh cylinders. Recharge cylinder if weight loss exceeds 10 percent of the weight of the charge. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed carbon dioxide systems must be tested or renewed, as required by 46 CFR 147.60 and 147.65.
Halon 1301 or halocarbon	Recharge or replace if weight loss exceeds 5 percent of the weight of the charge or if cylinder has a pressure gauge, recharge cylinder if pressure loss exceeds 10 percent, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections to Halon 1301 and halocarbon cylinders must be tested or renewed, as required by 46 CFR 147.60 and 147.65 or 147.67. Note that Halon 1301 system approvals have expired, but that existing systems may be retained if they are in good and serviceable condition to the satisfaction of the Coast Guard inspector.
Inert gas	Recharge or replace cylinder if cylinder pressure loss exceeds 5 percent of the specified gauge pressure, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed inert extinguishers must be tested or renewed as required by 46 CFR 147.60 and 147.66.
Water mist	Maintain system in accordance with the maintenance instructions in the system manufacturer's design, installation, operation, and maintenance manual.

(b) [Reserved].

121. Revise § 169.564 to read as follows:

§ 169.564 Fixed extinguishing system, general.

(a) A fixed carbon dioxide, Halon 1301, or clean agent extinguishing system must be installed to protect the following spaces:

(1) Any vessel machinery or fuel tank space, except where the space is so open to the atmosphere as to make the use of a fixed system ineffective;

(2) Any paint or oil room, or similar hazardous space; and

(3) Any galley stove area on a vessel greater than 90 feet in length and certificated for exposed or partially protected water service.

(b) Each fixed extinguishing system must be of an approved carbon dioxide, Halon 1301, halogenated, or clean agent type and installed to the satisfaction of the Officer in Charge, Marine Inspection.

122. Add § 169.570 to read as follows:

§ 169.570 Lockout valves.

(a) A lockout valve must be provided on any carbon dioxide extinguishing system protecting a space over 6,000 cubic feet in volume and installed or altered after [July 9, 2013].

“Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

(b) The lockout valve must be a manually operated valve located in the discharge manifold prior to the stop valve or selector valves. When in the closed position, the lockout valve must provide complete isolation of the system from the protected space or spaces, making

it impossible for carbon dioxide to discharge in the event of equipment failure during maintenance.

(c) The lockout valve design or locking mechanism must make it obvious whether the valve is open or closed.

(d) A valve is considered a lockout valve if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it.

(e) The master or person-in-charge must ensure that the valve is locked open at all times, except while maintenance is being performed on the extinguishing system, when the valve must be locked in the closed position.

(f) Lockout valves added to existing systems must be approved by the Commandant as part of the installed system.

123. Add § 169.571 to read as follows:

§ 169.571 Odorizing units.

Each carbon dioxide extinguishing system installed or altered after July 9, 2013, must have an approved odorizing unit to produce the scent of wintergreen, the detection of which will serve as an indication that carbon dioxide gas is present in a protected area and any other area into which the carbon dioxide may migrate. "Altered" means modified or refurbished beyond the maintenance required by the manufacturer's design, installation, operation and maintenance manual.

124. Revise § 169.732 to read as follows:

§ 169.732 Carbon dioxide and clean agent alarms.

(a) Each carbon dioxide or clean agent fire extinguishing alarm must be conspicuously marked: “WHEN ALARM SOUNDS VACATE AT ONCE. CARBON DIOXIDE OR CLEAN AGENT BEING RELEASED.”.

(b) Each entrance to a space storing carbon dioxide cylinders, a space protected by carbon dioxide systems, or any space into which carbon dioxide might migrate must be conspicuously marked as follows:

(1) Spaces storing carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. VENTILATE THE AREA BEFORE ENTERING. A HIGH CONCENTRATION CAN OCCUR IN THIS AREA AND CAN CAUSE SUFFOCATION.”.

(2) Spaces protected by carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED, DO NOT ENTER UNTIL VENTILATED. LOCK OUT SYSTEM WHEN SERVICING.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

(3) Spaces into which carbon dioxide might migrate – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. DISCHARGE INTO NEARBY SPACE CAN COLLECT HERE. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED VACATE IMMEDIATELY.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

125. Revise § 169.734 to read as follows:

§ 169.734 Fire extinguishing system controls.

Each control cabinet or space containing valves or manifolds for the various fire extinguishing systems must be distinctly marked in conspicuous red letters at least 2 inches high:

“CARBON DIOXIDE FIRE EXTINGUISHING SYSTEM,” “HALON EXTINGUISHING SYSTEM,” or “CLEAN AGENT EXTINGUISHING SYSTEM,” as appropriate.

PART 176—INSPECTION AND CERTIFICATION

126. The authority citation for part 176 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 2103, 3205, 3306, 3307; 49 U.S.C. App. 1804; E.O. 11735, 38 FR 21243, 3 CFR, 1971–1975 Comp., p. 743; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1

127. In subpart A, revise the subpart A heading to read as follows:

Subpart A—General Provisions; Certificate of Inspection

§§ 176.2 through 176.99 [Reserved]

128. Add reserved §§ 176.2 through 176.99 and add § 176.1 to read as follows:

§ 176.1 Preemptive effect.

The regulations in this part have preemptive effect over State or local regulations in the same field.

129. In § 176.810, revise paragraph (b)(2) to read as follows:

§ 176.810 Fire protection.

* * * * *

(b) * * *

(2) For semiportable and fixed gas fire extinguishing systems, the inspections and tests required by Table 176.810(b)(2), in addition to the tests required by 46 CFR 147.60, 147.65, 147.66, and 147.67. The owner or managing operator must provide satisfactory evidence of the required servicing to the marine inspector. If any equipment or record has not been properly maintained, a qualified servicing facility may be required to perform the required inspections, maintenance procedures, and hydrostatic pressure tests.

Table 176.810(b)(2)—Semiportable and Fixed Fire Extinguishing Systems

Type System	Test
Carbon dioxide	Weigh cylinders. Recharge cylinder if weight loss exceeds 10 percent of the weight of the charge. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer’s instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed carbon dioxide systems must be tested or renewed, as required by 46 CFR 147.60 and 147.65.
Halon 1301 and halocarbon	Recharge or replace if weight loss exceeds 5 percent of the weight of the charge or if cylinder has a pressure gauge, recharge cylinder if pressure loss exceeds 10 percent, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer’s instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections to Halon 1301 and halocarbon cylinders must be tested or renewed, as required by 46 CFR 147.60 and 147.65 or 147.67. Note that Halon 1301 system approvals have expired, but that existing systems may be retained if they are in good and serviceable condition to the satisfaction of the Coast Guard inspector.
Dry chemical (cartridge operated)	Examine pressure cartridge and replace if end is punctured or if determined to have leaked or to be in unsuitable condition. Inspect hose and nozzle to see if they are clear. Insert charged cartridge. Ensure dry chemical is free flowing (not caked) and extinguisher contains full charge.
Dry chemical (stored pressure)	See that pressure gauge is in operating range. If not, or if the seal is broken, weigh or otherwise determine that extinguisher is fully charged with dry chemical. Recharge if pressure is low or if dry chemical is needed.
Foam (stored pressure)	See that any pressure gauge is in the operating range. If not, or if the seal is broken, weigh or otherwise determine that extinguisher is fully charged with foam. Recharge if pressure is low or if foam is needed. Replace premixed agent every 3 years.
Inert gas	Recharge or replace cylinder if cylinder pressure loss exceeds 5 percent of the specified gauge pressure, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer’s instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed inert extinguishers must be tested or renewed as required by 46 CFR 147.60 and 147.66.
Water mist	Maintain system in accordance with the maintenance instructions in the system manufacturer’s design, installation, operation, and maintenance manual.

* * * * *

PART 181—FIRE PROTECTION EQUIPMENT

130. The authority citation for part 181 continues to read as follows:

Authority: 46 U.S.C. 2103, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

131. In § 181.115, revise the section heading and add paragraph (d) to read as follows:

§ 181.115 Applicability; preemptive effect.

* * * * *

(d) The regulations in this part have preemptive effect over State or local regulations in the same field.

132. In § 181.410, revise paragraph (c)(7) and add paragraphs (f)(7) and (8) to read as follows:

§ 181.410 Fixed gas fire extinguishing systems.

* * * * *

(c) * * *

(7) A Halon 1301 storage cylinder must be stowed in an upright position unless otherwise listed by the independent laboratory. A carbon dioxide cylinder may not be inclined more than 30° from the vertical unless fitted with flexible or bent siphon tubes, in which case it may be inclined not more than 80° from the vertical. Cylinders for clean agent systems must be installed in an upright position unless otherwise specified in the system's instruction manual.

* * * * *

(f) * * *

(7) A lockout valve must be provided on any carbon dioxide extinguishing system protecting a space over 6,000 cubic feet in volume and installed or altered after [July 9, 2013].

“Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

(i) The lockout valve must be a manually operated valve located in the discharge manifold prior to the stop valve or selector valves. When in the closed position, the lockout valve must provide complete isolation of the system from the protected space or spaces, making it impossible for carbon dioxide to discharge in the event of equipment failure during maintenance.

(ii) The lockout valve design or locking mechanism must make it obvious whether the valve is open or closed.

(iii) A valve is considered a lockout valve if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it.

(iv) The master or person-in-charge must ensure that the valve is locked open at all times, except while maintenance is being performed on the extinguishing system, when the valve must be locked in the closed position.

(v) Lockout valves added to existing systems must be approved by the Commandant as part of the installed system.

(8) Each carbon dioxide extinguishing system installed or altered after July 9, 2013, must have an approved odorizing unit to produce the scent of wintergreen, the detection of which will serve as an indication that carbon dioxide gas is present in a protected area and any other area into which the carbon dioxide may migrate. “Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

* * * * *

PART 182—MACHINERY INSTALLATION

133. The authority citation for part 182 continues to read as follows:

Authority: 46 U.S.C. 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

134. In § 182.115, revise the section heading and add paragraph (e) to read as follows:

§ 182.115 Applicability; preemptive effect.

* * * * *

(e) The regulations in this part have preemptive effect over State or local regulations in the same field.

135. In § 182.710, revise paragraph (a)(3) to read as follows:

§ 182.710 Piping for vital systems.

(a) * * *

(3) Carbon dioxide, Halon 1301, and clean agent systems;

* * * * *

PART 185—OPERATIONS

136. The authority citation for part 185 continues to read as follows:

Authority: 46 U.S.C. 2103, 3306, 6101; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

137. In § 185.115, revise the section heading and add paragraph (d) to read as follows:

§ 185.115 Applicability; preemptive effect.

* * * * *

(d) The regulations in this part have preemptive effect over State or local regulations in the same field.

138. Amend § 185.612 by revising paragraph (f) and adding paragraph (g) to read as follows:

§ 185.612 Fire protection equipment.

* * * * *

(f) The control cabinets or spaces containing valves, manifolds or controls for the various fire extinguishing systems must be marked in conspicuous red letters at least 2 inches high: “[STEAM/CARBON DIOXIDE/CLEAN AGENT/FOAM/WATER SPRAY – as appropriate] FIRE APPARATUS.”.

(g) Each entrance to a space storing carbon dioxide cylinders, a space protected by carbon dioxide systems, or any space into which carbon dioxide might migrate must be conspicuously marked as follows:

(1) Spaces storing carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. VENTILATE THE AREA BEFORE ENTERING. A HIGH CONCENTRATION CAN OCCUR IN THIS AREA AND CAN CAUSE SUFFOCATION.”.

(2) Spaces protected by carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED, DO NOT ENTER UNTIL VENTILATED. LOCK OUT SYSTEM WHEN SERVICING.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

(3) Spaces into which carbon dioxide might migrate – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. DISCHARGE INTO NEARBY SPACE CAN COLLECT HERE. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED VACATE

IMMEDIATELY.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

PART 189—INSPECTION AND CERTIFICATION

139. The authority citation for part 189 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 2113, 3306, 3307; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; E.O. 12777, 56 FR 54757, 3 CFR, 1991 Comp., p. 351; Department of Homeland Security Delegation No. 0170.1.

140. Revise the 189.01 subpart heading to read as follows:

Subpart 189.01—General Provisions; Certificate of Inspection

§ 189.01-1 [Redesignated as § 189.01-2]

141. Redesignate existing § 189.01-1 as § 189.01-2, and add new § 189.01-1 to read as follows:

§ 189.01-1 Preemptive effect.

The regulations in this part have preemptive effect over State or local regulations in the same field.

142. In § 189.25-20, revise the section heading and Table 189.25-20(a)(2) to read as follows:

§ 189.25-20 Fire extinguishing equipment.

* * * * *

Table 189.25–20(a)(2)

<i>Type system</i>	<i>Test</i>
Foam	Systems utilizing a soda solution must have such solution replaced. In all cases, ascertain that powder is not caked.
Carbon dioxide	Weigh cylinders. Recharge cylinder if weight loss exceeds 10 percent of the weight of the charge. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system

	manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed carbon dioxide systems must be tested or renewed, as required by 46 CFR 147.60 and 147.65.
Halon 1301 or halocarbon	Recharge or replace if weight loss exceeds 5 percent of the weight of the charge or if cylinder has a pressure gauge, recharge cylinder if pressure loss exceeds 10 percent, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections to Halon 1301 and halocarbon cylinders must be tested or renewed, as required by 46 CFR 147.60 and 147.65 or 147.67. Note that Halon 1301 system approvals have expired, but that existing systems may be retained if they are in good and serviceable condition to the satisfaction of the Coast Guard inspector.
Inert gas	Recharge or replace cylinder if cylinder pressure loss exceeds 5 percent of the specified gauge pressure, adjusted for temperature. Test time delays, alarms, and ventilation shutdowns with carbon dioxide, nitrogen, or other nonflammable gas as stated in the system manufacturer's instruction manual. Inspect hoses for damage or decay. Ensure that nozzles are unobstructed. Cylinders must be tested and marked, and all flexible connections on fixed inert extinguishers must be tested or renewed as required by 46 CFR 147.60 and 147.66.
Water mist	Maintain system in accordance with the maintenance instructions in the system manufacturer's design, installation, operation, and maintenance manual.

* * * * *

143. In § 189.55-5, revise paragraph (d)(4) to read as follows:

§ 189.55-5 Plans and specifications required for new construction.

* * * * *

(d) * * *

(4) Details of extinguishing systems, including fire mains, carbon dioxide, clean agent, foam, and sprinkling systems.

* * * * *

PART 190—CONSTRUCTION AND ARRANGEMENT

144. The authority citation for part 190 continues to read as follows:

Authority: 46 U.S.C. 2113, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

145. Add new subpart 190.00, consisting of § 190.00-1, to read as follows:

Subpart 190.00--General Provisions

§ 190.00-1 Preemptive effect.

The regulations in this part have preemptive effect over State or local regulations in the same field.

146. In § 190.15-5, revise paragraph (i) to read as follows:

§ 190.15-5 Vessels using fuel having a flashpoint of 110⁰ F. or lower.

* * * * *

(i) Provisions must be made for closing all cowls or scoops when the fixed carbon dioxide or clean agent system is operated.

PART 193—FIRE PROTECTION EQUIPMENT

147. The authority citation for part 193 continues to read as follows:

Authority: 46 U.S.C. 2213, 3102, 3306; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

148. In § 193.01-1, revise the section heading and add paragraph (c) to read as follows:

§ 193.01-1 General; preemptive effect.

* * * * *

(c) The regulations in this part have preemptive effect over State or local regulations in the same field.

149. Revise § 193.05-10 to read as follows:

§ 193.05-10 Fixed fire extinguishing systems.

(a) Approved fire extinguishing systems must be installed in all lamp and paint lockers, oil rooms, and similar spaces.

(b) A fixed carbon dioxide or clean agent fire extinguishing system complying with 46 CFR subparts 95.15 and 95.16 must be installed for:

- (1) Internal combustion engine installations;
- (2) Gas turbine installations;
- (3) Enclosed spaces containing gasoline engines;
- (4) Chemical storerooms;

(5) Any space containing auxiliaries with an aggregate power of 1,000 brake horsepower (b.h.p.) or greater, or their fuel oil units, including purifiers, valves, and manifolds, on vessels of 1,000 gross tons and over; and

(6) Enclosed ventilating systems installed for electric propulsion motors or generators.

(c) On vessels of 1,000 gross tons and over, a fixed carbon dioxide or clean agent fire extinguishing system complying with 46 CFR subparts 95.15 and 95.16 or a foam system complying with 46 CFR subpart 95.17 must be installed for any space containing main or auxiliary oil fired boilers or their associated fuel oil units, valves, or manifolds in the line between the settling tanks and the boilers.

(d) Systems for spaces containing explosives and other dangerous articles or substances must also comply with 46 CFR part 194.

150. In § 193.10-5, revise the section heading and paragraph (h) to read as follows:

§ 193.10-5 Fire main system, details.

* * * * *

(h) On vessels with main or auxiliary oil fired boilers or vessels with internal combustion propulsion machinery, when two fire pumps are required, the boilers or machinery must be located in separate spaces, and the arrangement, pumps, sea connections, and sources of power must be such as to ensure that a fire in any one space will not put all of the fire pumps out of operation. However, when it is shown to the satisfaction of the Commandant that it is unreasonable or impracticable to meet this requirement due to the size or arrangement of the vessel, or for other reasons, the installation of a total flooding system using carbon dioxide or a clean agent complying with 46 CFR subpart 95.16 may be accepted as an alternate method of extinguishing any fire that could affect the powering and operation for the required fire pumps.

* * * * *

151. Revise the heading to subpart 193.15 to read as follows:

Subpart 193.15 Carbon Dioxide and Clean Agent Extinguishing Systems, Details.

* * * * *

152. Add § 193.15-16 to read as follows:

§ 193.15-16 Lockout valves.

(a) A lockout valve must be provided on any carbon dioxide extinguishing system protecting a space over 6,000 cubic feet in volume and installed or altered after [July 9, 2013]. “Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

(b) The lockout valve must be a manually operated valve located in the discharge manifold prior to the stop valve or selector valves. When in the closed position, the lockout valve must provide complete isolation of the system from the protected space or spaces, making

it impossible for carbon dioxide to discharge in the event of equipment failure during maintenance.

(c) The lockout valve design or locking mechanism must make it obvious whether the valve is open or closed.

(d) A valve is considered a lockout valve if it has a hasp or other means of attachment to which, or through which, a lock can be affixed, or it has a locking mechanism built into it.

(e) The master or person-in-charge must ensure that the valve is locked open at all times, except while maintenance is being performed on the extinguishing system, when the valve must be locked in the closed position.

(f) Lockout valves added to existing systems must be approved by the Commandant as part of the installed system.

153. Add § 193.15-17 to read as follows:

§193.15-17 Odorizing units.

Each carbon dioxide extinguishing system installed or altered after July 9, 2013, must have an approved odorizing unit to produce the scent of wintergreen, the detection of which will serve as an indication that carbon dioxide gas is present in a protected area and any other area into which the carbon dioxide may migrate. “Altered” means modified or refurbished beyond the maintenance required by the manufacturer’s design, installation, operation and maintenance manual.

154. Add § 193.15-50 to read as follows:

§ 193.15-50 Clean agent systems.

A clean agent system complying with 46 CFR subpart 95.16 may be used as an alternative to a carbon dioxide fire extinguishing system.

PART 194—HANDLING, USE, AND CONTROL OF EXPLOSIVES AND OTHER
HAZARDOUS MATERIALS

155. The authority citation for part 194 continues to read as follows:

Authority: 46 U.S.C. 2103, 2113, 3306; 49 U.S.C. App. 1804; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

156. In § 194.01-1, revise the section heading and add paragraph (e) to read as follows:

§ 194.01-1 General; preemptive effect.

* * * * *

(e) The regulations in this part have preemptive effect over State or local regulations in the same field.

157. In § 194.20-7, revise paragraph (a) to read as follows:

§ 194.20-7 Fire protection.

(a) Each chemical storeroom must be protected by a fixed automatic extinguishing system using carbon dioxide or a clean agent complying with 46 CFR subpart 95.16, installed in accordance with 46 CFR subpart 193.15.

* * * * *

PART 196—OPERATIONS

158. The authority citation for part 196 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 2213, 3306, 5115, 6101; E.O. 12777, 56 FR 54757, 3 CFR, 1991 Comp., p. 351; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

159. In § 196.01-1, revise the section heading and add paragraph (b) to read as follows:

§ 196.01-1 General; preemptive effect.

* * * * *

(b) The regulations in this part have preemptive effect over State or local regulations in the same field.

160. Add § 196.37-8 to read as follows:

§ 196.37-8 Carbon dioxide warning signs.

Each entrance to a space storing carbon dioxide cylinders, a space protected by carbon dioxide systems, or any space into which carbon dioxide might migrate must be conspicuously marked as follows:

(a) Spaces storing carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. VENTILATE THE AREA BEFORE ENTERING. A HIGH CONCENTRATION CAN OCCUR IN THIS AREA AND CAN CAUSE SUFFOCATION.”.

(b) Spaces protected by carbon dioxide – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED, DO NOT ENTER UNTIL VENTILATED. LOCK OUT SYSTEM WHEN SERVICING.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

(c) Spaces into which carbon dioxide might migrate – “CARBON DIOXIDE GAS CAN CAUSE INJURY OR DEATH. DISCHARGE INTO NEARBY SPACE CAN COLLECT HERE. WHEN ALARM OPERATES OR WINTERGREEN SCENT IS DETECTED VACATE IMMEDIATELY.” The reference to wintergreen scent may be omitted for carbon dioxide systems not required to have odorizing units and not equipped with such units.

161. Revise § 196.37-9 to read as follows:

§ 196.37-9 Carbon dioxide and clean agent alarms.

Each extinguishing system using carbon dioxide or clean agent complying with 46 CFR subpart 95.16 must be conspicuously marked in an adjacent location: “WHEN ALARM SOUNDS VACATE AT ONCE. CARBON DIOXIDE OR CLEAN AGENT BEING RELEASED.”.

162. Revise § 196.37-13 to read as follows:

§ 196.37-13 Fire extinguishing system controls.

The control cabinets or spaces containing valves, manifolds, or controls for the various fire extinguishing systems must be marked in conspicuous red letters at least 2 inches high: “[CARBON DIOXIDE/CLEAN AGENT/FOAM – as appropriate] FIRE APPARATUS.”.

Dated: March 1, 2012

F.J. STURM,
Acting Director of Commercial Regulations and
Standards

[FR Doc. 2012-12334 Filed 06/06/2012 at 8:45 am; Publication Date: 06/07/2012]