Old Subchapter "I"
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"Old-Old" Subchapter I

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Sec.

AUTHORITY: §§ 90.01–1 to 90.35–5 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4426, as amended, 4427, as amended, sec. 14, 29 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 17, 54 Stat. 166, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 361, 362, 404, 405, 366, 395, 363, 367, 526p, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167–14, November 26, 1954, 19 F.R. 8026; CGFR 56–28, July 24, 1956, 21 F.R. 5659. Additional authority cited with sections affected.

SOURCE: §§ 90.01–1 to 90.35–5 contained in CGFR 52–43, 17 F.R. 9442, Oct. 18, 1952, except as otherwise noted.

NOTE: For changes in authority citations to Part 90 not otherwise noted, see 27 F.R. 9037, Sept. 11, 1962.

Subpart 90.01—Authority and Purpose

§ 90.01–1 Purpose of regulations.

(a) The purpose of the regulations in this subchapter is to set forth uniform minimum requirements for cargo and miscellaneous vessels, as listed in Column 5 of Table 90.05–1(a), in accordance with the intent of Title 52 of the Revised Statutes and acts amendatory thereof or supplemental thereto, as well as to implement various International Conventions for Safety of Life at Sea and other treaties which affect the merchant marine. The regulations are necessary to carry out the provisions of law affecting cargo and miscellaneous vessels and such regulations have the force of law.

§ 90.01–5 Assignment of functions.

(a) By Reorganization Plan No. 3 of 1946, effective July 16, 1946, the marine inspection functions of the former Bureau of Marine Inspection and Navigation and its officers and employees were transferred to the Commandant, United States Coast Guard. By Reorganization Plan No. 26 of 1950 (15 F. R. 4935, 3 CFR, 1950 Supp., p. 178, 5 U. S. C. note under 241), effective July 31, 1950, the functions

formerly vested in the Commandant, United States Coast Guard, were transferred to the Secretary of the Treasury, with certain specified exceptions. The Secretary of the Treasury by an order dated July 31, 1950 (15 F. R. 6521), delegated to the Commandant the functions formerly performed by him under Reorganization Plan No. 3 of 1946.

§ 90.01–10 Authority for regulations.

(a) *General.* (1) The authority to prescribe regulations generally is set forth in 46 U.S. Code, sections 375 and 416, as well as in certain other provisions in 46 U.S. Code, sections 170, 214, 215, 222, 224, 224a, 226, 228, 229, 230–234, 239, 240, 361, 362, 364, 372, 381, 391, 391a, 392, 393, 399, 400, 402–414, 435, 436, 451–453, 460, 461, 462, 464, 467, 470–482, and 489–498, and acts amendatory thereof or supplemental thereto. Under the provisions of 46 U.S. Code, section 372, the Commandant, United States Coast Guard, superintends the administration of vessel inspection laws and is required to produce a correct and uniform administration of the inspection laws, rules, and regulations.

(b) *Inspection and certification.* (1) The regulations regarding inspection and certification of cargo and miscellaneous vessels interpret or apply 46 U.S. Code, sections 361, 362, 363, 366, 367, 391, 392, 395, 404, 405, 411, 435, and 481, and 50 U.S. Code, section 198.

(c) *Construction and arrangement.* (1) The regulations regarding the construction and arrangement of cargo and miscellaneous vessels interpret or apply 46 U.S. Code, sections 363, 367, 391, 392, 404, 481, and 482, and 50 U.S. Code, section 198.

(d) *Stability.* (1) The regulations regarding stability of cargo and miscellaneous vessels interpret or apply 46 U.S. Code, sections 85a, 88a, 363, 367, 391, 392, 404, 481, 482, and 483, and 50 U.S. Code, section 198.

(e) *Lifesaving equipment.* (1) The regulations regarding lifesaving equipment of cargo and miscellaneous vessels interpret or apply 46 U.S. Code, sections 363, 367, 391, 392, 404, 481, and 526p, and 50 U.S. Code, section 198.

(f) *Fire protection equipment.* (1) The regulations regarding fire protection equipment of cargo and miscellaneous vessels interpret or apply 46 U.S. Code, sections 363, 367, 391, 392, 395, 404, 481, and 526p, and 50 U.S. Code, section 198.

(g) *Vessel control and miscellaneous systems and equipment.* (1) The regulations regarding vessel control and miscellaneous systems and equipment of cargo and miscellaneous vessels interpret or apply 46 U.S. Code, sections 363, 367, 395, 391, 392, 404, and 435, and 50 U.S. Code, section 198.

(h) *Operations.* (1) The regulations regarding operations of cargo and miscellaneous vessels interpret or apply 46 U.S. Code, sections 363, 367, 391, 392, 395, 404, and 435, and 50 U.S. Code, section 198.

(i) *Special construction, arrangement, and provisions for certain dangerous cargoes in bulk.* (1) The regulations regarding special construction, arrangement, and provisions for certain dangerous cargoes in bulk of cargo and miscellaneous vessels interpret or apply 46 U.S. Code, section 170, and 50 U.S. Code, section 198.

[CGFR 62–17, 27 F.R. 9037, Sept. 11, 1962]

Subpart 90.05—Application

§ 90.05–1 Vessels subject to requirements of this subchapter.

(a) This subchapter shall be applicable to all United States flag vessels indicated in Column 5 of Table 90.05–1(a) and to all such foreign vessels which carry 12 or less passengers from any port in the United States to the extent prescribed by law, except as follows:

(1) Any vessel of a foreign nation signatory to the International Convention for the Safety of Life at Sea, 1948, and which has on board a current, valid safety equipment certificate.

(2) Any vessel operating exclusively on inland waters which are not navigable waters of the United States.

(3) Any vessel while laid up and dismantled and out of commission.

(4) With the exception of vessels of the U. S. Maritime Administration, any vessel with title vested in the United States and which is used for public purposes.

(b) Notwithstanding the exception previously noted in subparagraph (a)(1) of this section, foreign vessels of novel design or construction whose operation involves potential unusual risks shall be subject to inspection to the extent necessary to safeguard life and property in United States ports, as further provided by § 2.01–13 of Subchapter A (Procedures Applicable to the Public) of this chapter.

TABLE 90.05-1(a)

Method of propulsion	Size or other limitations [1]	Classes of vessels (including motorboats) examined or inspected under various Coast Guard regulations [1]			
		Vessels inspected and certificated under Subchapter D—Tank Vessels [2]	Vessels inspected and certificated under either Subchapter H—Passenger Vessels [2 3 4 5] or Subchapter T—Small Passenger Vessels [2 3 4]	Vessels inspected and certificated under Subchapter I—Cargo and Miscellaneous Vessels [2 5]	Vessels subject to provisions of Subchapter C—Uninspected Vessels [2 6]
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
Steam	Vessels not over 65 feet in length.	All vessels carrying combustible or inflammable liquid cargo in bulk.	All vessels carrying more than 6 passengers.[7]	All tugboats and towboats.	All vessels except those covered by columns 3, 4, and 5.[8]
	Vessels over 65 feet in length.	All vessels carrying combustible or inflammable liquid cargo in bulk.[5]	1. All vessels carrying more than 12 passengers on an international voyage, except yachts. 2. All vessels of not over 15 gross tons which carry more than 6 passengers.[7] 3. All other vessels carrying passengers, except: a. Yachts. b. Documented cargo or tank vessels issued a permit to carry not more than 16 persons in addition to the crew. c. Towing and fishing vessels, in other than ocean and coastwise service, may carry persons on the legitimate business of the vessel, in addition to crew, but not to exceed one for each net ton of the vessel.	All vessels except those covered by columns 3 and 4.	None.
Motor	Vessels of not over 15 gross tons.	All vessels carrying combustible or inflammable liquid cargo in bulk.	All vessels carrying more than 6 passengers.[7]	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 146.	All vessels except those covered by columns 3, 4, and 5.
	Vessels over 15 gross tons except seagoing motor vessels of 300 gross tons and over.	All vessles carrying combustible or inflammable liquid cargo in bulk.[5]	1. All vessels carrying more than 12 passengers on an international voyage, except yachts. 2. All vessels not over 65 feet in length which carry more than 6 passengers.[7] 3. All other vessels of over 65 feet in length carrying passengers for hire except documented cargo or tank vessels issued a permit to carry not more than 16 persons in addition to the crew.	All vessels carrying freight for hire except those covered by columns 3 and 4.	All vessels except those covered by columns 3, 4, and 5.

See footnotes at end of table.

TABLE 90.05-1(a)—Continued

Method of propulsion	Size or other limitations [1]	Classes of vessels (including motorboats) examined or inspected under various Coast Guard regulations [1]			
		Vessels inspected and certificated under Subchapter D—Tank Vessels [2]	Vessels inspected and certificated under either Subchapter H—Passenger Vessels [2 3 4 5] or Subchapter T—Small Passenger Vessels [2 3 4]	Vessels inspected and certificated under Subchapter I—Cargo and Miscellaneous Vessels [2 5]	Vessels subject to provisions of Subchapter C—Uninspected Vessels [2 3 6]
Column 1	Column 2	Column 3	Column 4	Column 5	Column 6
	Seagoing motor vessels of 300 gross tons and over.	All vessels carrying combustible or inflammable liquid cargo in bulk.[3]	1. All vessels carrying more than 12 passengers on an international voyage, except yachts. 2. All other vessels carrying passengers, except: a. Yachts. b. Documented cargo or tank vessels issued a permit to carry not more than 16 persons in addition to the crew.	All vessels except those covered by columns 3 and 4, and those engaged in the fishing, oystering, clamming, erabbing, or any other branch of the fishery, kelp, or sponge industry.	All vessels except those covered by columns 3, 4, and 5.
Sail	Vessels not over 700 gross tons	All vessels carrying combustible or inflammable liquid cargo in bulk.	All vessels carrying more than 6 passengers.[7]	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 146.	None.
	Vessels over 700 gross tons.	All vessels carrying combustible or inflammable liquid cargo in bulk	All vessels carrying passengers for hire.	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 146	None.
Non-self-propelled	Vessels not over 100 gross tons.	All vessels carrying combustible or inflammable liquid cargo in bulk.	Al. vessels carrying more than 6 passengers.[7]	Those vessels carrying dangerous cargoes when required by 46 CFR Part 98 or 146.	All barges carrying passengers except those covered by column 4.
	Vessels over 100 gross tons.	All vessels carrying combustible or inflammable liquid cargo in bulk.	All vessels carrying passengers for hire.	All seagoing barges except those covered by columns 3 and 4; and those inland barges carrying dangerous cargoes when required by 46 CFR Part 98 or 146	All barges carrying passengers except those covered by column 4.

[1] Where length is used in this table it means the length measured from end to end over the deck, excluding sheer. On and after May 2, 1962, this expression "means a straight line measurement of the overall length from the foremost part of the vessel to the aftermost part of the vessel, measured parallel to the centerline."

[2] Subchapters E (Load Lines), F (Marine Engineering), J (Electrical Engineering), and N (Explosives or Other Dangerous Articles or Substances, and Combustible Liquids on Board Vessels) of this chapter may also be applicable under certain conditions.

[3] Public nautical school ships, other than vessels of the Navy and Coast Guard, shall meet the requirements of Part 167 of Subchapter R (Nautical Schools) of this chapter. Civilian nautical school ships, as defined by 46 U.S.C. 1331, shall meet the requirements of Subchapter H (Passenger Vessels) and Part 168 of Subchapter R (Nautical Schools) of this chapter.

[4] Subchapter H (Passenger Vessels) of this chapter covers only those vessels over 65 feet in length. Subchapter T (Small Passenger Vessels) of this chapter covers only those vessels of not over 65 feet in length.

[5] Vessels covered by Subchapters H (Passenger Vessels) or I (Cargo and Miscellaneous Vessels) of this chapter, where the principal purpose or use of the vessel is not for the carriage of liquid cargo, may be granted a permit to carry a limited amount of inflammable or combustible liquid cargo in bulk. The portion of the vessel used for the carriage of the inflammable or combustible liquid cargo shall meet the requirements of Subchapter D (Tank Vessels) in addition to the requirements of Subchapter H (Passenger Vessels) or I (Cargo and Miscellaneous Vessels) of this chapter.

[6] Any vessel on an international voyage is subject to the requirements of the International Convention for the Safety of Life at Sea, 1948.

[7] The meaning of the term "passenger" is as defined in the Act of May 10, 1956 (sec. 1, 70 Stat. 151; 46 U.S.C. 390).

[8] Boilers and machinery are subject to examination on vessels over 40 feet in length.

(R.S. 4472, as amended; 46 U.S.C. 170) [CGFR 52-43, 17 F.R. 9442, Oct. 18, 1952, as amended by CGFR 62-17, 27 F.R. 9037, Sept. 11, 1962]

§ 90.05-5 Specific application noted in text.

(a) At the beginning of the various parts, subparts, and sections, a more specific application is generally given for the particular portion of the text involved. This application sets forth the types, sizes, or services or vessels to which the text pertains, and in many cases limits the application of the text to vessels contracted for before or after a specific date. As used in this subchapter, the term "vessels contracted for" includes not only the contracting for the construction of a vessel, but also the contracting for a material alteration to a vessel, the contracting for the conversion of a vessel to a cargo or miscellaneous vessel, and the changing of service or route of a vessel if such change increases or modifies the general requirements for the vessel or increases the hazards to which it might be subjected.

§ 90.05-7 Ocean or unlimited coastwise vessels on inland and Great Lakes Routes.

(a) Vessels inspected and certificated for ocean or unlimited coastwise routes shall be considered suitable for navigation insofar as the provisions of this subchapter are concerned on any inland routes, including the Great Lakes.

[CGFR 59-10, 24 F.R. 3240, Apr. 25, 1959]

§ 90.05-10 Application to vessels on an international voyage.

(a) Where, in various places or portions of this subchapter, requirements are stipulated specifically for "vessels on an international voyage", it is intended that these requirements apply only to mechanically propelled vessels of 500 gross tons and over on an international voyage, as defined in § 90.10-17, other than yachts and fishing vessels.

(b) The Commandant may permit vessels operating on lakes, bays and sounds routes which are international voyages as defined in § 90.10-17, to dispense with those requirements having their origin in Chapters II and III of the International Convention for Safety of Life at Sea, 1948, in all cases where this Convention permits such dispensation.

[CGFR 54-16, 19 F. R. 4926, Aug. 6, 1954]

§ 90.05-25 Seagoing barge.

(a) The phrase "of every seagoing barge of 100 gross tons or over" in section 10 of the act of May 28, 1908, as amended (38 Stat. 428; 46 U.S.C. 395), shall include every nonself-propelled vessel (100 gross tons or over) if such vessel by its design and construction is adapted to or fitted for use on the high seas or ocean and will navigate the high seas or ocean or waters directly connected therewith and substantially a part thereof. The phrase "nonself-propelled vessel" means a vessel without sufficient means for self-propulsion and required to be towed. The phrase "high seas or ocean" includes the waters of the Atlantic and Pacific Oceans and the Gulf of Mexico.

(b) If a nonself-propelled vessel (100 gross tons and over), whether or not designed for seagoing or ocean service, proceeds on a voyage to a foreign port via the high seas or ocean, or proceeds on a voyage between two domestic ports via the high seas or ocean, such vessel will be subject to inspection and certification as a seagoing barge

[CGFR 56-14, 21 F. R 2521, Apr. 18, 1956]

§ 90.05-30 Portable containers—interpretive rulings.

(a) The phrase "drums, barrels, or other packages," as used in R.S. 4417a, as amended (46 U.S.C. 391a), and in R.S. 4472, as amended (46 U.S.C. 170), is interpreted to include portable con-

tainers having a maximum capacity of 110 U.S. gallons, which are actually loaded and discharged from vessels with their contents intact.

(b) The phrase "combustible liquid cargo in bulk" as used in R.S. 4417a, as amended (46 U.S.C. 391a), and in R.S. 4472, as amended (46 U.S.C. 170), is interpreted to include portable containers of a capacity of more than 110 U.S. gallons, whether or not such containers are actually loaded and discharged from vessels with their contents intact.

(Interpret or apply R.S. 4417a, as amended, 4472, as amended; 46 U.S.C. 391a, 170.) [CGFR 61–33, 26 F.R. 9998, Oct. 25, 1961]

Subpart 90.10—Definition of Terms Used in This Subchapter

§ 90.10–1 Approved.

This term means approved by the Commandant unless otherwise stated.

§ 90.10–2 Barge.

This term means any nonself-propelled vessel.

[CGFR 57–27, 22 F. R. 4019, June 7, 1957]

§ 90.10–3 Carrying passengers for hire.

The carriage of any person or persons by a vessel for a valuable consideration, whether directly or indirectly flowing to the owner, charterer, operator, agent or any other person interested in the vessel.

§ 90.10–5 Carrying freight for hire.

The carriage of any goods, wares, or merchandise or any other freight for a valuable consideration whether directly or indirectly flowing to the owner, charterer, operator, agent, or any other person interested in the vessel.

§ 90.10–7 Commandant.

This term means the Commandant of the Coast Guard.

§ 90.10–9 Coast Guard District Commander.

This term means an officer of the Coast Guard designated as such by the Commandant to command all Coast Guard activities within his district, which include the inspection, enforcement, and administration of Title 52, Revised Statutes, and acts amendatory thereof or supplemental thereto, and rules and regulations thereunder.

§ 90.10–11 Coastwise.

Under this designation shall be included all vessels normally navigating the waters of any ocean or the Gulf of Mexico 20 nautical miles or less offshore.

§ 90.10–13 Great Lakes.

Under this designation shall be included all vessels navigating the Great Lakes.

§ 90.10–15 Headquarters.

This term means the Office of the Commandant, United States Coast Guard, Washington, D.C.

§ 90.10–17 International voyage.

An international voyage as applied to United States vessels includes voyages between United States ports and ports outside the United States as well as between United States Continental ports and ports in Alaska, Hawaii, Commonwealth of Puerto Rico, the Panama Canal Zone, or any other separate portion of the United States constituting a possession or held under a protectorate or mandate. However, vessels solely navigating the Great Lakes and their connecting and tributary waters as far east as the exit of the Lachine Canal at Montreal, in the province of Quebec, Canada, shall not be considered as on an international voyage for the purpose of the regulations contained in this subchapter.

[CGFR 52–43, 17 F.R. 9442, Oct. 18, 1952, as amended by CGFR 60–75, 25 F.R. 12555, Dec. 8, 1960]

§ 90.10–19 Lakes, bays, and sounds.

Under this designation shall be included all vessels navigating the waters of any of the lakes, bays, or sounds other than the waters of the Great Lakes.

§ 90.10–21 Marine inspector or inspector.

These terms mean any person from the civilian or military branch of the Coast Guard assigned under the superintendence and direction of an Officer in Charge, Marine Inspection, or any other person as may be designated for the performance of duties with respect to the inspection, enforcement, and administration of Title 52, Revised Statutes, and acts amendatory thereof or supplemental thereto, and rules and regulations thereunder.

§ 90.10–23 Motorboat.

This term means any vessel indicated in Column 5 of Table 90.05–1(a) 65 feet in length or less which is propelled by machinery (including steam). The length shall be measured from end to end over the deck excluding sheer. This term includes a boat temporarily or permanently equipped with a detachable motor and any such boat when so propelled is subject to the applicable provisions of the Act of April 25, 1940, as amended (secs. 1–22, 54 Stat. 163–167, as amended, 46 U.S.C. 526–526u), and the regulations promulgated thereunder. For the purpose of this subchapter, motorboats are included under the term "vessel" unless specifically noted otherwise. The various classes of motorboats are as follows:

Class A—Any motorboat less than 16 feet in length.
Class 1—Any motorboat 16 feet or over and less than 26 feet in length.
Class 2—Any motorboat 26 feet or over and less than 40 feet in length.
Class 3—Any motorboat 40 feet or over and not more than 65 feet in length.

[CGFR 52–43, 17 F.R. 9442, Oct. 18, 1952, as amended by CGFR 59–27, 24 F.R. 5800, July 21, 1959]

§ 90.10–25 Ocean.

Under this designation shall be included all vessels navigating the waters of any ocean or the Gulf of Mexico more than 20 nautical miles offshore.

§ 90.10–27 Officer in charge, marine inspection.

This term means any person from the civilian or military branch of the Coast Guard designated as such by the Commandant and who, under the superintendence and direction of the Coast Guard District Commander, is in charge of an inspection zone for the performance of duties with respect to the inspections, enforcement, and administration of Title 52, Revised Statutes, and acts amendatory thereof or supplemental thereto, and rules and regulations thereunder.

§ 90.10–29 Passenger.

A passenger is every person other than the master and the members of the crew or other persons employed or engaged in any capacity on board a vessel in the business of that vessel. In the case of a vessel on an international voyage a child under 1 year of age is not counted as a passenger.

§ 90.10–31 Rules of the Road.

(a) The term "Rules of the Road" means the statutory and regulatory rules governing navigation of vessels. These rules are also published by the Coast Guard in pamphlet form as follows:

(1) Rules of the Road—International—Inland (CG–169).

(2) Rules of the Road—Great Lakes (CG–172).

(3) Rules of the Road—Western Rivers (CG–184).

(b) The current editions of the "Rules of the Road" pamphlets may be obtained from any Marine Inspection Office.

[CGFR 59–27, 24 F.R. 5800, July 21, 1959]

§ 90.10–33 Rivers.

Under this designation shall be included all vessels whose naivgation is restricted to rivers and/or canals exclusively, and to such other waters as may be so designated by the Coast Guard District Commander.

§ 90.10–35 Recognized classification society.

The term "recognized classification society" means the American Bureau of Shipping or other classification society recognized by the Commandant.

§ 90.10–37 Vessel.

Where the word "vessel" is used in this subchapter, it shall be considered to include all vessels indicated in Column 5 of Table 90.05–1(a), except as otherwise noted in this subpart.

§ 90.10–39 Western rivers.

For the purpose of this subchapter, the term "western rivers" is as defined in CG–184, "Rules of the Road—Western Rivers."

[CGFR 59–27, 24 F.R. 5800, July 21, 1959]

Subpart 90.15—Equivalents

§ 90.15–1 Conditions under which equivalents may be used.

(a) Where in this subchapter it is provided that a particular fitting, appliance, apparatus, or equipment, or type thereof, shall be fitted or carried in a vessel, or that any particular arrangement shall be adopted, the Commandant may accept in substitution therefore any other fitting, apparatus, or equipment, or type thereof, or any other arrangement: *Provided*, That he shall have been satisfied by suitable triais that the fitting, appliance, apparatus, or equipment, or type

thereof, or the arrangement is at least as effective as that specified in this subchapter.

(b) In any case where it is shown to the satisfaction of the Commandant that the use of any particular equipment, apparatus, or arrangement not specifically required by law is unreasonable or impracticable, the Commandant may permit the use of alternate equipment, apparatus, or arrangement to such an extent and upon such conditions as will insure, to his satisfaction, a degree of safety consistent with the minimum standards set forth in this subchapter.

Subpart 90.20—General Marine Engineering Requirements

§ 90.20–1 Marine engineering details.

(a) All marine engineering details such as piping, valves, fittings, boilers, pressure vessels, etc., and their appurtenances installed on the vessel, shall be designed, constructed, and installed in accordance with the provisions of Subchapter F (Marine Engineering) of this chapter.

§ 90.20–5 Vessels utilizing nuclear energy or handling radioactive materials.

(a) All vessels utilizing nuclear energy for propulsion or for any other purpose, or handling radioactive materials other than as cargo shall comply with the applicable requirements in Subpart 57.30 of Subchapter F (Marine Engineering) of this chapter. The regulations covering the transportation and handling of radioactive materials as cargo are contained in Part 146 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels) of this chapter.

(Sec. 2, 23 Stat. 118, as amended, secs. 2, 633, 63 Stat. 496, 545; 46 U.S.C. 2, 14 U.S.C. 2, 633. Interpret or apply R.S. 4417a, as amended, 4472, as amended, sec. 3, 54 Stat. 347, as amended, sec. 3, 70 Stat. 152; 46 U.S.C. 391a, 170, 1333, 390b) [CGFR 60–65, 25 F.R. 10135, Oct. 25, 1960]

Subpart 90.25—General Electrical Engineering Requirements

§ 90.25–1 Electrical engineering details.

(a) All electrical engineering details and installations shall be designed and installed in accordance with Subchapter J (Electrical Engineering) of this chapter.

Subpart 90.30—Special Provisions

§ 90.30–1 Vessels acquired or documented under the act of August 9, 1954.

(a) Vessels acquired or documented under the Act of August 9, 1954 (sec. 3, 68 Stat. 675; 50 U.S.C. 198), shall be subject to the applicable provisions of Title 52 of the Revised Statutes, acts amendatory thereof or supplemental thereto and the rules and regulations thereunder.

(b) Unapproved lifesaving, fire fighting, and other equipment may be continued in service as long as, in the opinion of the Officer in Charge, Marine Inspection, such equipment is in good and serviceable condition. All replacements shall be in accordance with Coast Guard requirements.

[CGFR 52–43, 17 F.R. 9442, Oct. 18, 1952, as amended by CGFR 55–52, 20 F.R. 10011, Dec. 28, 1955]

§ 90.30–5 Installations of equipment made during the unlimited national emergency declared by the President on May 27, 1941.

(a) Boilers, pressure vessels, machinery, piping, electrical, and other installations, including lifesaving, fire fighting, and other safety equipment, installed on vessels during the Unlimited National Emergency declared by the President on May 27, 1941, and prior to the termination of Title V of the Second War Powers Act, as extended (sec. 501, 56 Stat. 180, 50 U.S.C. App. 635), which do not fully meet the detailed requirements of the regulations in this chapter, may be continued in service if found to be satisfactory by the Commandant for the purpose intended.

Subpart 90.35—American Bureau of Shipping's Standards

AUTHORITY: §§ 90.35–1 and 90.35–5 interpret or apply sec. 25, 41 Stat. 998, as amended; 46 U.S.C. 881.

§ 90.35–1 Standards to be used.

(a) Where in this subchapter an item, or method of construction, or testing is required to meet the standards established by the American Bureau of Shipping, the current standards in effect at the time of construction of the vessel, or otherwise as applicable, shall be used. The current standards of other recognized classification societies may also be accepted upon approval by the Commandant.

§ 90.35–5 Where obtainable.

(a) The standards established by the American Bureau of Shipping are usually published annually and may be purchased from the American Bureau of Shipping, 45 Broad Street, New York 4, New York. These standards may be also examined at the Office of the Commandant (M), U.S. Coast Guard, Washington, D.C., or at the Office of any Coast Guard District Commander or Officer in Charge, Marine Inspection.

PART 91—INSPECTION AND CERTIFICATION

AUTHORITY: §§ 91.01–1 to 91.60–1 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4399, as amended, 4400, as amended, 4417, as amended, 4418, as amended, 4426, as amended, 4427, as amended, 4433, as amended, 4453, as amended, 4488, as amended, sec. 14, 29 Stat. 690, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat.

305, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 361, 362, 391, 392, 404, 405, 411, 435, 481, 366, 395, 363, 367, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167-14, November 26, 1954, 19 F.R. 8026; CGFR 56-28, July 24, 1956, 21 F.R. 5659; 167-38, October 26, 1959, 24 F.R. 8857. Additional authority cited with sections affected.

NOTE: For changes in authority citations to Part 91 not otherwise noted, see 27 F.R. 9039, Sept. 11, 1962.

Subpart 91.01—Certificate of Inspection

AUTHORITY: §§ 91.01-1 to 91.01-20 interpret or apply R.S. 4421, as amended, 4423, as amended, sec. 12, 35 Stat. 428, as amended; 46 U.S.C. 399, 400, 397.

SOURCE: §§ 91.01-1 to 91.01-20 contained in CGFR 52-43, 17 F.R. 9445, Oct. 18, 1952, except as otherwise noted.

§ 91.01-1 When required.

(a) Except as noted in this subpart or Subpart 91.05, no vessel subject to inspection and certification shall be operated without a valid certificate of inspection.

§ 91.01-5 Posting.

(a) On vessels of over 25 gross tons, the original certificate of inspection shall, in general, be framed under glass and posted in a conspicuous place where it will be most likely to be observed. On vessels not over 25 gross tons, and on other vessels such as barges, where the framing of the certificate under glass would be impracticable, the original certificate of inspection shall be kept on board to be shown on demand.

§ 91.01-10 Period of validity.

(a) Certificates of inspection will be issued for periods of either one or two years. Application may be made by the master, owner, or agent for inspection and issuance of a new certificate of inspection at any time during the period of validity of the current certificate.

(b) Certificates of inspection may be revoked or suspended by the Coast Guard where such process is authorized by law. This may occur if the vessel does not meet the requirements of law or regulations in this chapter or if there is a failure to maintain the safety requirements requisite to the issuance of a certificate of inspection.

[CGFR 57-18, 22 F. R. 3468, May 17, 1957]

§ 91.01-15 Temporary certificate.

(a) If necessary to prevent delay of the vessel, a temporary certificate of inspection, Form CG 854, shall be issued pending the issuance and delivery of the regular certificate of inspection. Such temporary certificate shall be carried in the same manner as the regular certificate and shall in all ways be considered the same as the regular certificate of inspection which it represents.

§ 91.01-20 Expired certificate.

(a) Nothing in this subpart shall prevent a vessel upon a regularly established line from a port in the United States to a port of a foreign country not contiguous to the United States whose certificate of inspection expires at sea or while said vessel is in a foreign port or a port of Hawaii from lawfully completing her voyage without the valid certificate of inspection or temporary certificate required by this subpart: *Provided,* That the certificate of inspection did not expire within 15 days after the vessel left the last port of the United States, and that the voyage shall be completed within 30 days after the expiration of the certificate of inspection.

Subpart 91.05—Permit To Proceed to Another Port for Repair

SOURCE: §§ 91.05-1 to 91.05-15 contained in CGFR 52-43, 17 F.R. 9445, Oct. 18, 1952, except as otherwise noted.

§ 91.05-1 When issued.

(a) The Officer in Charge, Marine Inspection, may issue a permit to proceed to another port for repair, Form CG 948 to a vessel, if in his judgment it can be done with safety, even if the certificate of inspection of the vessel has expired or is about to expire.

§ 91.05-5 To whom issued.

(a) Such permit will only be issued upon the written application of the master, owner, or agent of the vessel.

§ 91.05-10 Conditions of permit.

(a) The permit will state upon its face the conditions under which it is issued and whether or not the vessel is permitted to carry freight or passengers.

[CGFR 56-35, 21 F. R. 6710, Sept. 6, 1956]

§ 91.05-15 Posting.

(a) The permit shall be carried in a manner similar to that described in § 91.01-5 for a certificate of inspection.

Subpart 91.15—Inspection of Vessels

§ 91.15-1 Standard in inspection of hulls, boilers, and machinery.

(a) In the inspection of hulls, boilers, and machinery of vessels, the standards established by the American Bureau of Shipping, see Subpart 90.35 of this subchapter, respecting material and construction of hulls, boilers, and machinery, and the certificate of classification referring thereto, except where otherwise provided for by the rules and regulations in this subchapter, Subchapter E (Load Lines), Subchapter F (Marine Engineering), or Subchapter J (Electrical Engineering) of this chapter shall be accepted as standard by the inspectors.

[CGFR 52-43, 17 F.R. 9445, Oct. 18, 1952]

Subpart 91.20—Initial Inspection

SOURCE: §§ 91.20-1 to 91.20-20 contained in CGFR 52-43, 17 F.R. 9445, Oct. 18, 1952, except as otherwise noted.

§ 91.20-1 Prerequisite of certificate of inspection.

(a) The initial inspection is a prerequisite of the issuance of the original certificate of inspection.

§ 91.20-5 When made.

(a) The original inspection will only be made upon the written application of the owner or builder of the vessel to the Officer in Charge, Marine Inspection, on Form CG 833, at or nearest the port where the vessel is located.

§ 91.20-10 Plans.

(a) Before application for inspection is made, and before construction is started, the owner or builder shall have plans approved by the Commandant indicating the proposed arrangement and construction of the vessel. The procedure for submitting plans and the list of plans to be supplied is set forth in Subpart 91.55.

§ 91.20-15 Scope of inspection.

(a) The initial inspection, which may consist of a series of inspections during the construction of a vessel, shall include a complete inspection of the structure, machinery, and equipment, including the outside of the vessel's bottom, and the outside, and where possible the inside, of the boilers. The inspection shall be such as to insure that the arrangements, materials, and scantlings of the structure, boilers and their appurtenances, piping, main and auxiliary machinery, electrical installations, lifesaving appliances, fire detecting and extinguishing equipment, and other equipment fully comply with the applicable regulations for such vessel and are in accordance with approved plans, and that the radio installations, including fixed and portable radios for lifeboats, are in accordance with the requirements of the Federal Communications Commission. The inspection shall also be such as to insure that the workmanship of all parts of the vessel and its equipment is in all respects satisfactory.

(b) When equipment is installed which is not required by applicable regulations in this subchapter, that equipment shall be inspected and tested as required for such equipment by applicable regulations in Subchapter H (Passenger Vessels) of this chapter. For example, fire-detecting systems shall be inspected and tested as required by Subpart 71.20 of Subchapter H (Passenger Vessels) of this chapter.

[CGFR 53-25, 18 F. R. 7853, Dec. 5, 1953]

§ 91.20-20 Specific tests and inspections.

(a) The applicable tests and inspections as set forth in Subpart 91.25 of this part shall be made at this time. In addition, the following specific tests and inspections shall be made by the inspector.

(1) Installation of lifeboats, davits, and winches—see Subpart 94.35 of this subchapter.

(2) Installation of carbon dioxide extinguishing piping—see § 95.15-35 of this subchapter.

(3) For inspection procedures of marine engineering equipment and systems, see Subchapter F (Marine Engineering) of this chapter.

(4) For inspection procedures of Electrical Engineering equipment and systems, see Subchapter J (Electrical Engineering) of this chapter.

(5) For inspection and tests of tanks containing certain dangerous cargoes in bulk, see Part 98 of this subchapter.

[CGFR 52-43, 17 F.R. 9445, Oct. 18, 1952, as amended by CGFR 57-18, 22 F.R. 3468, May 17, 1957; CGFR 58-9, 23 F.R. 4829, June 28, 1958]

Subpart 91.25—Inspection for Certification [1]

§ 91.25-1 Prerequisite of reissuance of certificate of inspection.

(a) An inspection for certification is a prerequisite of the reissuance of a certificate of inspection.

[CGFR 57-18, 22 F.R. 3468, May 17, 1957]

§ 91.25-5 When made.

(a) The inspection for certification will be made only upon written application of the master, owner, or agent of the vessel on Form CG-833, Application for Inspection of Vessel, to the Officer in Charge, Marine Inspection, at or nearest the port where the vessel is located.

[CGFR 57-18, 22 F. R. 3469, May 17, 1957]

§ 91.25-10 Scope of inspection.

(a) The inspection for certification shall include an inspection of the structure, boilers, machinery, and equipment. The inspection shall be such as to insure that the vessel, as regards the structure, boilers, and their appurtenances, piping, main and auxiliary machinery, electrical installations, lifesaving appliances, fire detecting and extinguishing equipment, and other equipment, is in satisfactory condition and fit for the service for which it is intended, and that it complies with the applicable regulations for such vessel, and that the radio installation is in compliance with the requirements of the Federal Communications Commission.

(b) When equipment is installed which is not required by applicable regulations in this subchapter, that equipment shall be inspected and tested as required for such equipment by applicable regulations in Subchapter H (Passenger Vessels) of this chapter. For example, fire-detecting systems shall be inspected and tested as required by Subpart 71.25 of Subchapter H (Passenger Vessels) of this chapter.

[CGFR 53-25, 18 F.R. 7854, Dec. 5, 1953, as amended by CGFR 57-18, 22 F.R. 3469, May 17, 1957; CGFR 62-17, 27 F.R. 9039, Sept. 11, 1962]

§ 91.25-15 Lifesaving equipment.

(a) At each inspection for certification, except as modified in subparagraph (2) of this paragraph, the marine inspector shall conduct the following tests and inspections of lifesaving equipment:

(1) It shall be demonstrated that the air tanks of all lifesaving appliances are airtight.

(2) Each lifeboat shall be lowered to near the water and then be loaded with its allowed capacity, evenly distributed throughout the length, and then be lowered into the water until it is afloat, and be released from the falls. In making this test persons or deadweight may be used. The total weight used shall be at least equal to the allowed capacity of the lifeboat considering persons to weigh 165 pounds each. This test shall be made at least once in each two-year period. If practicable it shall be made at the inspection for certification or at a reinspection.

(3) Each life preserver shall be examined to determine its serviceability. If found to be satisfactory, it will be stamped "Passed," together with the date, the port, and the inspector's initials. If not in a serviceable condition, the life preserver shall be removed from the vessel's equipment, and if beyond repair, shall be destroyed in the presence of the inspector.

(4) All lifeboat winch electrical control apparatus shall be opened up and inspected.

(5) Where gravity davits are installed, it shall be demonstrated that the lifeboat can be swung out and lowered from any stopped position by merely releasing the brake on the lifeboat winch. The use of force to start the davits or the lifeboat winch will not be permitted.

(6) Inflatable life rafts shall be serviced at an approved servicing facility in accordance with the provisions of Subpart 160.051 of Subchapter Q (Specifications) of this chapter. Inflatable life rafts shall be serviced at an approved servicing facility every 12 months or not later than the next vessel inspection for certification provided the total time since date of last servicing does not exceed 15 months. The period for servicing is computed from the date of last servicing. Except in emergencies no servicing should be done aboard vessels. If at any time external damage is found to the container or straps or if the seal is broken, the Officer in Charge, Marine Inspection, shall be notified and the raft shall be serviced by an approved servicing facility.

NOTE: After the raft has been satisfactorily serviced in the presence of a marine inspector at an approved servicing facility, the raft is repacked and sealed and the carry-

[1] CGFR 57-18. 22 F.R. 3468, May 17, 1957.

ing case stamped "PASSED" together with the date, port, and the marine inspector's initials.

(7) All other items of lifesaving equipment shall be examined to determine that they are in suitable condition.

[CGFR 52-43, 17 F.R. 9446, Oct. 18, 1952, as amended by CGFR 60-36, 25 F.R. 10629, Nov. 5, 1960; CGFR 61-15, 26 F.R. 9288, Sept. 30, 1961]

§ 91.25-20 Fire extinguishing equipment.

(a) At each inspection for certification and at such other times as considered necessary the inspector shall determine that all fire extinguishing equipment is in suitable condition and may require such tests as are considered necessary to determine the condition of the equipment. The inspector shall determine if the tests and inspections required by § 97.15-60 of this subchapter have been conducted. At each inspection for certification the inspector shall conduct the following tests and inspections of fire extinguishing equipment:

(1) All hand portable fire extinguishers and semi-portable fire extinguishing systems shall be checked as noted in Table 91.25-20 (a) (1). In addition, the hand portable fire extinguishers and semi-portable fire extinguishing systems shall be examined for excessive corrosion and general condition.

TABLE 91.25-20(a)(1)

Type unit	Test
Soda acid	Discharge. Clean hose and inside of extinguisher thoroughly. Recharge.
Foam	Discharge. Clean hose and inside of extinguisher thoroughly. Recharge.
Pump tank (water or antifreeze).	Discharge. Clean hose and inside of extinguisher thoroughly. Recharge with clean water or antifreeze.
Cartridge operated (water, antifreeze or loaded stream).	Examine pressure cartridge and replace if end is punctured or if cartridge is otherwise determined to have leaked or to be in unsuitable condition. Remove liquid. Clean hose and inside of extinguisher thoroughly. Recharge with clean water, solution, or antifreeze. Insert charged cartridge.
Carbon dioxide	Weigh cylinders. Recharge if weight loss exceeds 10 percent of weight of charge. Inspect hose and nozzle to be sure they are clear.[1]

[1] Cylinders shall be tested and marked in accordance with the regulations of the Interstate Commerce Commission, as noted in § 147.04-1 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels) of this chapter.

TABLE 91.25-20(a)(1)—Continued

Type unit	Test
Dry chemical (cartridge-operated type).	Examine pressure cartridge and replace if end is punctured or if cartridge is otherwise determined to have leaked or to be in unsuitable condition. Inspect hose and nozzle to see they are clear. Insert charged cartridge. Be sure dry chemical is free-flowing (not caked) and chamber contains full charge.
Dry chemical (stored pressure type).	See that pressure gage is in operating range. If not, or if seal is broken, weigh or otherwise determine that full charge of dry chemical is in extinguisher. Recharge if pressure is low or if dry chemical is needed.
Vaporizing liquid (pump type).	Pump a few strokes into clean pail and replace liquid. Keep water out of extinguisher or liquid. Keep extinguisher completely full of liquid.
Vaporizing liquid [2] (stored pressure type).	See that pressure gage is in operating range. Weigh or check liquid level to determine that full charge of liquid is in extinguisher. Recharge if pressure is low or if liquid is needed.

[2] Vaporizing-liquid type fire extinguishers containing carbon tetrachloride or chlorobromomethane or other toxic vaporizing liquids shall be removed from all vessels on or before Jan. 1, 1962. (See § 95.50-5(e) of this chapter.)

(2) Fixed fire extinguishing systems shall be checked as noted in Table 91.25-20 (a) (2). In addition, all parts of the fixed fire extinguishing systems shall be examined for excessive corrosion and general conditions.

TABLE 91.25-20 (a) (2)

Type system	Test
Foam	Systems utilizing a soda solution shall have such solution replaced. In all cases, ascertain that powder is not caked.
Carbon dioxide.	Weigh cylinders. Recharge if weight loss exceeds 10 percent of weight of charge.[1]

[1] Cylinders shall be tested and marked in accordance with the regulations of the Interstate Commerce Commission, as noted in § 147.04-1 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels) of this chapter.

(3) On all fire extinguishing systems, all piping controls, valves, and alarms shall be checked to ascertain that the system is in operating condition. In this respect, steam smothering lines shall be checked with at least a 50 p. s. i. air pressure with the ends capped or by blowing steam through the lines at the designed pressure.

(4) The fire main system shall be operated and the pressure checked at the most remote and highest outlets. All fire hose shall be subjected to a test

pressure equivalent to the maximum pressure to which they may be subjected in service, but not less than 100 p. s. i.

[CGFR 52-43, 17 F.R. 9446, Oct. 18, 1952, as amended by CGFR 54-16, 19 F.R. 4926, Aug. 6, 1954; CGFR 57-18, 22 F.R. 3469, May 17, 1957; CGFR 59-21, 24 F.R. 7191, Sept. 5, 1959]

§ 91.25-25 Hull equipment.

(a) At each inspection for certification, the inspectors shall conduct the following tests and inspections of hull equipment:

(1) All watertight doors shall be operated locally by manual power and also by hydraulic or electric power if so fitted. Where remote control is fitted, the doors shall also be operated by the remote control apparatus.

(2) The remote controls of all valves shall be operated.

(3) An inspection of the cargo gear shall be required. The inspection may consist of tests and examinations to determine the condition and suitability of the cargo gear. Current valid certificates and registers of cargo gear, issued by recognized non-profit organizations or associations approved by the Commandant, may be accepted as prima facie evidence of the condition and suitability of the cargo gear. Cargo gear certificates and registers will not be issued by the Coast Guard.

(b) Every acceptable cargo gear certificate and/or register shall be properly executed by a person authorized to do so and shall:

(1) Certify as to the tests and examinations conductod;

(2) Show the dates on which the tests and examinations were conducted; and

(3) Indicate that the cargo gear therein described complies with standards equal to or exceeding those set forth in Subpart 91.37.

(c) Competent persons for the purposes of this section and Subpart 91.37 are:

(1) Coast Guard marine inspectors;

(2) Surveyors of the organizations or associations approved by the Commandant;

(3) Such other persons as are authorized by the regulations in Subpart 91.37 as may be required; and,

(4) Responsible officials or employees of the testing laboratories, companies, or organizations who conduct tests of pieces of loose cargo gear, wire rope, or the annealing of gear as may be required.

(d) The registers issued in connection with cargo gear certification must have all required entries fully completed as of the dates indicated, shall be kept current, and shall include the following:

(1) A register of the cargo handling machinery and the gear accessory thereto carried on the vessel named therein;

(2) Certification of the testing and examination of winches, derricks, and their accessory gear;

(3) Certification of the testing and examination of cranes, hoists, and their accessory gear;

(4) Certification of the testing and examination of chains, rings, hooks, shackles, swivels, and blocks;

(5) Certification of the testing and examination of wire rope;

(6) Certification of the heat treatment of chains, rings, hooks, shackles, and swivels which require such treatment; and,

(7) Certification of the annual thorough examinations of gear not required to be periodically heat treated.

(e) It is the responsibility of the master to have a ship's officer inspect cargo gear when required by Subpart 91.37. For those inspected vessels which do not have valid cargo gear certificates and registers as provided by this section, such vessels will be required to have their shipboard cargo gear undergo tests and examinations in accordance with the provisions of Subpart 91.37.

(Sec. 4, 49 Stat. 1935, as amended; 46 U.S.C. 660a) [CGFR 52-43, 17 F.R. 9446, Oct. 18, 1952, as amended by CGFR 57-18, 22 F.R. 3469, May 17, 1957; CGFR 61-44, 26 F.R. 11010, Nov. 23, 1961]

§ 91.25-30 Electrical engineering equipment.

(a) For inspection procedures of electrical engineering equipment and systems see Subchapter J (Electrical Engineering) of this chapter.

[CGFR 52-43, 17 F.R. 9446, Oct. 18, 1952]

§ 91.25-35 Marine engineering equipment.

(a) For inspection procedures of marine engineering equipment and systems, see Subchapter F (Marine Engineering) of this chapter.

[CGFR 52-43, 17 F.R. 9447, Oct. 18, 1952]

§ 91.25-37 Tanks containing dangerous cargoes.

(a) For inspection and tests of tanks containing certain dangerous cargoes in bulk, see Part 98 of this subchapter.

[CGFR 58-9, 23 F.R. 4829, June 28, 1958]

§ 91.25–40 Sanitary inspection.

(a) At each inspection for certification, the quarters, toilets, and washing spaces, galleys, serving pantries, lockers, etc., shall be examined by the inspector to be assured that they are in a sanitary condition.

[CGFR 57–18, 22 F. R. 3469, May 17, 1957]

§ 91.25–45 Fire hazards.

(a) At each inspection for certification, the inspector shall examine the tank tops and bilges in the machinery spaces to see that there is no accumulation of oil which might create a fire hazard.

[CGFR 57–18, 22 F. R. 3469, May 17, 1957]

§ 91.25–50 Inspector not limited.

(a) Nothing in this subpart shall be construed as limiting the inspector from making such tests or inspections as he deems necessary to be assured of the safety and seaworthiness of the vessel.

[CGFR 52–43, 17 F.R. 9447, Oct. 18, 1952]

Subpart 91.27—Reinspection

SOURCE: §§ 91.27–1 to 91.27–15 contained in CGFR 57–18, 22 F. R. 3469, May 17, 1957.

§ 91.27–1 When made.

(a) At least one reinspection shall be made on each vessel holding a certificate of inspection valid for two years. This reinspection will be made, where possible, between the tenth and fourteenth month of the period for which the certificate is valid.

(b) No written application for reinspection will be required.

§ 91.27–5 Scope.

(a) The inspector shall examine all accessible parts of the vessel's hull, machinery, and equipment to be assured that it is in a satisfactory condition.

(b) In general, the scope of the reinspection shall be the same as for the inspection for certification, but will be in less detail unless it is determined that a major change has occurred since the last inspection.

§ 91.27–10 Deficiencies in maintenance.

(a) If the reinspection reveals deficiencies in the maintenance as called for by the regulations in this subchapter, such necessary repairs or improvements shall be made as may be ordered.

§ 91.27–15 Inspectors not limited.

(a) Nothing in this subpart shall be construed as limiting the inspector from making such tests or inspections as he deems necessary to be assured of the seaworthiness of the vessel.

Subpart 91.30—Inspection After Accident

§ 91.30–1 General or partial survey.

(a) A survey, either general or partial, according to the circumstances, shall be made every time an accident occurs or a defect is discovered which affects the safety of the vessel or the efficacy or completeness of its lifesaving appliances, fire-fighting or other equipment, or whenever any important repairs or renewals are made. The survey shall be such as to insure that the necessary repairs or renewals have been effectively made, that the material and the workmanship of such repairs or renewals are in all respects satisfactory, and that the vessel complies in all respects with the regulations in this subchapter.

[CGFR 52–43, 17 F.R. 9447, Oct. 18, 1952]

Subpart 91.35—Sanitary Inspections

§ 91.35–1 When made.

(a) An inspection of quarters, toilet and washing spaces, serving pantries, galleys, etc., shall be made at least once in every month. If the route of the vessel is such that it is away from a United States port for more than one month, an inspection shall be conducted at least once every trip.

(Sec. 4, 49 Stat. 1935, as amended; 46 U.S.C. 660a) [CGFR 52–43, 17 F.R. 9447, Oct. 18, 1952, as amended by CGFR 62–17, 27 F.R. 9039, Sept. 11, 1962]

Subpart 91.37—Inspection of Cargo Gear

SOURCE: §§ 91.37–1 to 91.37–85 contained in CGFR 61–44, 26 F.R. 11010, Nov. 23, 1961.

§ 91.37–1 When made.

(a) The specific tests and examinations shall be made at the intervals stated in the regulations in this subpart.

(b) A thorough examination of the assembled gear shall be made at least once in every year.

(c) An inspection to determine the condition and suitability of shipboard

cargo gear will be made by a marine inspector at each inspection for certification. Inspections may be made at such other times as considered necessary by the Officer in Charge, Marine Inspection.

(d) For vessels fitted with cargo gear, an initial test of the assembled units under proof loads shall be conducted, followed by a complete dismantling or disassembling of such gear and a thorough examination of the parts to ascertain its condition. Subsequent tests of the assembled units under proof loads, followed by a dismantling or disassembling of such gear and a thorough examination shall be made once every 4 years, or oftener if necessary.

§ 91.37-3 Definitions of terms and words used in this subpart.

(a) *Cargo gear.* The term "cargo gear" includes masts, stays, booms, winches, cranes, elevators, conveyors, standing and running gear forming that part of the shipboard cargo gear used in connection with the loading or unloading of a vessel. This term does not include material handling gear and rigging of special design vessels used solely in dredging, pile driving, drilling for mineral deposits, and construction work.

(b) *Dismantling or disassembling of gear.* The "dismantling" or "disassembling" of gear contemplated is the taking apart of units of gear to the extent necessary to determine the suitability of such gear for continued service and as may be specifically required to carry out the intent of a particular regulation in this subpart. After proof load tests the disassembling need not include the sheaves and pins of the blocks included in the test unless there appears to be evidence of deformation or failure.

(c) *Thorough examination.* The "thorough examination" contemplated is a visual examination, supplemented if necessary by other means such as by a hammer test or by a test with electronic or ultrasonic devices.

(d) *Ton.* The word "ton" means a ton of 2,240 pounds.

(e) *Safe working load.* The "safe working load" (SWL) contemplated is the load the gear is approved to lift, excluding the weight of the gear itself.

§ 91.37-5 Tests and examinations of shipboard cargo gear.

(a) For vessels fitted with cargo gear and without valid cargo gear certificates and registers issued by organizations or associations recognized by the Coast Guard, inspections shall be made by competent persons described in § 91.25-25(c) (1) and (2) to determine the condition and suitability of the shipboard cargo gear. For the initial and subsequent guadrennial inspections, all the cranes, winches, hoists, derrick booms, derrick and mast bands, and all parts used in loading or unloading cargo shall be assembled in units and such assembled units shall then be tested under proof loads. The proof loads shall be handled for various types of units as required by specific regulations in this subpart. After the proof load tests of the assembled units of gear have been made, such gear shall be disassembled or dismantled so as to permit them to be thoroughly examined. The sheaves and pins of the blocks included in these proof load tests need not be removed unless there appears to be evidence of deformation or failure.

(b) For vessels fitted with cargo gear and holding valid cargo gear certificates and registers issued by organizations or associations recognized by the Coast Guard, the marine inspectors may accept such certificates as prima facie evidence of compliance with the requirements in this subpart. If an Officer in Charge, Marine Inspection, is in doubt as to the condition and suitability of shipboard cargo gear for such a vessel, the tests and examinations, or such portions thereof as deemed necessary, provided for in this subpart will be required.

(c) If any part or portion of the gear fails or becomes defective during such tests, such defective equipment shall be satisfactorily repaired or replaced.

§ 91.37-10 Cargo gear of special design and limited use.

(a) The regulations in this subpart shall apply to cargo gear of special design and limited use (derrick barges rigged for heavy lifts, cargo booms on self unloaders, etc.) only to the extent that it is practicable to do so. These requirements may be modified by the Officer in

Charge, Marine Inspection, where the inspection is performed according to the design characteristics of such cargo gear.

(b) Nondestructive tests, such as radiography, ultrasonic, electronic or other methods, may be utilized to determine the condition of heavy lift gear after it has been unit tested, provided such methods are acceptable to the Officer in Charge, Marine Inspection, having cognizance of the tests. However, no deviations or modifications shall be permitted to lessen the requirements for cargo gear inspection as set forth in § 91.37-70 and the maintenance of the applicable cargo gear records as set forth in § 91.37-75.

§ 91.37-15 Cargo gear plans required when plans are not approved by a classification society.

(a) For a new vessel or a vessel applying for initial inspection, the following plans of cargo gear shall be submitted in triplicate to the Officer in Charge, Marine Inspection, having jurisdiction for approval:

(1) Plans showing a stress diagram with the principal details of the gear.

(2) Plans containing a diagram showing the arrangement of the assembled gear and indicating the safe working load for each component part.

(b) The safe working load on which the design of any component part of the cargo gear is to be based, shall be taken as the maximum resultant load upon the component part in the design conditions assumed. The safe working load of the assembly is the load the gear is approved to lift, excluding the weight of the gear itself.

(c) One approved copy of each set of cargo gear plans shall be retained on the vessel.

§ 91.37-20 Cargo gear plans approved by a classification society.

(a) The plans required by § 91.37-15(a) need not be submitted to the Officer in Charge, Marine Inspection, for approval if such plans are or have been approved by the American Bureau of Shipping or similar classification society recognized by the Commandant.

(b) One approved copy of each set of cargo gear plans shall be retained on the vessel.

§ 91.37-25 Factors of safety.

(a) In the design of the cargo gear, the safety factors in Table 91.37-25(a), taken in association with suitable design assumptions for actual loading conditions, shall be used and regarded as minima.

(b) The Commandant will give consideration to the use of factors of safety differing from those given in Table 91.37-25(a) where special materials or cargo gear of special design are to be used.

TABLE 91.37-25(a)

Safe working loads for component parts	Safety factors based on—		
	Ultimate strength	Yield point	Breaking test load
All metal structural parts, except steel booms:			
When the working load of the assembled gear is 10 tons or less	[1] 5	----	----
When the working load of the assembled gear is 13 tons or over	[1] 4	----	----
Steel booms:			
When the working load of the assembled gear is 10 tons or less	----	[1] 3	----
When the working load of the assembled gear is 13 tons or over	----	[1] 2½	----
Wooden structural parts	8	----	----
Chains	4½	----	----
Wire rope:			
For working loads 10 tons or under	----	----	5
For working loads over 10 tons	----	----	4
Fiber rope:			
When intended for running rigging	7	----	----
When intended for fixed gear and vangs	5	----	----

[1] For working loads between 10 and 13 tons, intermediate values of safety factors may be used.

§ 91.37-30 Loose gear certificates and tests.

(a)(1) Evidence of compliance with the proof load test requirements in this section for all chains, rings, hooks, links, shackles, swivels, blocks, and any other loose gear whether accessory to a machine or not, but which is used as ship's cargo gear shall be listed on an appropriate certificate.

(2) This evidence of test and the recording thereof is required only once with respect to each article of gear so long as each article is identified and the certificates required are available on the vessel.

(3) Proof loads applied to the articles of loose gear shall be as shown in Table 91.37-30(a)(3).

(b) All chains, rings, hooks, links, shackles, swivels, blocks and any other loose gear whether accessory to a machine or not, but which is used or intended for use as ship's cargo gear, shall bear a mark or number by which each piece can be identified and shall be listed on a loose gear certificate. The safe working load "SWL" shall be marked on all blocks.

(c) The certificate shall show the distinguishing number or mark applied to the articles of gear; a description of the articles of gear; the date when the test proof load was applied; and the safe working load. The forms for loose gear certificates shall be as prescribed by and acceptable to associations or organizations approved by the Commandant and shall be suitable for the purposes of this section.

(d) After being tested all of the gear shall be examined to ascertain whether any part has been damaged, permanently deformed by the test or has other visible defects. The pins and sheaves of all tested blocks shall be removed for this purpose. If damaged during these tests, such gear shall be satisfactorily repaired or replaced.

(e) The required examinations as set forth in paragraph (d) of this section may be accomplished by mechanical, electrical or other means provided the method employed is equal in efficiency to the visual examination of disassembled gear.

TABLE 91.37-30(a)(3)

Articles of gear	*Proof load*
Chains, rings, hooks, links, shackles, swivels	Twice the safe working load.
Single sheave block	Four times the safe working load.[1]
Multiple sheave block with safe working load up to and including 20 tons.	Twice the safe working load.
Multiple sheave block with safe working load over 20 tons up to and including 40 tons.	20 tons in excess of the safe working load.
Multiple sheave block over 40 tons	One and a half times the safe working load.
Roller chains (pitched chains) used with hand operated chain falls, and rings, hooks, shackles, or swivels permanently attached thereto.	Do.
Chain fall blocks used with roller chains (pitched chains), and rings, hooks, shackles, or swivels permanently attached thereto.	Do.

[1] The proof load applied to the block is equivalent to twice the maximum resultant load on the eye or pin when lifting the safe working load attached to a rope which passes around the sheave of the block. The proof load is, therefore, equal to four times the safe working load or twice the safe working load when the load is attached directly to the block instead of a rope passing around the sheave.

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§ 91.37-35 Test and certification of wire rope.

(a) All wire rope used as shipboard cargo gear shall be able to withstand a breaking test load of at least five times the safe working load. In the case of gear with a lifting capacity of over 10 tons, the breaking test load of wire rope shall be at least four times the safe working load. All wire rope shall be identified and described in a wire rope certificate. Such certificate shall be furnished and attested to by the manufacturer or a testing agency and shall certify:

(1) The breaking test load of a sample of the wire rope, which should be at least five times the safe working load or at least four times the safe working load if part of gear with a lifting capacity of over 10 tons;

(2) The name and address of the manufacturer;

(3) The diameter of the rope in inches and/or fractions thereof;

(4) The number of strands and the number of wires in each strand;

(5) The quality of the wire (e.g. improved plow steel);

(6) The dato of the test; and,

(7) The load at which the sample broke.

(b) The forms for the wire rope certificates shall be presented by and acceptable to associations or organizations

approved by the Commandant and shall be suitable for the purposes described in this section.

(c) In addition to the manufacturers' or testing agencies' attestations, a sample of the wire rope may be tested to destruction if required by the marine inspector when a visual inspection indicates an apparent defective condition.

§ 91.37–40 Proof test of cargo gear as a unit.

(a) Winches with their accessory gear, including the derricks and attachments, at least once in each four years, shall be tested as a unit with proof loads exceeding the safe working load as set forth in Table 91.37–40(a).

TABLE 91.37–40(a)

Safe working load of assembled gear	*Proof load*
Not exceeding 20 tons	25 percent in excess.
Over 20 tons but not exceeding 50 tons.	5 tons in excess.
Over 50 tons	10 percent in excess.

(b) The proof load applied to winches and their gear shall be lifted with the ship's normal tackle including the winches and with the boom at an angle which should not be greater than 15 degrees to the horizontal or to the lowest angle approved in association with the design, or when these angles are impracticable to the lowest practicable angle. When the load has been lifted, it shall be swung as far as possible in both directions.

(1) Where electrical winches are fitted with electromagnetic or hydraulic brakes at the winch, mechanical brakes for manual operation will not be required, but if so fitted shall be in satisfactory operating condition.

(2) Current for electric winch operation during the test shall be taken from the ship's circuits. Shore current may be used if it passes through the ship's switchboard.

(c) Cranes and other hoisting machines with their accessory gear, at least once in each four years, shall be tested with a proof load which shall exceed the safe working load as set forth in Table 91.37–40(a).

(d) The proof load applied to cranes and hoists shall be lifted, topped and swung (slewed) as far as possible in each direction. If the boom of the crane has a movable radius, it shall be tested with a proof load as set forth in this section at the maximum and minimum radii of the boom. In the case of hydraulic cranes whose capacity is limited by pressure, and with which it is not possible to lift a load 25 percent in excess of the safe working load, the greatest possible load in excess of the safe working load shall be used. These tests and the amounts of the loads shall be recorded.

(e) After satisfactory completion of the proof load testing of the cargo gear in accordance with paragraphs (a), (b), (c) and (d) of this section, the cargo gear and all component parts shall be given a thorough visual examination, supplemented as necessary by other means such as a hammer test or with electronic or ultrasonic devices, to determine if any of the parts were damaged, deformed, or otherwise rendered unsafe for further use. If found defective, such gear shall be replaced.

(1) When the test is being conducted for the first time on a vessel, accessory gear shall be dismantled or disassembled for examination after the test. The sheaves and pins of the blocks included in this test need not be removed unless there appears to be evidence of deformation or failure.

(2) For subsequent tests such parts of the machinery and gear shall be dismantled and/or disassembled after the test as necessary to determine its suitability for continued service.

(f) Appropriate means shall be provided to prevent the foot of the boom from being accidentally lifted from the socket during the test.

(g) Vessels whose cargo gear has been in use but are without the valid registers and certificates described in § 91.25–25 shall be inspected for defective cargo gear. The gear shall then be tested and examined as prescribed in this section. If the movable weights for proof testing are not reasonably available, a spring or hydraulic scale certified for accuracy may be used. Whenever such scales are used, the proof load shall be applied with the boom swung out as far as possible in one direction and then in the other direction and at such intermediate positions as may be indicated. At any position, the indicator of the scale must maintain a constant reading under the proof load for a period of five minutes.

(h) On all types of winches and cranes efficient means shall be provided to stop and hold the proof load in any position, and the efficiency of such means shall be demonstrated.

(1) Electric winches, electrohydraulic winches fitted with electromagnetic or

hydraulic brakes at the winch, or cranes shall be equipped so that a failure of the electric power shall stop the motion and set the brakes without any action on the part of the operator.

(2) Current for electric winches and crane operation during the tests shall be taken from the ship's circuits. Shore current may be used if it passes through the ship's switchboard.

§ 91.37-45 Marking of booms and cranes.

(a) The safe working load (abbreviated "SWL") for the assembled gear shall be marked on the heel of each boom with the minimum angle to the horizontal for which the gear is designed. These letters and figures shall be in contrasting colors to the background and at least one inch in height.

(b) Where the boom is rated at varying capacities depending on the radius, tables indicating the maximum safe working loads for the various working angles of the boom and the maximum and minimum radii at which the boom may be safely used shall be conspicuously posted near the controls and visible to the operator when working the gear.

§ 91.37-50 Use of wire rope and chains.

(a) An eye splice made in any wire rope used as cargo gear, with or without a thimble, shall have at least three tucks with whole strands and two tucks with one half the wire cut from the tucking stand: *Provided,* That this requirement shall not preclude the use of any other form of splice or connection if it is as efficient as the splice specified.

(b) Single wire rope cargo falls, wire rope pendants, topping lifts and preventers shall consist of clear lengths without splices except at the working ends. Wire rope clips shall not be used to form eyes in the working ends of single wire rope cargo falls.

(c) Wire rope shall not be used for shipboard cargo gear if in any length of 8 diameters, the number of visible broken wires exceeds ten percent of the total number of wires in the rope, or if the rope shows other signs of excessive wear, corrosion, kinking, or defect.

(d) Hoisting or sling chains used for shipboard cargo gear shall not be used if a length of chain has been stretched more than five percent of the original length, or the chain has become unsafe through overloading or faulty heat treatment, or whenever other external defects are evident.

(e) Chains used for shipboard cargo gear shall not be shortened by knotting, bolting, or wiring the links. The use of chains having a knot or kink as shipboard cargo gear is prohibited.

§ 91.37-55 Annealing.

(a) Chains, hooks, rings, links, shackles, and swivels of wrought iron used as cargo gear shall be annealed at the following intervals:

(1) Wrought iron chains and gear in general use and of one-half inch or less, at least once in every six months.

(2) All other wrought iron chains and gear, including topping lift chains, in general use, at least once in every twelve months.

(b) The annealing shall be done in a suitable closed oven and not over an open fire. Wrought iron shall be annealed at a temperature of between 1100° and 1200° Fahrenheit for a period of between 30 and 60 minutes. After being annealed, the article shall be allowed to cool slowly and shall be then tested completely for defects.

(c) The heat treatment of the cargo gear shall be done only by reputable firms having suitable equipment and personnel trained for this purpose. A certificate attesting to the annealing of all gear heat treated shall be furnished to the vessel.

(d) The heat treatment of chains, hooks, rings, links, shackles, and swivels of materials other than wrought iron used as cargo gear, if required, shall be effected in accordance with the manufacturers' instructions.

§ 91.37-60 Additions to gear.

(a) When articles of loose gear and/or wire rope conforming with the requirements in this subpart are added to installed gear, or used as replacements in such gear from time to time, a record shall be maintained on the vessel which shall identify each article and the certificate accompanying it.

§ 91.37-65 Alterations, renewals, or repairs of cargo gear.

(a) Whenever important repairs, renewals, or alterations are indicated or intended for the masts, booms, and permanent fittings of the cargo gear, such repairs, renewals, or alterations shall be undertaken only after compliance with the applicable provisions of § 91.45-1.

(b) Tests and examinations of the repairs, renewals, or alterations shall be

in accordance with the provisions of § 91.37-40.

(c) When welding is used to lengthen, alter, or repair chains, rings, hooks, links, shackles, or swivels, they shall be properly heat treated and shall before being again put into use, be tested and examined in accordance with the provisions of § 91.37-30.

§ 91.37-70 Responsibility of ship's officer for inspection of cargo gear.

(a) All wire rope, chains other than bridle chains attached to booms or masts, and all rings, hooks, links, shackles, swivels and blocks used in loading or unloading shall be visually inspected by a ship's officer designated for that purpose by the master.

(b) These inspections by a shlp's officer shall be made at frequent intervals, and in any event not less than once in each month.

(c) Immediately after such an inspection by a ship's officer notations of such an inspection shall be made in record form which shall be in or kept with the cargo gear register if carried. In addition, the same notations of inspections together with the date shall be entered in the Official Logbook for those vessels required to carry this record, or such information shall be kept with the log records maintained on vessels not required to carry the Official Logbook. (See § 91.37-75 for entries required to be kept.)

§ 91.37-75 Records regarding cargo gear.

(a) The cargo gear records described in this subpart shall be maintained on the vessel and shall be made available to Coast Guard officials upon request. These records shall be kept for the periods of time they are valid and, in addition, until the next Coast Guard inspection for certification of the vessel. The certificates of manufacturers and/or testing laboratories, companies, or organizations shall be maintained on the vessel so long as the gear described in such certificates is on board the vessel.

(b) The records of all the inspections of cargo gear made by the ship's officers in accordance with § 91.37-70 shall be maintained on the vessel for periods of time which agree with those periods as covered by the current Coast Guard certificate of inspection issued to the vessel. These records show the dates of inspections, identify articles inspected, the conditions observed, and the name of the officer performing the inspection.

(c) The records of all tests and examinations conducted by or under the supervision of surveyors of the organizations or associations approved by the Commandant shall be maintained on the vessel.

(d) The Coast Guard will not issue cargo gear certificates and/or registers. The Coast Guard's records of inspections, tests, and examinations of a particular vessel's cargo gear made by a marine inspector or conducted under the supervision of the Coast Guard will be maintained in the office of the Officer in Charge, Marine Inspection, having jurisdiction over the vessel at the time such work was performed. The original certificates or certified copies of certificates of manufacturers and/or testing laboratories, companies, or organizations for loose cargo gear, wire rope, or the annealing of gear shall be maintained on the vessel.

§ 91.37-80 Advance notice that cargo gear testing is desired.

(a) The owner, agent, or master of a vessel shall give an advance notice when it is desired that the tests and examinations of cargo gear be made by or under the supervision of the marine inspector. This advance notice shall be given to the Officer in Charge, Marine Inspection, in whose marine inspection zone the vessel is available for such inspection and examination.

(b) For the initial inspection and examination of cargo gear by the Coast Guard, the advance notice shall be to the cognizant Officer in Charge, Marine Inspection, as early as possible and shall include sketches and/or drawings showing each unit of cargo gear, the identification of component parts and the safe working loads. Copies of original certificates of manufacturers and/or testing laboratories, companies, or organizations maintained on the vessel may be accepted by the cognizant Officer in Charge, Marine Inspection, when satisfied such certificates properly describe the qualities of the component parts of the gear in question.

§ 91.37-85 Responsibility for conducting required tests and examinations.

(a) The vessel's owners and/or operators shall furnish and pay the expenses required in conducting the tests and examinations prescribed by the regula-

tions in this subpart, including the supplying of all instruments, other equipment, and personnel including personnel supervision for performance of all work required.

(b) The Coast Guard's participation in these required tests and examinations shall be confined to witnessing required tests and examinations with the view to determining whether or not the gear is satisfactory for the purpose intended. In the event it is determined that the gear is defective or unable to meet the standards set forth in this subpart such gear, or portions thereof, shall be replaced to the satisfaction of the Officer in Charge, Marine Inspection, having jurisdiction over the vessel.

Subpart 91.40—Drydocking

§ 91.40–1 When required.

(a) Except for extensions as authorized by the Commandant, all vessels shall be placed in drydock or hauled out for examination within the periods set forth in this paragraph, depending upon the service.

(1) Each vessel should be drydocked or hauled out at intervals not to exceed 18 months if it operates in salt water an aggregate of more than 9 months in the 18-month period since it was last drydocked or hauled out.

(2) Each vessel shall be drydocked or hauled out at intervals not to exceed 36 months if it operates in salt water an aggregate of more than 3 months but not more than 6 months in each 12-month period since it was last drydocked or hauled out. When a vessel exceeds an aggregate of 6 months service in salt water in any 12-month period since it was last drydocked or hauled out, it shall be drydocked or hauled out within 6 months after the end of that period or within the 36-month interval, whichever is earlier.

(3) Each vessel shall be drydocked or hauled out at intervals of 48 months if it operates in salt water an aggregate of 3 months or less in each 12-month period since it was last drydocked.

(4) Each vessel shall be drydocked or hauled out at intervals not to exceed 60 months if it operates exclusively in fresh water.

[CGFR 61–15, 26 F.R. 9288, Sept. 30, 1961, as amended by CGFR 62–17, 27 F.R. 9039, Sept. 11, 1962]

§ 97.40–5 Notice by owner.

(a) The master, owner, or agent shall notify the Officer in Charge, Marine Inspection, when any vessel is to be placed on a dry dock in order that an examination of the underwater portion of the vessel may be made if deemed necessary.

[CGFR 52–43, 17 F.R. 9447, Oct. 18, 1952]

Subpart 91.45—Repairs and Alterations

SOURCE: §§ 91.45–1 and 91.45–5 contained in CGFR 52–43, 17 F.R. 9447, Oct. 18, 1952.

§ 91.45–1 Notice required.

(a) No repairs or alterations affecting the safety of the vessel with regard to the hull, machinery, or equipment, shall be made without the knowledge of the Officer in Charge, Marine Inspection.

(b) Drawings of alterations shall be approved before work is started unless deemed unnecessary by the Officer in Charge, Marine Inspection.

(c) Drawings will not be required for repairs in kind.

§ 91.45–5 Inspection required.

(a) An inspection either general or partial depending upon the circumstances shall be made whenever any important repairs or alterations are undertaken.

Subpart 91.50—Gas Freeing

§ 91.50–1 Inspection necessary.

(a) No alterations, repairs, or operations involving riveting, welding, burning, etc., shall be made in or on the boundaries of oil tanks, oil lines, or oil heating coils until an inspection has been made to determine that such operation can be undertaken with safety. Such inspection shall be made and evidenced as follows:

(1) In a port of the United States, the inspection shall be made by a gas chemist certified by the American Bureau of Shipping. If the services of such certified chemist are not available, the Officer in Charge, Marine Inspection, may, upon the recommendation of the vessel's owner, or contractor, select a competent person to make the inspection. If the inspection reveals that the work may be undertaken with safety, the chemist or authorized person shall issue a certificate setting forth such facts, with any qualifications, before the work is started.

(2) When not in a port of the United States, and a gas chemist is not available,

the inspection shall be made by the senior officer present and a proper entry shall be made in the log.

[CGFR 52-43, 17 F.R. 9447, Oct. 18, 1952]

Subpart 91.55—Plan Approval

AUTHORITY: §§ 91.55-1 to 91.55-20 interpret or apply R.S. 4490, as amended, sec. 3, 24 Stat. 129, as amended; 46 U.S.C. 482, 483.

SOURCE: §§ 91.55-1 to 91.55-20 contained in CGFR 52-43, 17 F.R. 9447, Oct. 18, 1952, except as otherwise noted.

§ 91.55-1 General.

(a) The following list of required plans is general in character, but includes all plans which normally show construction and safety features coming under the cognizance of the Coast Guard. In the case of a particular vessel, all of the plans enumerated my not be applicable, and it is intended that only those plans and specifications be submitted as will clearly show the vessel's arrangement, construction and required equipment.

(b) In the following list of required plans, the items which must be approved by the American Bureau of Shipping for vessels classed by that organization are indicated by an asterisk. When prints bearing record of such approval by the American Bureau of Shipping are forwarded to the Coast Guard they will in general be accepted as satisfactory except insofar as the law or the Coast Guard regulations contain requirements which are not covered by the American Bureau of Shipping.

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

(a) *General.* (1) Specifications.

(2) General Arrangement Plan of decks, holds, inner bottoms, etc., and including inboard and outboard profile.

(b) *Hull structure.*[1] (1) *Inner Bottom Plating and Framing.

(2) *Midship Section.

(3) *Shell Plating and Framing.

(4) *Stem, Stern Frame, and Rudder.

(5) *Structural Deck Plans for Strength Decks.

(6) *Pillars and Girders.

(7) *Watertight and Oiltight Bulkheads.

(8) *Foundations for Main Machinery and Boilers.

(9) *Arrangement of Ports, Doors, and Airports in Shell Plating.

(10) *Hatch Coamings and Covers in Weather and Watertight Decks.

(11) *Details of Watertight Doors and Operating Gear.

(12) *Scuppers and Drains Penetrating Shell Plating.

(13) *Arrangement of the cargo gear including a stress diagram. The principal details of the gear and the safe working load for each component part shall be shown.

(c) *Hull calculations, etc.* Required only when a stability test is to be performed.

(1) Lines (for information).

(2) Curves of Form.

(3) Capacity Plan showing capacities and vertical and longitudinal centers of gravity of cargo spaces, tanks, etc. (for information).

(4) Tank Sounding tables (for information).

(5) Draft Mark Locations (for information).

(d) *Fire control.* (1) General arrangement plans showing for each deck the control stations, the various fire sections enclosed by fire resisting bulkheads, the arrangement of the alarm and extinguishing systems, the fire extinguishers, means of access to different compartments and decks and the ventilation system including location of ventilation shut-downs, positions of dampers and the numbers identifying each system.

(2) Ventilation diagram including dampers and other fire control features.

(3) Details of alarm systems.

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

(e) *Marine engineering.* For plans required for marine engineering equipment and systems, see Subchapter F (Marine Engineering) of this chapter.

(f) *Electrical engineering.* For plans required for electrical engineering, equipment and systems, see Subchapter J (Electrical Engineering) of this chapter.

(g) *Lifesaving equipment.* (1) These plans are to show the location and arrangement of embarkation decks, all overboard discharges and projections in way of launching lifeboats, weights of lifeboats fully equipped and loaded, working loads of davits and winches, types and sizes of falls, the manufacturer's name and identification for all

[1] The asterisk (*) indicates items which may require approval by the American Bureau of Shipping for vessels classed by that society.

equipment, and all other relevant and necessary information.

(i) Arrangement of lifeboats.

(ii) Arrangement of davits.

(iii) Location and stowage of life rafts and buoyant apparatus.

(h) *Crew's accommodations.* (1) Arrangement plans showing accommodations, ventilation, escapes, hospital, and sanitary facilities for all crew members.

(Interpret or apply R.S. 4490, as amended, sec. 3, 29 Stat. 129, as amended; 46 U.S.C. 482) [CGFR 52–43, 17 F.R. 9447, Oct. 18, 1952, as amended by CGFR 61–44, 26 F.R. 11013, Nov. 23, 1961; CGFR 62–17, 27 F.R. 9039, Sept. 11, 1962]

§ 91.55-10 Plans required for alterations of existing vessels.

(a) In the event of alterations involving the safety of the vessel, the applicable plans shall be submitted for approval covering the proposed work except as modified by § 91.45–1. The general scope of the plans shall be as noted in § 91.55–5.

§ 91.55–15 Procedure for submittal of plans.

(a) As the relative location of shipyards, design offices, and Coast Guard offices vary throughout the country, no specific routing will be required in the submittal of plans. In general, one of the following procedures would apply, but in a particular case, if a more expeditious procedure can be used, there will be no objection to its adoption.

(1) The plans may be submitted to the Officer in Charge, Marine Inspection, in the district in which the vessel is to be built. This procedure will be most expeditious in the case of those offices where personnel and facilities are available for examination and approval of the plans locally.

(2) The plans may be submitted directly to the Commandant (MMT), U. S. Coast Guard, 1300 "E" Street NW., Washington 25, D. C. In this case, the plans will be returned directly to the submitter, with a copy of the action being forwarded to the interested Officer in Charge, Marine Inspection.

(3) The plans may be submitted directly to field technical offices.

(i) Commander, 3d Coast Guard District (mmt), 45 Broadway, New York, N.Y., for the geographical area covered by 1st, 3d and 5th Coast Guard Districts.

(ii) Commander, 8th Coast Guard District (mmt), Room 308, Custom House, New Orleans, La., for geographical area covered by 2d, 7th and 8th Coast Guard Districts.

(iii) Commander, 12th Coast Guard District (mmt), 630 Sansome St., San Francisco, Calif., for geographical area covered by 11th, 12th, 13th, 14th and 17th Coast Guard Districts.

(4) In the case of classed vessels, upon specific request by the submitter, the American Bureau of Shipping will arrange to forward the necessary plans to the Coast Guard indicating its action thereon. In this case, the plans will be returned as noted in subparagraph (2) of this paragraph.

[CGFR 52–43, 17 F.R. 9447, Oct. 18, 1952, as amended by CGFR 62–17, 27 F.R. 9039, Sept. 11, 1962]

§ 91.55–20 Number of plans required.

(a) Four copies of each plan are normally required so that one can be returned to the submitter. If the submitter desires additional approved plans, a suitable number should be submitted to permit the required distribution.

[CGFR 62–17, 27 F.R. 9039, Sept. 11, 1962]

Subpart 91.60—Safety Equipment Certificate

§ 91.60–1 Required on an international voyage.

(a) All vessels on an international voyage, and meeting the requirements of this subchapter, shall be issued and keep posted a safety equipment certificate, and where applicable, a safety radio-telegraphy certificate, a safety radio-telephony certificate, and/or an exemption certificate, in accordance with the requirements of the International Convention for the Safety of Life at Sea, 1948, Chapter I, Regulations 11 through 19.

[CGFR 52–43, 17 F.R. 9448, Oct. 18, 1952]

PART 92—CONSTRUCTION AND ARRANGEMENT

Subpart 92.01—Hull Structure

Sec.

Subpart 92.05—Structural Fire Protection

AUTHORITY: §§ 92.01–1 to 92.25–90 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4488, as amended, 4490, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 391, 392, 404, 481, 482, 395, 363, 367, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167–14, November 26, 1954, 19 F.R. 8026; CGFR 56–28, July 24, 1956, 21 F.R. 5659; 167–38, October 26, 1959, 24 F.R. 8857.

SOURCE: §§ 92.01–1 to 92.25–90 contained in CGFR 52–43, 17 F.R. 9448, Oct. 18, 1952, except as otherwise noted.

NOTE: For changes in authority citation to Part 92 not otherwise noted, see 27 F.R. 9039, Sept. 11, 1962.

Subpart 92.01—Hull Structure

§ 92.01–1 Application.

(a) The provisions of this subpart, with the exception of § 92.01–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of § 92.01–90.

§ 92.01–5 Vessels subject to loadline.

(a) For vessels assigned a load line, see Subchapter E (Load Lines) of this chapter, or special requirements as to strength, closure of openings, etc.

§ 92.01–10 Structural standards.

(a) In general, compliance with the standards established by the American Bureau of Shipping, see Subpart 90.35 of this subchapter, will be considered as satisfactory evidence of the structural efficiency of the vessel. However, in special cases, a detailed analysis of the entire structure or some integral part may be made by the Coast Guard to determine the structural requirements.

§ 92.01–15 Special consideration.

(a) Special consideration will be given to the structural requirements for small vessels or vessels of an unusual design not contemplated by the rules of the American Bureau of Shipping.

§ 92.01–90 Vessels contracted for prior to November 19, 1952.

(a) Existing structure previously approved will be considered satisfactory so long as it is maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original construction.

Subpart 92.05—General Fire Protection [1]

§ 92.05-1 Fire hazards to be minimized.

(a) The general construction of the vessel shall be such as to minimize fire hazards insofar as is reasonable and practicable.

§ 92.05-5 Woodwork insulated from heated surfaces.

(a) Internal combustion engine exhausts, boiler and gallery uptakes, and similar sources of ignition shall be kept clear of and suitably insulated from any woodwork or other combustible matter.

[CGFR 52-43, 17 F.R. 9448, Oct. 18, 1952, as amended by CGFR 59-24, 24 F.R. 5023, June 20, 1959]

§ 92.05-10 Lamp room construction.

(a) Lamp, paint, and oil lockers and similar compartments shall be constructed of steel or shall be wholly lined with metal.

§ 92.05-15 Segregation of spaces containing the emergency source of electric power.

(a) The provisions of this section shall apply to all vessels contracted for on or after October 1, 1958.

(b) When a compartment containing the emergency source of electric power, or vital components thereof, adjoins a space containing either the ship's service generators or machinery necessary for the operation of the ship's service generators, all common bulkheads and/or decks shall be protected by approved "structural insulation" or other approved material. This protection shall be such as to be capable of preventing an excessive temperature rise in the space containing the emergency source of electric power, or vital components thereof, for a period of at least one hour in the event of fire in the adjoining space. Bulkheads or decks meeting Class A-60 requirements, as defined by § 72.05-10 of Subchapter H (Passenger Vessels) of this chapter, will be considered as meeting the requirements of this paragraph.

[CGFR 58-10, 23 F.R. 4675, June 26, 1958]

Subpart 92.07—Structural Fire Protection

§ 92.07-1 Application.

(a) The provisions of this subpart, with the exception of § 92.07-90, shall apply to all vessels of 4,000 gross tons and over contracted for on or after January 1, 1962. Such vessels contracted for prior to January 1, 1962, shall meet the requirements of § 92.07-90.

[CGFR 61-15, 26 F.R. 9288, Sept. 30, 1961]

§ 92.07-5 Definitions.

(a) *Standard fire test.* A "standard fire test" is one which develops in the test furnace a series of time temperature relationships as follows:

5 minutes—1,000° F.
10 minutes—1,300° F.
30 minutes—1,550° F.
60 minutes—1,700° F.

(b) *"A" Class divisions.* Bulkheads or decks of the "A" Class shall be composed of steel or equivalent metal construction, suitably stiffened and made intact with the main structure of the vessel; such as shell, structural bulkheads, and decks. They shall be so constructed, that if subjected to the standard fire test, they would be capable of preventing the passage of flame and smoke for one hour.

(c) *"B" Class bulkheads.* Bulkheads of the "B" Class shall be constructed with approved incombustible materials and made intact from deck to deck and to shell or other boundaries. They shall be so constructed that, if subjected to the standard fire test, they would be capable of preventing the passage of flame and smoke for one half hour.

(d) *"C" Class divisions.* Bulkheads or decks of the "C" Class shall be constructed of approved incombustible materials, but need meet no requirements relative to the passage of flame.

(e) *Steel or other equivalent metal.* Where the term "steel or other equivalent metal" is used in this subpart, it is intended to require a material which, by itself or due to insulation provided, has structural and integrity qualities equivalent to steel at the end of the applicable fire exposure.

(f) *Approved material.* Where in this subpart approved materials are required, they refer to materials approved under the applicable subparts of Subchapter Q (Specifications) of this chapter, as follows:

Deck Coverings	164.006
Structural Insulation	164.007
Bulkhead Panels	164.008
Incombustible Materials	164.009
Interior Finish	164.012

[CGFR 61-15, 26 F.R. 9288, Sept. 30, 1961]

[1] CGFR 61-15, 26 F.R. 9288, Sept. 30, 1961.

§ 92.07–10 Construction.

(a) The hull, superstructure, structural bulkheads, decks, and deckhouses shall be constructed of steel. Alternately, the Commandant may permit the use of other suitable material in special cases, having in mind the risk of fire.

(b) Bulkheads of galleys, paint and lamp lockers, and emergency generator rooms shall be of "A" Class construction.

(c) The boundary bulkheads and decks separating the accommodations and control stations from cargo and machinery spaces, galleys, main pantries and storerooms, other than small service lockers, shall be of "A" Class construction.

(d) Within the accommodation and service areas the following conditions shall apply:

(1) Corridor bulkheads in accommodation spaces shall be of the "A" or "B" Class intact from deck to deck. Stateroom doors in such bulkheads may have a louver in the lower half.

(2) Elevator, dumbwaiter, and other trunks shall be of "A" Class construction.

(3) Bulkheads not already specified to be of "A" or "B" Class construction may be of "A", "B", or "C" Class construction.

(4) The integrity of any deck in way of a stairway opening shall be maintained by means of "A" or "B" class bulkheads and doors at one level. The doors shall be of self-closing type. Hold-back hooks will not be permitted. However, magnetic hold-backs operated from the bridge or from other suitable remote control positions are acceptable.

(5) Interior stairs, including stringers and treads, shall be of steel.

(6) Except for washrooms and toilet spaces, deck coverings within accommodation spaces shall be of an approved type. However, overlays for leveling or finishing purposes which do not meet the requirements for an approved deck covering may be used in thicknesses not exceeding ⅜ of an inch.

(7) Ceilings, linings, and insulation, including pipe and duct laggings, shall be of approved incombustible materials.

(8) Any sheathing, furring or holding pieces incidental to the securing of any bulkhead, ceiling, lining, or insulation shall be of approved incombustible materials.

(9) Combustible veneers, trim, decorations, etc. shall not be used in corridors or hidden spaces. This is not intended to preclude the use of an approved Interior Finish or a reasonable number of coats of paint.

(e) Wood hatch covers may be used between cargo spaces or between stores spaces. Hatch covers in other locations shall be of steel or equivalent metal construction. Tonnage openings shall be closed by means of steel plates.

(f) Nitrocellulose or other highly inflammable or noxious fume-producing paints or lacquers shall not be used.

[CGFR 61–15, 26 F.R. 9288, Sept. 30, 1961]

§ 92.07–90 Vessels contracted for prior to Jannary 1, 1962.

(a) Existing structure arrangements and materials previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original construction.

[CGFR 61–15, 26 F.R. 9289, Sept. 30, 1961]

Subpart 92.10—Means of Escape

§ 92.10–1 Application.

(a) The provisions of this subpart, with the exception of § 92.10–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of § 92.10–90.

§ 92.10–5 Two means required.

(a) There shall be at least two means of escape from all general areas accessible to the passengers, if carried, or where the crew may be quartered or normally employed. At least one of these two means of escape shall be independent of watertight doors.

§ 92.10–10 Location.

(a) The two means of escape shall be as remote as practicable so as to minimize the possibility of one incident blocking both escapes.

§ 92.10–15 Vertical ladders not accepted.

(a) Vertical ladders and deck scuttles shall not in general be considered satisfactory as one of the required means of escape. However, where it is demonstrated that the installation of a stairway would be impracticable, a vertical ladder may be used as the second means of escape.

§ 92.10–20 No means for locking doors.

(a) No means shall be provided for locking doors giving access to either of the two required means of escape, except that crash doors or locking devices, capable of being easily forced in an emergency, may be employed provided a permanent and conspicuous notice to this effect is attached to both sides of the door. This paragraph shall not apply to outside doors to deck houses where such doors are locked by key only and such key is under the control of one of the vessel's officers.

§ 92.10–25 Stairway size.

(a) Stairways shall be of sufficient width having in mind the number of persons having access to such stairs for escape purposes.

(b) Vessels contracted for on or after January 1, 1959, shall meet the requirements of this paragraph. Special consideration for relief may be given in the case of small vessels if it is shown to be unreasonable or impracticable to meet the requirements.

(1) All interior stairways, other than those within the machinery spaces or cargo holds, shall have a minimum width of 28 inches. The angle of inclination with the horizontal of such stairways shall not exceed 50 degrees.

[CGFR 52–43, 17 F.R. 9448, Oct. 17, 1952, as amended by CGFR 58–10, 23 F.R. 4675, June 26, 1958]

§ 92.10–30 Dead end corridors.

(a) Dead end corridors, or the equivalent, more than 40 feet in length shall not be permitted.

§ 92.10–35 Public spaces.

(a) In all cases, public spaces having a deck area of over 300 square feet shall have at least two exits. Where practicable, these exits shall give egress to different corridors, rooms, or spaces to minimize the possibility of one incident blocking both exits.

§ 92.10–40 Access to lifeboats.

(a) The stairways, corridors, and doors shall be so arranged as to permit a ready and direct access to the various lifeboat embarkation areas.

§ 92.10–45 Weather deck communications.

(a) Vertical communication shall be provided between the various weather decks by means of permanent inclined ladders.

§ 92.10–90 Vessels contracted for prior to November 19, 1952.

(a) Existing arrangements previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original design provided that in no case will a greater departure from the standards of §§ 92.10–5 through 92.10–45 be permitted than presently exists. Nothing in this paragraph shall be construed as exempting any vessel from having 2 means of escape from all main compartments which are accessible to the passengers, if carried, or where the crew are normally quartered or employed.

Subpart 92.15—Ventilation

§ 92.15–1 Application.

The provisions of this subpart, with the exception of § 92.15–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of § 92.15–90.

§ 92.15–5 Vessels using fuel having a flash point of 110 degrees or lower.

(a) Where liquid fuel having a flash point of 110 degrees F. or lower is used for main or auxiliary machinery or for starting purposes, the spaces containing such machinery or fuel tanks shall have ventilation as required by this section.

(1) At least 2 ventilators fitted with cowls or their equivalent for the purpose of properly and effectively ventilating the bilges of every engine and fuel-tank compartment in order to remove any inflammable or explosive gases.

(2) Vessels constructed so that the greater portions of the bilges under the engine and fuel tanks are open or exposed to the natural atmosphere at all times are not required to be fitted with ventilators.

§ 92.15–10 Ventilation for closed spaces.

(a) Except as noted in paragraph (c) of this section, all enclosed spaces within the vessel shall be properly vented or ventilated. Means shall be provided to close off all vents and ventilators.

(b) Means shall be provided for stopping all fans in ventilation systems serving machinery and cargo spaces and for closing all doorways, ventilators and annular spaces around funnels and other

openings to such spaces, from outside these spaces, in case of fire.

(c) On unmanned cargo barges not fitted with a fixed bilge system, vents and ventilators may be omitted from void spaces.

[CGFR 62–17, 27 F.R. 9039, Sept. 11, 1962]

§ 92.15–15 Ventilation for crew quarters and, where provided, passenger spaces.

(a) All living spaces shall be adequately ventilated in a manner suitable to the purpose of the space.

(b) On vessels of 100 gross tons and over, except for such spaces as are so located that under all ordinary conditions of weather, windows, ports, skylights, etc., and doors to passageways can be kept open, all crew spaces shall be ventilated by a mechanical system, unless it can be shown that a natural system will provide adequate ventilation. However, vessels which trade regularly in the tropics shall, in general, be fitted with a mechanical ventilation system.

§ 92.15–90 Vessels contracted for prior to November 19, 1952.

(a) Existing arrangements previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original design provided that in no case will a greater departure from the standards of §§ 92.15–5 through 92.15–15 be permitted than presently exists.

Subpart 92.20—Accommodations for Officers and Crew

§ 92.20–1 Application.

(a) The provisions of this subpart, with the exception of § 92.20–90, shall apply to all vessels of 100 gross tons and over contracted for on or after November 19, 1952. Vessels of 100 gross tons and over contracted for prior to November 19, 1952, shall meet the requirements of § 92.20–90.

(b) Vessels of less than 100 gross tons shall meet the applicable requirements of this subpart insofar as is reasonable and practicable.

§ 92.20–5 Intent.

(a) It is the intent of this subpart that the accommodations provided for officers and crew on all vessels shall be securely constructed, properly lighted, heated, drained, ventilated, equipped, located, arranged, and, where practicable, shall be insulated from undue noise and effluvia.

(b) The crew referred to herein includes all persons, except the licensed officers, regularly employed on board any vessel. Where the requirements for the accommodation of licensed officers are not otherwise specified, they shall be of at least equivalent to that indicated herein for the crew.

(c) For the purpose of this subpart, the term "crew spaces" shall include sleeping rooms, mess rooms, recreational rooms, toilet and shower spaces, etc., which are intended for the exclusive use of the crew.

§ 92.20–10 Location of crew spaces.

(a) Crew spaces shall be located, where practicable, so that the maximum amount of fresh air and light are obtainable, having due regard to the service of the vessel and the requirements of other space users.

(b) Crew quarters shall not be located farther forward in a vessel than a vertical plane located at 5 percent of the vessel's length abaft the forward side of the stem at the designed summer load water line. However, for vessels in other than ocean or coastwise service, this distance need not exceed 28 feet. For the purpose of this paragraph, the length shall be as defined in § 43.15–1 of Subchapter E (Load Lines) of this chapter. No section of the deck of the crew spaces shall be below the deepest load line, except that in special cases, the Commandant may approve such an arrangement: *Provided*, That in no case shall the deck head of the crew space be below the deepest load line.

(c) Hawse pipes or chain pipes shall not pass through crew spaces.

(d) There shall be no direct communication, except through solid, close fitted doors or hatches between crew spaces and chain lockers, cargo, or machinery spaces.

(e) There shall be no access, vents, or sounding tubes from fuel or cargo oil tanks opening into crew spaces, except that sounding tubes and access openings may be located in corridors.

(f) Where practicable, crew spaces shall be located entirely separate and in-

dependent of spaces allotted to passengers or licensed officers.

[CGFR 52–43, 17 F.R. 9448, Oct. 18, 1952, as amended by CGFR 54–31, 19 F.R. 4950, Aug. 6, 1954]

§ 92.20–15 Construction.

(a) All crew spaces are to be constructed in a manner suitable to the purpose for which they are intended. The bulkheads separating the crew space from cargo and machinery spaces, lamp and paint rooms, storerooms, drying rooms, washrooms, and toilet spaces shall be made odorproof where deemed necessary by the Commandant.

(b) Toilet spaces, except when provided as private or semiprivate facilities, shall be so built, fitted, and situated, that no odor from them will readily enter other crew spaces.

(c) Where shell or unsheathed weather decks form boundaries of crew spaces, suitable protective coverings shall be applied to prevent formation or accumulation of moisture.

(d) Where crew spaces adjoin or are immediately above spaces such as galleys, machinery spaces or casings, donkey boiler rooms, etc., they shall be suitably protected from the heat.

(e) The interior sides and deck heads of crew spaces shall be covered with enamel, paint, or other material light in color.

(f) Crew spaces shall be properly drained where considered necessary.

(g) All washrooms and toilet rooms shall be properly drained and so constructed and arranged that they can be kept in a clean, workable, and sanitary condition. The scuppers shall be located in the lowest part of the space, due consideration being given to the average trim of the vessel.

§ 92.20–20 Sleeping accommodations.

(a) *Arrangements.* (1) Separate sleeping accommodations are to be provided for the deck, engine, and steward groups of the crew.

(2) Each watch of seamen, firemen or similar ratings on duty in watches is to be provided with separate sleeping room or rooms, unless the total space for accommodations makes this impracticable.

(3) Where practicable, each licensed officer shall be provided with a separate stateroom.

(b) *Size.* (1) Sleeping accommodations for the crew shall be divided into rooms, no one of which shall berth more than four persons.

(2) Each room shall be of such size that there are at least 30 square feet of deck area and a volume of at least 210 cubic feet for each person accommodated. The clear headroom shall be not less than 6 feet 3 inches. In measuring sleeping quarters allocated to crews of vessels, any equipment contained therein for the use of the occupants is not to be deducted from the total volume or from the deck area.

(c) *Equipment.* (1) Each person shall have a separate berth and not more than one berth shall be placed above another. The berths shall have a framework of metal or other hard, smooth material not likely to corrode or harbor vermin, and shall be so arranged that they provide ample room for easy occupancy. The overall size of a berth shall not be less than 30 inches wide by 76 inches long, except by special permission of the Commandant. Where berths adjoin, they shall be divided by a partition not less than 18 inches in height. Where two tiers of berths are fitted, the bottom of the lower must not be less than 12 inches above the deck, and the bottom of the upper must not be less than 2 feet 6 inches both from the bottom of the lower and from the deck overhead. The berths shall not be obstructed by pipes, ventilating ducts, or other installations.

(2) A locker of metal or other hard, smooth material shall be provided for each person accommodated in a room. Each locker shall be not less than 300 square inches in cross section area and 60 inches high. It shall be so placed as to be readily accessible. The interior of the locker shall be so arranged as to facilitate the proper stowage of clothes.

§ 92.20–25 Washrooms and toilet rooms.

(a) There shall be provided at least one toilet, one washbasin, and one shower or bathtub for each eight members or portion thereof in the crew to be accommodated. The crew to be accommodated shall include all members who do not occupy rooms to which private or semiprivate facilities are attached.

(b) Under the following conditions, the toilet and washing facilities for the specific groups of the crew indicated shall be located in spaces separate from the facilities for other crew members; and shall be provided for that group in

the ratios required by paragraph (a) of this section.

(1) The members of the engine department, where their number, exclusive of licensed officers, and others separately provided for, exceeds eight.

(2) The members of the steward's department, exclusive of those separately provided for, where their number exceeds eight.

(3) All female members of the crew.

(c) The toilet rooms and washrooms shall be located convenient to the sleeping quarters of the crew to which they are allotted but shall not open directly into such quarters except when they are provided as private or semiprivate facilities.

(d) All washbasins, showers, and bathtubs shall be equipped with proper plumbing, including hot and cold running water. Washbasins may be located in the crew sleeping quarters.

(e) The toilet rooms shall be separate from the washrooms and at least one washbasin shall be fitted in each toilet room, except where private or semiprivate facilities are provided and washbasins are installed in the sleeping rooms.

(1) All toilets shall be installed with proper plumbing for flushing. Toilets shall be provided with seats of the open front type. Urinals may be fitted in toilet rooms, if desired, but no reduction in the required number of toilets will be made therefore.

(2) Where more than one toilet is located in a space or compartment, each toilet shall be separated by partitions, which shall be open at the top and bottom for ventilation and cleaning purposes.

[CGFR 52-43, 17 F.R. 9448, Oct. 18, 1952, as amended by CGFR 62-8, 27 F.R. 4172, May 2, 1962]

§ 92.20-30 Mess rooms.

(a) Mess rooms shall be located as near to the galley or suitably equipped serving pantry as is practicable except where mess room is equipped with a steam table. The mess rooms shall be of such size as to seat the number of persons normally scheduled to be eating at one time.

(b) Mess rooms shall be properly equipped with tables, seats, and other necessary equipment and shall be so arranged as to permit access to each seat.

§ 92.20-35 Hospital space.

(a) Each vessel, which in the ordinary course of its trade makes voyages of more than three days duration between ports and which carries a crew of twelve or more, shall be provided with a hospital space. This space shall be situated with due regard to the comfort of the sick so that they may receive proper attention in all weathers.

(b) The hospital shall be suitably separated from other spaces and shall be used for the care of the sick and for no other purpose.

(c) The entrance shall be of such width and in such a position as to admit a stretcher case readily. Berths shall be of metal and may be in double tier, provided the upper berth is hinged and arranged to be secured clear of the lower berth when not in use. At least one berth shall be so arranged that it can be made accessible from both sides when necessary.

(d) The hospital shall be fitted with berths in the ratio of one berth to every twelve members of the crew or portion thereof who are not berthed in single occupancy rooms, but the number of berths need not exceed six.

(e) The hospital shall have a toilet, washbasin, and bath tub or shower conveniently situated. Other necessary suitable equipment of such character as clothes locker, table, seat, etc., shall be provided.

§ 92.20-40 Other spaces.

(a) Sufficient facilities, depending upon the number of the crew, shall be provided where the crew may wash their own clothes. There shall be at least one tub or sink, fitted with the necessary plumbing, including hot and cold running water.

(b) Clothes drying facilities or space shall be provided for the needs of the crew.

(c) Recreation accommodations shall be provided. Where mess rooms are used for this purpose, they shall be suitably planned.

§ 92.20-45 Lighting.

(a) All crew spaces shall be adequately lighted in accordance with the requirements of Subchapter J (Electrical Engineering) of this chapter.

(b) Berth lights shall be provided for each member of the crew.

§ 92.20–50 Heating.

(a) All crew spaces shall be adequately heated in a manner suitable to the purpose of the space.

(b) The heating system will be considered satisfactory if it is capable of maintaining a minimum temperature of 70° F. under normal operating conditions without undue curtailment of the ventilation.

(c) Radiators and other heating apparatus shall be so placed, and where necessary shielded, as to avoid risk of fire, danger or discomfort to the occupants. Pipes leading to radiators or heating apparatus shall be lagged where those pipes create a hazard to persons occupying the space.

§ 92.20–55 Insect screens.

(a) Except in such areas as are considered to be insect free, provision shall be made to protect the crew quarters against the admission of insects. This may be accomplished by the fitting of suitable screens to ventilating skylights, airports, ventilators, and doors to unscreened spaces and the open deck or by other methods.

§ 92.20–90 Vessels contracted for prior to November 19, 1952.

(a) Vessels of less than 100 gross tons, contracted for prior to November 19, 1952, shall meet the general intent of § 92.20–5 and in addition shall meet the following requirements:

(1) Existing structure, arrangements, materials, and facilities, previously accepted or approved will be considered satisfactory so long as they are maintained in a suitable condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original construction.

(b) Vessels of 100 gross tons and over, contracted for prior to March 4, 1915, shall meet the requirements of this paragraph.

(1) Existing structure, arrangements, materials, and facilities, previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original construction: *Provided,* That in no case will a greater departure from the standards of §§ 92.20–5 through 92.20–55 be permitted than presently exists.

(c) Vessels of 100 gross tons and over, contracted for on or after March 4, 1915, but prior to January 1, 1941, shall meet the requirements of this paragraph.

(1) Existing structure, arrangements, materials, and facilities, previously approved will be considered satisfactory so long as they are maintained in a suitable condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original construction.

(2) Where reasonable and practicable, a minimum of one toilet, shower, and washbasin shall be provided for each 10 members of the crew or fraction thereof.

(3) Crew spaces shall have a volume of at least 120 cubic feet and a deck area of at least 16 square feet for each person accommodated.

(4) Each crew member shall have a separate berth, and berths may not be placed more than two high.

(5) Each vessel, which in the ordinary course of its trade makes a voyage of more than three days' duration between ports and which carries a crew of 12 or more persons, shall be provided with a suitable hospital space for the exclusive use of the sick or injured. Berths shall be provided in the ratio of one berth for each twelve members of the crew or fraction thereof, but the number of berths need not exceed six.

(6) The crew spaces shall be securely constructed, properly lighted, heated, drained, ventilated, equipped, located, and arranged, and where practicable, shall be insulated from undue noise and effluvia.

(d) Vessels of 100 gross tons and over, contracted for on or after January 1, 1941, but prior to November 19, 1952, shall meet the requirements of this paragraph.

(1) Existing structure, arrangements, materials, and facilities, previously approved will be considered satisfactory so long as they are maintained in a suitable condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original construction.

(2) Washrooms and toilet rooms:

(i) There shall be a minimum of one toilet, shower, and washbasin for each 8 members of the crew or fraction thereof who are not accommodated in rooms having attached private or semiprivate facilities.

(ii) Separate facilities shall be provided for the engine room, deck, or stewards department when the number of crew in that department, exclusive of officers, exceeds 8.

(iii) Toilet rooms shall be separate from the wash rooms. At least one washbasin shall be installed in each toilet room.

(iv) Toilets shall be provided with seats of the open front type. Urinals may be fitted in toilet rooms, if desired, but no reduction will be made in the required number of toilets.

(v) Washbasins, showers, and bath tubs if substituted for showers, shall be equipped with proper plumbing including hot and cold running water.

(3) Crew spaces shall have a volume of at least 120 cubic feet and a deck area of at least 16 square feet for each person accommodated.

(4) Each crew member shall have a separate berth, and berths may not be placed more than two high.

(5) Each vessel, which in the ordinary course of its trade makes a voyage of more than three days duration between ports and which carries a crew of 12 or more persons, shall be provided with a suitable hospital space for the exclusive use of the sick or injured. Berths shall be provided in the ratio of one berth for each 12 members of the crew or fraction thereof, but the number of berths need not exceed six.

(6) The crew spaces shall be securely constructed, properly lighted, heated, drained, ventilated, equipped, located, and arranged, and where practicable, shall be insulated from undue noise and effluvia.

[CGFR 52-43, 17 F.R. 9448, Oct. 18, 1952, as amended by CGFR 62-8, 27 F.R. 4172, May 2, 1962]

Subpart 92.25—Rails and Guards

§ 92.25-1 Application.

(a) The provisions of this subpart, with the exception of § 92.25-90, shall apply to all vessels contracted for on or after July 1, 1960. Vessels contracted for prior to July 1, 1960, shall meet the requirements of § 92.25-90.

[CGFR 52-43, 17 F.R. 9448, Oct. 18, 1952, as amended by CGFR 60-27, 25 F.R. 3968, May 6, 1960]

§ 92.25-5 Where rails required.

(a) Rails at least 36 inches high or equivalent protection shall be installed near the periphery of all weather decks accessible to persons on board. Such rails on decks which extend outboard to the side of the vessel shall be in at least three courses approximately evenly spaced. Such rails on decks which do not extend outboard to the side of the vessel, such as tops of deck houses and winch houses, shall be in at least two courses approximately evenly spaced. If it can be shown to the satisfaction of the Officer in Charge, Marine Inspection, that the installation of rails of such height will be unreasonable and impracticable, having regard to the business of the vessel, rails of a lesser height or in some cases grab rails may be accepted and inboard rails may be eliminated if the deck is not generally accessible.

[CGFR 60-27, 25 F.R. 3968, May 6, 1960]

§ 92.25-10 Storm rails.

(a) On vessels in ocean and coastwise service, suitable storm rails shall be installed in all passageways and at the deck house sides where persons on board might have normal access. Storm rails shall be installed on both sides of passageways which are 6 feet or more in width.

§ 92.25-15 Guards in dangerous places.

(a) Suitable hand covers, guards, or rails shall be installed in way of all exposed and dangerous places such as gears, machinery, etc.

§ 92.25-90 Vessels contracted for prior to July 1, 1960.

(a) Existing structure, arrangements, materials, and facilities previously approved will be considered satisfactory so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original construction: *Provided,* That in no case will greater departure from the standards of §§ 92.25-5 through 92.25-15 be permitted than presently exists.

[CGFR 52-43, 17 F.R. 9448, Oct. 18, 1952, as amended by CGFR 60-27, 25 F.R. 3968, May 6, 1960]

PART 93—STABILITY

Subpart 93.01—Application

Subpart 93.05—Stability Test

Subpart 93.10—Stability Information for Operating Personnel

Sec.
93.10–1 Information supplied to master.

Subpart 93.13—Ballast

93.13–1 When needed.
93.13–5 Fixed ballast.
93.13–10 Liquid ballast.

Subpart 93.15—Stability Letter

93.15–1 Posting.
93.15–5 Information contained in stability letter.

AUTHORITY: §§ 93.01–1 to 93.15–5 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4488, as amended, 4490, as amended, sec. 3, 24 Stat. 129, as amended, 41 Stat. 305, as amended, sec. 2, 45 Stat. 1943, as amended, sec. 2, 49 Stat. 888, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 3, 63 Stat. 675; 46 U.S.C. 391, 392, 404, 481, 482, 483, 363, 85a, 88a, 367, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917; 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167–14, November 26, 1954, 19 F.R. 8026; CGFR 56–28, July 24, 1956, 21 F.R. 5659; 167–38, October 26, 1959, 24 F.R. 8857. Additional authority cited with sections affected.

NOTE: For changes in authority citation to Part 93 not otherwise noted, see 27 F.R. 9039, Sept. 11, 1962.

Subpart 93.01—Application

§ 93.01–1 General.

(a) The provisions of this part shall apply to the following vessels:

(1) All vessels contracted for on or after November 19, 1952, on an international voyage.

(2) Any other vessel whose stability is questioned by the Commandant or the Officer in Charge, Marine Inspection.

[CGFR 54–16, 19 F. R. 4926, Aug. 6, 1954]

Subpart 93.05—Stability Test

SOURCE: §§ 93.05–1 and 93.05–5 contained in CGFR 52–43, 17 F.R. 9451, Oct. 18, 1952.

§ 93.05–1 When required.

(a) Except as otherwise provided in this section, each vessel to which this part pertains shall be subjected to a stability test conducted under the supervision of the Coast Guard and the results of the test shall be approved before the vessel is placed in service.

(b) The Commandant may allow the stability test of a vessel to be dispensed with provided basic stability data are available from the stability test of a sister vessel and it is shown to the satisfaction of the Commandant that reliable stability information for the exempted vessel can be obtained from such basic data.

§ 93.05–5 Procedure.

(a) *Stability tests.* Stability tests conducted on or after November 19, 1952, shall meet the requirements of this section.

(b) *Plans required.* (1) The following plans are essential for use in conducting the stability test and determining the results, and if these plans have not been previously submitted, they shall be made available at the time of the test:

Lines plan.
Curves of form, or hydrostatic curves.
General arrangement plan of decks, holds, inner bottoms, etc.
Inboard and outboard profile.
Midship section.
Capacity plan showing capacities and vertical and longitudinal centers of gravity of cargo spaces, tanks, etc.
Tank sounding tables.
Draft mark locations.

(c) *Stability test preparations.* (1) Preparations as noted in this paragraph shall be made to place a vessel in suitable condition for a stability test. The Coast Guard representative supervising the stability test may relax from these standards in a particular instance if, in his opinion, such relaxation is warranted and will not materially affect the reliability of the results of the test.

(2) To obtain dependable stability results, all tanks on the vessel, as far as practicable, shall be either completely empty and dry or fully pressed up and without air pockets. Where this is impracticable, slack tanks may be accepted provided their free surface can be readily and accurately determined for the angles of heel to be obtained during the stability test.

(3) The vessel shall be as nearly complete as practicable when the test is conducted. If additional material or equipment is to be installed after the test, a complete list of such items by weight and location shall be prepared.

(4) All dunnage, tools, and other items extraneous to the completed vessel shall be removed before the test.

(5) The vessel shall be moored in a location reasonably protected from broadside wind, waves, and tide. The depth of water shall be sufficient to provide ample clearance under the vessel against grounding. Mooring lines shall

be arranged so that they will not interfere with the free rolling or listing of the vessel.

Subpart 93.10—Stability Information for Operating Personnel

§ 93.10–1 Information supplied to master.

(a) Based on the results of the stability test, information shall be prepared by the owners, approved by the Commandant, and furnished to the master which sets forth the stability data necessary to permit efficient handling of the vessel. In general, this information shall be such that the master can, for any condition of loading, by rapid and simple process, obtain accurate guidance as to the stability of the vessel and determine the freeboard.

(b) In the case of a vessel which due to its design or type of service, etc., requires special consideration of its stability characteristics, the information shall also include an indication of any operating conditions which must be maintained to assure the safety of the vessel.

(c) Where any alterations are made to a vessel so as to materially affect the stability information supplied to the master, amended stability information shall be provided. If necessary the vessel shall have a new stability test.

[CGFR 61–15, 26 F.R. 9289, Sept. 80, 1961]

Subpart 93.13—Ballast

AUTHORITY: §§ 93.13–1 to 93.13–10 interpret or apply R.S. 4483, as amended, sec. 8, 75 Stat. 404; 46 U.S.C. 411, 33 U.S.C. 1007. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167–46, November 6, 1951, 26 F.R. 10609.

SOURCE: §§ 93.13–1 to 93.13–10 contained in CGFR 62–17, 27 F.R. 9039, Sept. 11, 1962.

§ 93.13–1 When needed.

(a) In view of the wide range of cargo weight and distribution placed in a cargo vessel, the use of ballast may be necessary in order to provide satisfactory immersion, trim and stability.

§ 93.13–5 Fixed ballast.

(a) When fixed ballast is installed, its amount and location shall be included in the stability information provided the vessel.

(b) Fixed ballast shall not be removed from the vessel or relocated unless first approved by the Commandant, except that such ballast may be temporarily moved for examination or repair of the vessel and then only under the supervision of a marine inspector.

§ 93.13–10 Liquid ballast.

(a) Liquid ballast may be used when necessary to provide satisfactory draft, trim, weight distribution, or stability.

(b) If it is necessary to put liquid ballast in oil tanks, the oily ballast shall not be discharged overboard within any of the prohibited zones as defined in the Oil Pollution Act, 1961 (33 U.S.C. 1011), except through oily water separators which meet the requirements in § 55.10–25(n) of Subchapter F (Marine Engineering) of this chapter, or directly into sludge barges or shore facilities, or other approved means.

Subpart 93.15—Stability Letter

§ 93.15–1 Posting.

(a) Each vessel subject to the requirements of this part shall have posted under glass in the pilothouse a stability letter issued by the Coast Guard before the vessel is placed in service.

[CGFR 52–43, 17 F.R. 9452, Oct. 18, 1952]

§ 93.15–5 Information contained in stability letter.

(a) Stability letters issued to vessels subject to the provisions of § 93.05–1(a) or (b) will record approval of the information required by Subpart 93.10 and will set forth the master's responsibility for maintaining satisfactory stability conditions at all times.

[CGFR 61–15, 26 F.R. 9289, Sept. 30, 1961]

PART 94—LIFESAVING EQUIPMENT

Subpart 94.01—Application

Subpart 94.05—General Provisions Pertaining to Lifesaving Equipment

Subpart 94.10—Lifeboats, Life Rafts, Life Floats, Buoyant Apparatus, and Rescue Boats

Subpart 94.90—Ship's Distress Signals

AUTHORITY: §§ 94.01–1 to 94.90–10 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4488, as amended, 4491, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 17, 54 Stat. 166, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 391, 392, 404, 481, 489, 395, 363, 367, 526p, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167–14, November 26, 1954, 19 F.R. 3026; CGFR 56–28, July 24, 1956, 21 F.R. 5659; 167–38, October 26, 1959, 24 F.R. 8857.

NOTE: For authority citation to Part 94 not otherwise noted, see 27 F.R. 9040, Sept. 11, 1962.

Subpart 94.01—Application

§ 94.01–1 Details of application.

(a) Except as specifically noted, the provisions of this part shall apply to all vessels other than motorboats. Motorboats shall meet the requirements of Subparts 94.01, 94.05, and 94.40, and § 94.10–1(c).

[CGFR 60–36, 25 F.R. 10630, Nov. 5, 1960, as amended by CGFR 62–17, 27 F.R. 9040, Sept. 11, 1962]

Subpart 94.05—General Provisions Pertaining to Lifesaving Equipment

§ 94.05–1 Equipment of an approved type.

(a) Where equipment in this part is required to be of an approved type, such equipment requires the specific approval of the Commandant. Such approvals are published in the FEDERAL REGISTER and in addition, are contained in Coast Guard publication CG 190, "Equipment Lists."

(b) Specifications for many of the items required to be of an approved type have been promulgated and are contained in Subchapter Q (Specifications) of this chapter. In general, such specifications are of interest only to the manufacturer of specific items of equipment.

[CGFR 62–43, 17 F.R. 9452, Oct. 18, 1952, as amended by CGFR 55–52, 20 F.R. 10011, Dec. 28, 1955]

§ 94.05–5 Equipment installed but not required.

(a) Where items of life-saving equipment are not required, but are installed, such equipment and its installation shall meet the requirements of this part.

[CGFR 52–43, 17 F.R. 9452, Oct. 18, 1952, as amended by CGFR 52–62, 17 F.R. 11879, Dec. 31, 1952]

§ 94.05–10 Primary lifesaving equipment.

(a) The term "primary lifesaving equipment" means a lifeboat or an acceptable substitute. Life preservers and ring life buoys are not included in this definition of "primary lifesaving equipment."

[CGFR 60–36, 25 F.R. 10630, Nov. 5, 1960]

Subpart 94.10—Lifeboats, Life Rafts, Life Floats, Buoyant Apparatus, and Rescue Boats [1]

§ 94.10–1 Application.

(a) Except as otherwise provided in this section, the provisions of this subpart shall apply to all vessels other than motorboats, contracted for on or after November 19, 1952.

(1) The provisions of § 94.10–5(a)(4)(i) shall apply to Great Lakes vessels contracted for on or after January 1, 1961.

(2) On and after January 1, 1961, the requirements concerning disengaging apparatus in § 94.10–90(a)(2) shall apply to all Great Lakes vessels contracted for prior to January 1, 1961.

(b) Vessels other than motorboats, contracted for prior to November 19, 1952, shall meet the requirements of § 94.10–90.

(c) Inspected motorboats carrying freight for hire shall be provided with such number and size of approved life rafts, life floats, or buoyant apparatus as deemed necessary by the Officer in Charge, Marine Inspection. Work boats or skiffs may be permitted by the Officer in Charge, Marine Inspection, if considered suitable.

[CGFR 60–36, 25 F.R. 10630, Nov. 5, 1960]

§ 94.10–5 Type of lifeboats, life rafts, life floats, buoyant apparatus, and rescue boats required.

(a) *Lifeboats.* (1) All lifeboats shall be of an approved type, constructed in accordance with Subpart 160.035 of Subchapter Q (Specifications) of this chapter except as specifically noted in this part.

(2) All lifeboats certified to carry 60 or more persons shall be either motor-

[1] CGFR 61–15, 26 F.R. 9289, Sept. 30, 1961.

propelled of Class A or Class B, or shall be fitted with an approved type of hand-propelling gear.

(3) Class A motor-propelled lifeboats shall be fitted with a compression-ignition engine, a radio cabin and a radio installation complying with the requirements of the Federal Communications Commission, and a searchlight constructed in accordance with Subpart 161.006 of Supchapter Q (Specifications) of this chapter. Class B motor-propelled lifeboats need not have an engine of the compression-ignition type or a radio or a searchlight.

(4) Except as further modified in this subparagraph, all lifeboats, except those installed on vessels in river service, shall be fitted with suitable disengaging apparatus consisting of fixed hooks in the lifeboat or mechanical disengaging apparatus. Mechanical disengaging apparatus, if fitted shall be of an approved type, constructed in accordance with Subpart 160.033 of Subchapter Q (Specifications) of this chapter.

(i) All lifeboats installed on ocean, coastwise, or Great Lakes vessels of over 3,000 gross tons shall be fitted with mechanical disengaging apparatus so arranged as to make it possible for the lifeboats to be launched with their full complement of persons and equipment while such vessels are under way or stopped, and for both ends of the lifeboat to be released simultaneously, under tension or not, by one person. Simultaneous release shall be effected by partially rotating a shaft which shall be continuous and extend from points of contact with the hooks.

(ii) All lifeboats installed on any particular vessel shall be fitted with the same type of disengaging apparatus.

(iii) On small vessels, the Commandant may approve means other than those previously mentioned to agree with the needs of a particular vessel.

(b) *Life rafts.* (1) All rigid type life rafts shall be of an approved type, constructed in accordance with Subpart 160.018 of Subchapter Q (Specifications) of this chapter. Type A life rafts shall be stowed on the standard life raft skids required by § 94.15–10(c)(1) unless specifically noted otherwise.

(2) All inflatable life rafts shall be of an approved type constructed in accordance with Subpart 160.051 of Subchapter Q (Specifications) of this chapter.

(c) *Life floats.* (1) All life floats shall be of an approved type, constructed in accordance with Subpart 160.027 of Subchapter Q (Specifications) of this chapter.

(d) *Buoyant apparatus.* (1) All buoyant apparatus shall be of an approved type, constructed in accordance with Subpart 160.010 of Subchapter Q (Specifications) of this chapter.

(e) *Rescue boat.* (1) In general, a suitable rescue boat shall be a small lightweight boat of rigid construction, with built-in buoyancy and capable of being readily launched and easily maneuvered. Also it shall be of adequate proportion to permit taking an unconscious person on board without capsizing. A rescue boat and its installation shall be acceptable to the Officer in Charge, Marine Inspection, as suitable for the rescue of persons accidentally falling over the side, or for similar emergency purposes. The size, shape, installation, and other factors of suitability will be determined with due consideration of the size, arrangement, intended service, and crew requirements of the vessel on which it is to be installed.

[CGFR 60–36, 25 F.R. 10630, Nov. 5, 1960, as amended by CGFR 61–15, 26 F.R. 9289, Sept. 30, 1961]

§ 94.10–10 Requirements for vessels in ocean or coastwise service other than barges; towing, fishing, wrecking, and whale factory vessels; pilot boats; and yachts.

(a) All vessels shall be provided with sufficient lifeboats on each side of the vessel to accommodate all persons on board.

(b) Lifeboats shall be not less than 24 feet in length, except where owing to the size of the vessel, or for other reasons, the Commandant considers the carriage of such lifeboats to be unreasonable or impracticable. However, in no case shall lifeboats of less than 16 feet in length be used.

(c) All vessels of 1,600 gross tons and over on an international voyage shall carry at least one motor-propelled lifeboat of Class B, or one hand-propelled lifeboat.

(d) Inflatable life rafts may be substituted for lifeboats on certain vessels in accordance with § 94.10–55.

[CGFR 52–43, 17 F.R. 9453, Oct. 18, 1952, as amended by CGFR 60–36, 25 F.R. 10630, Nov. 5, 1960]

§ 94.10–15 Requirements for seagoing barges in ocean or coastwise service.

(a) All manned seagoing barges of 100 gross tons and over shall be provided with a lifeboat of sufficient capacity for all persons on board. All lifeboats shall have a capacity of at least 80 cubic feet.

(b) Inflatable life rafts may be substituted for lifeboats on certain vessels in accordance with § 94.10–55.

[CGFR 52–43, 17 F.R. 9453, Oct. 18, 1952, as amended by CGFR 60–36, 25 F.R. 10630, Nov. 5, 1960]

§ 94.10–20 Requirements for towing, fishing, and wrecking vessels, and pilot boats in ocean or coastwise service.

(a) All vessels of 500 gross tons and over on an international voyage, other than fishing vessels, shall meet the applicable requirements of § 94.10–10 in lieu of the requirements of this section.

(b) All vessels shall carry sufficient lifeboats for flotation equipment for all persons on board. In lieu of the standard lifeboats required by § 94.10–5 (a), the following types of boats or flotation equipment may be used by the vessels specified:

(1) Vessels engaged exclusively in the business of purse seining may use their seine boats.

(2) Vessels engaged exclusively in the business of hook and line fishing from dories may use their dories provided they are fitted with air tanks of sufficient capacity to meet the requirements of Subpart 160.035 of Subchapter Q (Specifications) of this chapter for lifeboats.

(3) Vessels engaged exclusively in the business of wrecking may use their surf boats.

(4) Vessels engaged exclusively in the business of furnishing pilots to vessels may use their launches and/or yawls.

(5) Vessels not exceeding 150 feet in length which are under 300 gross tons engaged exclusively in the business of transporting supplies, equipment, and cargo to or from operational sites of exploration, development, removal and storage of resources or related activities thereof on the continental shelf of the United States in the Gulf of Mexico, in the Atlantic Ocean south of the thirty-third parallel north latitude and in the Pacific Ocean may use life floats in lieu of lifeboats if a suitable emergency boat is carried and is adequately installed. Vessels in this category may carry persons in addition to the crew up to the number specified in the certificate of inspection, but not to exceed 16, and such persons may be only industry personnel engaged exclusively in the exploration, development, removal and storage of resources, or related activities thereof, who are required by the nature of their work to ride such vessels.

(c) All lifeboats shall have a capacity of at least 180 cubic feet. However, the Coast Guard District Commander may, in exceptional cases, permit smaller lifeboats where the crew is insufficient to handle the larger lifeboat or where there is lack of space to carry such larger lifeboat. In no case may lifeboats be used having a capacity of less than 125 cubic feet.

(d) Inflatable life rafts may be substituted for lifeboats, life rafts, life floats and buoyant apparatus on certain vessels in accordance with § 94.10–55.

[CGFR 52–43, 17 F.R. 9453, Oct. 18, 1952, as amended by CGFR 57–18, 22 F.R. 3469, May 17, 1957; CGFR 60–36, 25 F.R. 10631, Nov. 5, 1960]

§ 94.10–25 Requirements for yachts in ocean or coastwise service.

(a) All yachts in ocean service shall have an aggregate lifeboat and life raft capacity for all persons on board. Not less than 75 percent of the required capacity shall be in lifeboats and the remainder may be in Type A or Type B life rafts.

(b) All yachts in coastwise service shall have an aggregate lifeboat and life raft capacity as required in paragraph (a) of this section, except that during the interval between May 15 and October 15 in any one year, both dates inclusive, they shall only be required to be equipped with lifeboat and life raft capacity to accommodate 70 percent of all persons on board, not less than 50 percent of the required capacity shall be in lifeboats and the remainder may be in Type A or Type B life rafts.

(c) All lifeboats shall have a capacity of at least 125 cubic feet. However, The Coast Guard District Commander may, if he deems it proper, modify the requirements as to the size of lifeboats.

(d) Yachts may use their launches in lieu of the standard lifeboats required by § 94.10–5 (a), provided the launches are equipped with air tanks of sufficient capacity to meet the requirements of Subpart 160.035 of Subchapter Q (Specifications) of this chapter for lifeboats. Such launches shall be fitted with suita-

ble name boards or the name of the vessel shall be painted on the bow or stern.

(e) Inflatable life rafts may be substituted for lifeboats and life rafts on certain vessels in accordance with § 94.10–55.

[CGFR 52–43, 17 F.R. 9453, Oct. 18, 1952, as amended by CGFR 60–36, 25 F.R. 10631, Nov. 5, 1960]

§ 94.10–30 Requirements for whale factory vessels in ocean or coastwise service.

(a) Every vessel employed as a whale factory vessel shall carry lifeboats on each side of the vessel of such aggregate capacity as will accommodate every member of the crew engaged to work the vessel. In addition, such vessels shall carry lifeboats of aggregate capacity sufficient to accommodate the total number of additional persons which the vessel carries.

(b) Lifeboats shall be not less than 24 feet in length, except where owing to the size of the vessel, or for other reasons, the Commandant considers the carriage of such lifeboats to be unreasonable or impractical. However, in no case shall lifeboats of less than 16 feet in length be used.

(c) All vessels of 1,600 gross tons and over on an international voyage shall carry at least one motor-propelled lifeboat of Class B or one hand-propelled lifeboat.

(d) Inflatable life rafts may be substituted for lifeboats on certain vessels in accordance with § 94.10–55.

[CGFR 52–43, 17 F.R. 9453, Oct. 18, 1952, as amended by CGFR 60–36, 25 F.R. 10631, Nov. 5, 1960]

§ 94.10–40 Requirements for vessels in Great Lakes; lakes, bays, and sounds; or river service other than fireboats, wrecking and fishing vessels, pilot boats, and yachts.

(a) All vessels shall be provided with lifeboats and life rafts as required by Table 94.10–40(a).

(b) Inflatable life rafts may be substituted for lifeboats and life rafts on certain vessels in accordance with § 94.10–55.

TABLE 94.10–40 (a)—LIFEBOATS AND LIFE RAFTS REQUIRED ON VESSELS IN GREAT LAKES; LAKES, BAYS, AND SOUNDS AND RIVER SERVICE OTHER THAN FIREBOATS, WRECKING AND FISHING VESSELS, PILOT BOATS, AND YACHTS

	Great Lakes			Lakes, bays, and sounds		Rivers	
		Other vessels					
	Vessels carrying cargo	50 gross tons and over	Under 50 gross tons	50 gross tons and over	Under 50 gross tons	50 gross tons and over	Under 50 gross tons
Percentage of persons to be accommodated.	100	100	100	100	100	Only 1 lifeboat required.[3]	Only lifeboats or life rafts as in the judgment of Officer in Charge, Marine Inspection, are necessary.
Percentage of required equipment in lifeboats.	[1] 100	[1] [2] 50	Either lifeboats or life rafts.	[2] 50	Either lifeboats or life rafts.	do	Do.
Percentage of required equipment which may be in Type A or Type B life rafts.	None	50	do	50	do	do	Do.

[1] When of 300 gross tons and over, vessels carrying cargo having berthing and/or working spaces forward widely separated from messing or recreational spaces aft shall have, in addition to all other lifeboats and life rafts required, two fully equipped approved life rafts of not less than 15-person capacity. These life rafts shall be stowed (not necessarily in skids) so as to float clear in the event of sinking of the vessel. One shall be located forward and the other aft. An approved life float of not less than 15-person capacity may be substituted for the required life raft aft. When of 300 gross tons and over, vessels carrying cargo (not having berthing and/or working spaces forward widely separated from messing or recreational spaces aft) and towing vessels are required to have only one approved life raft or life float of not less than 15-person capacity as additional lifesaving equipment.

[2] Harbor towing vessels of less than 150 gross tons may substitute one or more life rafts of Type A or Type B for the lifeboats required if the lifeboats interfere with the practical operation of the vessel and the substitution may be made with safety in the opinion of the Officer in Charge, Marine Inspection.

[3] Vessels navigating waters where the average depth of the channel does not exceed 3 feet shall not be required to be equipped with lifeboats or life rafts.

[CGFR 52–43, 17 F.R. 9453, Oct. 18, 1952, as amended by CGFR 60–36, 25 F.R. 10631, Nov. 5, 1960; CGFR 61–15, 26 F.R. 9289, Sept. 30, 1961]

§ 94.10-45 Requirements for fireboats, wrecking and fishing vessels, and pilot boats in Great Lakes; lakes, bays, and sounds; or river service.

(a) All vessels of 50 gross tons and over shall have an aggregate lifeboat and life raft capacity to accommodate all persons on board. Not less than 50 percent of such capacity shall be in lifeboats and the remainder may be in Type A or Type B life rafts.

(b) All vessels of less than 50 gross tons shall have an aggregate lifeboat and life raft capacity to accommodate all persons on board. The life rafts may be either Type A or Type B.

(c) In lieu of the standard lifeboats required by § 94.10-5 (a) the following types of boats may be used:

(1) Vessels used exclusively as fireboats and connected to or belonging to a regularly organized fire department shall be required to carry only such boats or rafts as in the judgment of the Officer in Charge, Marine Inspection, may be required to carry the crew.

(2) Vessels engaged exclusively in the business of furnishing pilots to vessels may use their launches and/or yawls.

(3) Vessels engaged exclusively in the business of wrecking may use their surf boats.

(4) Vessels engaged exclusively in the business of seine fishing may use their seine boats.

(d) Inflatable life rafts may be substituted for lifeboats and life rafts on certain vessels in accordance with § 94.10-55.

[CGFR 52-43, 17 F.R. 9454, Oct. 18, 1952, as amended by CGFR 60-36, 25 F.R. 10631, Nov. 5, 1960]

§ 94.10-50 Requirements for yachts in Great Lakes; lakes, bays, and sounds; or river service.

(a) All yachts shall be fitted with lifeboats and life rafts as required by Table 94.10-40(a), depending upon the service. Alternatively, such equipment may be provided as required by Table 75.10-20 (a) of Subchapter H (Passenger Vessels) of this chapter.

(b) Inflatable life rafts may be substituted for lifeboats and life rafts on certain vessels in accordance with § 94.10-55.

[CGFR 52-43, 17 F.R. 9454, Oct. 18, 1952, as amended by CGFR 60-36, 25 F.R. 10631, Nov. 5, 1960]

§ 94.10-55 Inflatable life rafts as an alternate for lifeboats, other life rafts, life floats, and buoyant apparatus on certain vessels.

(a)(1) On all vessels except those required to meet the standards of the International Convention for Safety of Life at Sea, 1948, inflatable life rafts may be permitted as substitutes for other types of life rafts, life floats and buoyant apparatus wherever they may be required.

(2) The capacity of inflatable life rafts carried in place of other life rafts, life floats, and buoyant apparatus shall be at least equivalent to that required of the equipment for which substitution is made.

(3) The substitution of inflatable life rafts shall not be made without prior approval of the Officer in Charge, Marine Inspection.

(b) On all vessels less than 3,000 gross tons, except those required to meet the standards of the International Convention for Safety of Life at Sea, 1948, the substitution of life rafts for lifeboats may be permitted as follows:

(1)(i) On all vessels under 500 gross tons, inflatable life rafts may be substituted for all required lifeboats.

(ii) The total capacity of the inflatable life rafts shall be at least equal to the total number of persons that the lifeboats would have been required to accommodate. Partial substitution is permissible provided the aggregate lifeboat and inflatable life raft capacity is sufficient to accommodate the required number of persons, as indicated above.

(iii) Where substitution of inflatable life rafts is made, a suitable rescue boat shall be provided. In the case of partial substitution, a lifeboat may serve as the rescue boat.

(iv) In the exceptional case on a vessel under 100 gross tons, the rescue boat may be omitted when it can be shown to the satisfaction of the Commandant that it is not necessary due to the size, arrangement and maneuverability of the vessel, and its intended service.

(2)(i) On all vessels of 500 gross tons and upward to 1,600 gross tons, inflatable life rafts may be substituted for all required lifeboats provided one approved lifeboat of a size acceptable to the Officer in Charge, Marine Inspection, suitable for rescue purposes, is installed.

(ii) The aggregate lifeboat and inflatable life raft capacity shall be at least

equal to the total number of persons that the lifeboats would have been required to accommodate.

(iii) The launching arrangement and location of the lifeboat to be used as rescue boat shall be such that it can be readily launched and shall be to the satisfaction of the Officer in Charge, Marine Inspection.

(3) (i) On all vessels of 1,600 gross tons and upward to 3,000 gross tons, inflatable life rafts may be substituted for all except two of the required lifeboats. These lifeboats shall be of a size acceptable to the Officer in Charge, Marine Inspection, and shall be suitable for rescue purposes. In all cases, two approved lifeboats, one on each side, shall be provided.

(ii) The aggregate lifeboat and inflatable life raft capacity shall be at least equal to the total number of persons that the lifeboats, for which substitutions are made plus those remaining on board, would have been required to accommodate.

(4) The substitution of inflatable life rafts for lifeboats shall not be made without prior approval of the Officer in Charge. Marine Inspection.

(c) On all seagoing barges of 100 gross tons and over an inflatable life raft may be substituted for the required lifeboat, the total capacity of which shall be sufficient to accommodate all persons on board.

(d) The Commandant may give special consideration to the substitution of approved inflatable life rafts for required lifeboats on vessels of 3,000 gross tons and over, except those vessels required to meet the standards of the International Convention for Safety of Life at Sea, 1948.

[CGFR 60–36, 25 F.R. 10631, Nov. 5, 1960]

§ 94.10–90 Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 94.10–5 through 94.10–50 shall be complied with insofar as the number and general type of lifesaving equipment is concerned. Existing items of lifesaving equipment previously approved, but not meeting the applicable specifications or requirements set forth in §§ 94.10–5 through 94.10–50 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alterations, and replacements may be permitted to the same standards as the original installation. However, all new installations or major replacements shall meet the applicable specifications or requirements.

(2) On vessels of over 3,000 gross tons in ocean, coastwise, or Great Lakes service, all replacement of disengaging apparatus shall meet the requirements of § 94.10–5(a)(4)(i). On all other vessels in any service, all of the lifeboats on a particular vessel shall be fitted with the same type of disengaging apparatus.

(3) The requirements of § 94.10–10 (c) shall not apply except for replacements, and then only if it can be done without change to existing davits and arrangements.

[CGFR 52–43, 17 F.R. 9454, Oct. 18, 1952, as amended by CGFR 60–36, 25 F.R. 10631, Nov. 5, 1960]

Subpart 94.15—Stowage and Marking of Lifeboats, Life Rafts, Life Floats, and Buoyant Apparatus [1]

§ 94.15–1 Application.

(a) The provisions of this subpart, with the exception of § 94.15–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of § 94.15–90.

[CGFR 52–43, 17 F.R. 9454, Oct. 18, 1952]

§ 94.15–5 General.

(a) The lifeboats, life rafts, life floats, and buoyant apparatus shall be readily available in the case of emergency, and shall be kept in good working order and available for immediate use at all times when the vessel is being navigated and, insofar as reasonable and practicable, while the vessel is not being navigated.

(b) The decks on which lifeboats, life rafts, life floats, and buoyant apparatus are carried shall be kept clear of freight or any other obstructions which would interfere with the immediate launching of the lifesaving appliances.

[CGFR 61–15, 26 F.R. 9289, Sept. 30, 1961]

§ 94.15–10 Stowage.

(a) *General.* Lifeboats, life rafts, life floats, and buoyant apparatus shall be stowed in such a manner that:

[1] CGFR 61–15, 26 F.R. 9289, Sept. 30, 1961.

(1) They are capable of being launched in the shortest possible time.

(2) They shall not impede the launching or handling of other lifesaving appliances.

(3) They shall not impede the marshalling of persons at the embarkation stations, or their embarkation.

(4) They shall be capable of being put in the water safely and rapidly even under unfavorable conditions of list and trim.

(b) *Lifeboat stowage.* (1) Suitable access to the lifeboats shall be provided to enable the crew to prepare the lifeboats for launching.

(2) Lifeboats shall be so stowed that embarkation into them may be made rapidly and in good order.

(3) Lifeboats shall not be stowed in the bows of the vessel nor as far aft as to be endangered by the propellers or overhang of the stern.

(4) Lifeboats shall be so stowed that it shall not be necessary to lift them in order to swing out the davits, except on small vessels where such requirement is unreasonable and impracticable in the opinion of the Officer in Charge, Marine Inspection.

(5) On vessels in ocean or coastwise service, lifeboats, when stowed on a deck more than 15 feet above the deepest seagoing draft, shall be fitted with skates or other suitable means to facilitate launching against an adverse list of up to 15 degrees. However, skates may be dispensed with if, in the opinion of the Commandant, the arrangements are such as to insure that the lifeboats can be satisfactorily launched without such skates.

(6) On vessels in ocean and coastwise service, where applicable, means shall be provided outside the machinery space to prevent the discharge of water into the lifeboats while they are being lowered. This shall consist of baffles to deflect the water down the vessel's side, or reach rods, or other means to close the discharge openings.

(c) *Life raft stowage.* (1) Type A life rafts shall be stowed on standard skids constructed in accordance with Subpart 160.042 of Subchapter Q (Specifications) of this chapter.

(2) Type B life rafts shall be stowed in such a manner that they may be readily launched.

(3) The additional life raft required on Great Lakes vessels by Table 94.10-40 (a) shall be stowed in such a manner that it will float clear in the event of sinking of the vessel. The requirements of subparagraphs (1) and (2) of this paragraph need not be complied with for such life raft.

(4) Inflatable life rafts shall be stowed in such a manner that they will float free in the event of the vessel sinking. Stowage and launching arrangements will be to the satisfaction of the Officer in Charge, Marine Inspection.

(d) *Life float and buoyant apparatus stowage.* (1) Life floats and buoyant apparatus shall be stowed in such a manner as to be readily launched. Life floats exceeding 400 pounds in weight shall be stowed in such a manner as not to require lifting before launching.

(2) Life floats and buoyant apparatus shall not be secured to the vessel except by lashings which can be easily slipped. They may be stowed in tiers one above the other, but not more than four high. When stowed in tiers, the separate units shall be kept apart by suitable distance pieces.

(3) Means shall be provided to prevent shifting.

[CGFR 52-43, 17 F.R. 9454, Oct. 18, 1952, as amended by CGFR 52-62, 17 F.R. 11879, Dec. 31, 1952; CGFR 60-36, 25 F.R. 10631, Nov. 5, 1960; CGFR 61-15, 26 F.R. 9289, Sept. 30, 1961]

§ 94.15-15 Marking.

(a) Lifeboats, life rafts, life floats, and buoyant apparatus shall be marked as required by §§ 97.37-37 and 97.37-40 of this subchapter.

[CGFR 61-15, 26 F.R. 9289, Sept. 30, 1961]

§ 94.15-90 Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) The provisions of §§ 94.15-5 through 94.15-15 shall be met except as further set forth in this paragraph.

(2) The requirements of § 94.15-10(b) (5) need only apply if, in the opinion of the Officer in Charge, Marine Inspection, the arrangement or construction of the vessel is such that overhanging decks, openings, or other similar obstructions make the use of skates or similar appliances necessary.

(3) The requirements of § 94.15-10(b) (6) need only apply if it is deemed reasonable and practicable by the Officer in Charge, Marine Inspection.

[CGFR 54-16, 19 F. R. 4926, Aug. 6, 1954]

Subpart 94.20—Equipment for Lifeboats, Life Rafts, Life Floats, and Buoyant Apparatus [1]

§ 94.20–1 Application.

(a) The provisions of this subpart with the exception of § 94.20–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of § 94.20–90.

[CGFR 52–43, 17 F.R. 9455, Oct. 18, 1952]

§ 94.20–5 General.

(a) Equipment for lifeboats, life rafts, life floats, and bucyant apparatus shall be of good quality, efficient for the purpose they are intended to serve, and kept in good condition.

(b) Lifeboats, life rafts, life floats, and buoyant apparatus shall be fully equipped before the vessel is navigated and the equipment shall remain in such lifesaving appliances throughout the voyage, except as provided in § 97.15–45 (e) of this subchapter.

(c) It shall be unlawful to stow in any lifeboat, life raft, life float, or buoyant apparatus any article not required by this subpart unless such article can be properly stowed so as not to reduce the seating capacity or space available to the occupants and so as not to adversely affect the seaworthiness of such appliances or, in the case of lifeboats, overload the davits or winches.

(d) Loose equipment, except boathooks in lifeboats, shall be securely attached to the lifesaving appliance to which it belongs.

[CGFR 61–15, 26 F.R. 9290, Sept. 30, 1961]

§ 94.20–10 Required equipment for lifeboats.

(a) The lifeboats for all vessels shall be equipped in accordance with Table 94.20–10(a). For a description of the

[1] CGFR 61–15, 26 F.R. 9290, Sept. 30, 1961.

TABLE 94.20–10(a)

Letter identification	Item	Ocean and coastwise		Great Lakes		Lakes, bays and sounds; and rivers
		Other than seagoing barges	Seagoing barges	Vessels carrying cargo	Other	
a	Bailer	1	None	1	None	None
b	Bilge pump	[1] 1	None	None	None	None
c	Boathooks	2	2	1	1	1
d	Bucket	2	1	1	1	1
e	Compass and mounting	1	None	None	None	None
f	Ditty bag	1	None	None	None	None
g	Drinking cups	1	1	None	None	None
h	Fire extmguishers (motor-propelled lifeboats only)	2	2	2	2	2
i	First-aid kit	1	None	None	None	None
j	Flashlight	1	None	1	None	None
k	Hatchets	2	None	2	1	1
l	Heaving line	2	None	None	None	None
m	Jackknife	1	1	None	None	None
n	Ladder, lifeboat, gunwale	[2] 1	None	None	None	None
o	Lantern	1	1	1	1	1
p	Life line	1	1	1	1	1
q	Life preservers	2	2	2	2	2
r	Locker	1	None	1	None	None
s	Mast and sail (oar-propelled lifeboats only)	1	None	None	None	None
t	Matches (boxes)	2	2	1	1	1
u	Milk, condensed (pounds per person)	1	None	None	None	None
v	Mirrors, signaling	2	None	None	None	None
w	Oars	[3] 1 unit	[3] 1 unit	[3] 1 unit	[3] 1 unit	[3] 1 unit
x	Oil, illuminating (quarts)	1	None	1	None	None
y	Oil, storm (gallons)	1	None	1	None	None
z	Painter	2	1	2	1	1
aa	Plugs	1	1	1	1	1
bb	Provisions (pounds per person)	2	None	None	None	None
cc	Rowlocks	[3] 1 unit	[3] 1 unit	[3] 1 unit	[3] 1 unit	[3] 1 unit
dd	Rudder and tiller	1	1	1	1	None
ee	Sea anchor	1	None	1	None	None
ff	Signals, distress, floating orange smoke	2	None	None	None	None
gg	Signals, distress, red hand flare	[3] 1 unit	None	[3] ½ unit	None	None
hh	Signals, distress, red parachute flare	[3] [4] 1 unit	None	[3] ½ unit	None	None
ii	Tool kit (motor-propelled lifeboat only)	[3] 1 unit	[3] 1 unit	[3] 1 unit	[3] 1 unit	[3] 1 unit
jj	Water (quarts per person)	3	1	None	None	None

[1] Motor-propelled lifeboats, certified for 100 or more persons, shall be fitted with an additional hand bilge pump of an approved type or a power bilge pump.
[2] Not required on lifeboats of less than 60 persons capacity.
[3] For description of units, see § 94.20–15.
[4] Vessels in coastwise service need only carry 1 unit for each 5 lifeboats or fraction thereof.

items contained in this table, and the units comprising the items, see the applicable paragraphs of § 94.20–15. The letter identification prefixing the item in the table corresponds to the paragraph designations in § 94.20–15.

[CGFR 52–43, 17 F.R. 9455, Oct. 18, 1952, as amended by CGFR 60–36, 25 F.R. 10632, Nov. 5, 1960]

§ 94.20–15 Description of equipment for lifeboats.

(a) *Bailer.* The bailer shall have a lanyard attached and shall be of sufficient size and suitable for bailing.

(b) *Bilge pump.* Bilge pumps shall be of an approved type, constructed in accordance with Subpart 160.044 of Subchapter Q (Specifications) of this chapter. They shall be of the size given in Table 94.20–15 (b) depending upon the capacity of the lifeboat as determined by the six-tenths rule as described in § 160.035–8 (b) of Subchapter Q (Specifications) of this chapter.

TABLE 94.20-15 (b)

Capacity of lifeboat, cubic feet		Bilge pump size
Over	Not over	
--------	330	1
330	700	2
700	--------	3

(c) *Boathooks.* Boathooks shall be of the single hook ball-point type. Boathook handles shall be of clear grained white ash, or equivalent, and of a length and diameter as given in Table 94.20–15 (c).

TABLE 94.20-15 (c)

Length of lifeboat, feet		Boathook handles	
Over	Not over	Diameter, inches	Length, feet
---------	23	1½	8
23	29	1¾	10
29	--------	2	12

(d) *Bucket.* The bucket shall be of heavy gage galvanized iron, or other suitable corrosion-resistant metal, of not less than 2-gallon capacity, and shall have a 6-foot lanyard of 12-thread manila attached.

(e) *Compass and mounting.* The compass and mounting shall be of an approved type constructed in accordance with U. S. Coast Guard specification dated December 14, 1944.

(f) *Ditty bag.* The ditty bag shall consist of a canvas bag and shall contain a sailmaker's palm, needles, sail twine, marline, and marline spike.

(g) *Drinking cups.* Drinking cups shall be enameled, and shall be provided with ⅛-inch diameter cotton lanyards 3 feet in length.

(h) *Fire extinguisher.* Fire extinguishers shall be of approved Type B–C, Size I (see § 95.50–5 of this subchapter). One shall be attached to each end of the lifeboat.

(i) *First-aid kit.* The first-aid kit shall be of an approved type, constructed and fitted in accordance with Subpart 160.041 of Subchapter Q (Specifications) of this chapter.

(j) *Flashlight.* The flashlight shall be of an approved Type I, Size No. 3, constructed in accordance with Subpart 161.008 of Subchapter Q (Specifications) of this chapter. Three spare cells (or one 3-cell battery) and two spare bulbs shall be provided with each flashlight. Batteries shall be replaced yearly during the annual stripping, cleaning and overhaul of the lifeboat.

(k) *Hatchet.* Hatchets shall be of an approved type, constructed in accordance with Subpart 160.013 of Subchapter Q (Specifications) of this chapter. They shall be attached to the lifeboat by individual lanyards and be readily available for use, one at each end of the lifeboat.

(l) *Heaving line.* The heaving line shall be of adequate strength, 10 fathoms in length, and 1 inch in circumference. It shall be of such quality as to be buoyant after 24 hours' submergence.

(m) *Jackknife.* The jackknife (with can opener) shall be of an approved type, constructed in accordance with Subpart 160.043 of Subchapter Q (Specifications) of this chapter.

(n) *Ladder, lifeboat gunwale.* The lifeboat gunwale ladder shall consist of 3 flat wood steps cut out for hand holds. The steps shall be spaced 12 inches apart and fastened with ⅝ inch diameter manila rope. Each rope end shall be tied inside the lifeboat at about amidships with the ladder stowed on top of the side benches and ready for immediate use. Other suitable devices may be specifically approved.

(o) *Lantern.* The lantern shall contain sufficient oil to burn for at least 9

hours, and shall be ready for immediate use.

(p) *Life line.* The life line shall be properly secured to both sides of the lifeboat along its entire length, festooned in bights not longer than 3 feet, with a seine float in each bight, which float may be omitted if the line is of an inherently buoyant material and absorbs little or no water. The life line shall be of a size and strength not less than 3/8-inch diameter manila. The bights shall hang to within 12 inches of the water when the lifeboat is light.

(q) *Life preservers.* Life preservers shall be of an approved type, constructed in accordance with the applicable subparts of Subchapter Q (Specifications) of this chapter.

(r) *Locker.* The locker shall be suitable for the storage and preservation of the small items of equipment.

(s) *Mast and sail.* A unit, consisting of a standing lug sail together with the necessary spars and rigging, shall be provided in general agreement with Table 94.20–15 (s). The sails shall be of good quality canvas, colored Indian Orange (Cable No. 70072, Standard Color Card of America). Rigging shall consist of galvanized wire rope not less than 5/16 inch in diameter. The mast and sail shall be protected by a suitable canvas cover.

TABLE 94.20–15 (s)

Length of lifeboat, feet		Standing lug sail							Mast [1]		Yard [1]	
Over	Not over	Area, square feet	Luff and head lengths	Leach length	Foot length	Clew to throat	Ounces per square yard	Commercial designation No.	Length	Diameter, inches	Length	Diameter, inches
			Ft. In.	Ft. In.	Ft. In.	Ft. In.			Ft. In.		Ft. In.	
-----	17	58	5 11	12 1	8 10	10 10	14.35	10	11 2	3	6 11	2
17	19	74	6 8	13 8	10 0	12 2	14.35	10	12 6	3	7 8	2
19	21	93	7 5	15 1	11 2	13 8	14.35	10	13 10	3½	8 5	2½
21	23	113	8 3	16 11	12 4	15 1	14.35	10	15 2	3½	9 3	2½
23	25	135	9 0	18 6	13 6	16 6	14.35	10	16 6	4	10 0	3
25	27	158	9 9	20 0	14 7	17 10	17.50	8	17 10	4	10 9	3
27	29	181	10 5	21 5	15 7	19 1	17.50	8	19 2	4½	11 5	3¼
29	31	203	11 0	22 8	16 6	20 3	20.74	6	20 6	4½	12 0	3¼
31	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]	[2]

[1] Mast lengths measured from heel to center of upper halyard sheave. Mast diameters measured at thwart. Mast and yard shall be of clear-grained spruce, fir, or equivalent.
[2] Subject to special consideration.

(t) *Matches.* A box of friction matches in a watertight container stowed in an equipment locker or secured to the underside of the stern thwart if no locker is fitted.

(u) *Milk, condensed.* One pound of condensed milk shall be provided for each person the lifeboat is certified to carry, to be stowed in lockers or other compartments providing suitable protection.

(v) *Mirrors, signaling.* Signaling mirrors shall be of an approved type.

(w) *Oars.* A unit, consisting of a complement of rowing oars and steering oar, shall be provided for each lifeboat in accordance with Table 94.20–15 (w), except that motor-propelled and hand-propelled lifeboats need only be equipped with 4 rowing oars and 1 steering oar. In any case, the emergency lifeboats shall be provided with the full complement of oars prescribed by the table.

TABLE 94.20–15 (w)

Length of lifeboat, feet		Number of oars		Length of oars, feet	
Over	Not over	Rowing	Steering	Rowing	Steering
-----	15	4	1	8	9
15	19	6	1	10	11
19	21	6	1	11	12
21	23	6	1	12	13
23	25	8	1	13	14
25	27	8	1	14	15
27	----	8	1	15	16

(x) *Oil, illuminating.* One quart of illuminating oil shall be provided in a metal container.

(y) *Oil, storm.* One gallon of vegetable, fish, or animal oil shall be provided in a suitable metal container so constructed as to permit a controlled distribution of oil on the water, and so

arranged that it can be attached to the sea anchor.

(z) *Painter.* Painters shall be of manila rope not less than 2¾ inches in circumference, or equivalent, and of a length not less than 3 times the distance between the deck on which the lifeboat is stowed and the light draft of the vessel. For lifeboats in vesseis on ocean, coastwise or Great Lakes service one of the painters shall have a long eye splice and be attached to the thwart with a toggle. The other painter shall be attached to the stem.

(aa) *Plug.* The automatic drain plug required in the lifeboat shall be provided with a cap or plug attached to the lifeboat by a suitable chain.

(bb) *Provisions.* Two pounds of hard bread or its approved equivalent shall be provided for each person the lifeboat is certified to carry. The provisions shall be packaged in hermetically sealed cans of an approved type. The cans shall be stowed in lockers or other compartments providing suitable protection.

(cc) *Rowlocks.* A unit, consisting of sufficient rowlocks and rowlock sockets for each oar required by Table 94.20–15 (w) plus 2 additional rowlocks. The rowlocks shall be attached to the lifeboat by separate chains so as to be available for immediate use, except that the 2 additional spare rowlocks shall be carried in the equipment locker or stowed near the stern if no locker is fitted. The rowlocks and rowlock sockets shall be distributed so as to provide the maximum amount of single banked oars practicable.

(dd) *Rudder and tiller.* The rudder and tiller shali be constructed in accordance with § 160.035–3 (t) of Subchapter Q (Specifications) of this chapter.

(ee) *Sea anchor.* The sea anchor shall be of an approved type.

(ff) *Signals, distress, floating orange smoke.* Two approved floating orange smoke distress signals, constructed in accordance with Subpart 160.022 of Subchapter Q (Specifications) of this chapter. The service use of this equipment shall be limited to three years from date of manufacture, and replacement shall be made no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration.

(gg) *Signals, distress, red hand flare.* A unit, consisting of twelve approved hand red flare distress signals in a watertight container, constructed in accordance with Subpart 160.021 or Subpart 160.023 of Subchapter Q (Specifications) of this chapter. The service use of this equipment shall be limited to three years from date of manufacture, and replacement shall be no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration.

(hh) *Signals, distress, red parachute flare.* A unit, consisting of twelve parachute red flare distress signals with an approved means of protecting them, all contained in a portable watertight container; or twelve approved hand-held rocket-propelled parachute red flare distress signals contained in a portable watertight container. Construction shall be in accordance with Subparts 160.024 and 160.028 or Subpart 160.036 of Subchapter Q (Specifications) of this chapter. The service use of this equipment shall be limited to three years from date of manufacture, and replacement shall be no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration.

(ii) *Tool kit.* The tool kit shall consist of at least the following tools contained in a suitable container:

(1) One 12-ounce ball peen hammer.
(2) One screwdriver with 6-inch biade.
(3) One pair 8-inch slip joint pliers.
(4) One 8-inch adjustable end wrench.

(jj) *Water.* (1) For each person the lifeboat is certified to carry, there shali be provided three quarts of drinking water consisting of nine approved hermetically sealed containers per person, constructed and filled in accordace with Subpart 160.026 of Subchapter Q (Specifications) of this chapter. The service life of this equipment shall be limited to five years from date of packing, and replacement shall be made no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration.

(2) The drinking water containers shall be stowed in drinking water tanks, lockers, or other compartments providing suitable protection.

(3) This paragraph shall be in effect on and after January 1, 1954, but approved drinking water containers already in use on that date may be continued in use, if otherwise in good and serviceable condition, for a period of five years from date of packing, whereupon they shall be replaced with the containers of the type

specified in subparagraph (1) of this paragraph. Replacement shall be made no later than the first annual stripping, cleaning, and overhaul of the lifeboat after the date of expiration.

[CGFR 52–43, 17 F.R. 9455, Oct. 18, 1952, as amended by CGFR 53–25, 18 F.R. 7854, Dec. 5, 1953, CGFR 56–35, 21 F.R. 6711, Sept. 6, 1956; CGFR 57–18, 22 F.R. 3469, May 17, 1957, CGFR 58–44, 23 F.R. 8983, Nov. 19, 1958, CGFR 61–15, 26 F.R. 9290, Sept. 30, 1961; CGFR 62–17, 27 F.R. 9040, Sept. 11, 1962]

§ 94.20–20 Required equipment for life rafts.

(a) The life rafts for all vessels shall be equipped in accordance with Table 94.20–20(a). For a description of the items contained in this table and the units comprising the items, see the applicable paragraphs of § 94.20–25. The letter identification prefixing the item in the table corresponds to the paragraph designation in § 9420–25.

TABLE 94.20-20(a)

Letter identification	Item identification	Ocean and coastwise	Great Lakes		Lakes, bays, and sounds; and rivers
			Vessels carrying cargo	Other vessels	
a	Boathook	1	1	1	1
b	Drinking cups	1	None	None	None
c	Jackknife	1	None	None	None
d	Lifeline	[1] 1	[1] 1	[1] 1	[1] 1
e	Matches (boxes)	1	1	None	None
f	Mirrors, signaling	2	None	None	None
g	Oars	[2] 1 unit	[2] 1 unit	[2] 1 unit	[2] 1 unit
h	Oil, storm (gallons)	1	1	None	None
i	Painter	1	1	1	1
j	Provisions (pounds per person)	2	None	None	None
k	Rowlocks	[2] 1 unit	[2] 1 unit	[2] 1 unit	[2] 1 unit
l	Sea anchor	1	1	None	None
m	Signals, distress	[2] 1 unit	[2] 1 unit	None	None
n	Water (quarts per person)	1	None	None	None
o	Water light	1	1	[4] 1	None

[1] Not required on Type A life rafts.
[2] For description of units see § 94.20–25.
[3] 1 unit here means 6 hand red flare distress signals and 6 parachute red flare distress signals with an approved means of projecting them.
[4] Required only on towing vessels of 300 gross tons and over.

(b) Inflatable life rafts shall be equipped for "ocean service," or "limited service" depending on its certificated route, in accordance with Subpart 160.051 of Subchapter Q (Specifications) of this chapter.

NOTE: Subpart 160.051 of Subchapter Q (Specifications) of this chapter requires the servicing of inflatable life rafts at approved servicing facilities. Included in the servicing at an approved servicing facility is a complete inspection of the required equipment by a marine inspector.

[CGFR 60–36, 25 F.R. 10632, Nov. 5, 1960]

§ 94.20–25 Description of equipment for life rafts.

(a) *Boathooks.* Boathooks shall be of the single hook ball point type. Boathook handles shall be of clear grained white ash, or equivalent, not less than 8 feet long and 1½ inches in diameter.

(b) *Drinking cups.* Drinking cups shall be enameled and provided with ⅛-inch cotton lanyards 3 feet in length.

(c) *Jackknife.* The jackknife (with can opener) shall be of an approved type, constructed in accordance with Subpart 160.043 of Subchapter Q (Specifications) of this chapter.

(d) *Life line.* The life line shall be properly secured around the sides and ends of the life raft, festooned in bights not longer than 3 feet, with a seine float in each bight, which float may be omitted if the line is of an inherently buoyant material and absorbs little or no water. The life line shall be of a size and strength not less than ⅜-inch diameter manila.

(e) *Matches.* A box of friction matches in a watertight container.

(f) *Mirrors, signaling.* Signaling mirrors shall be of an approved type.

(g) *Oars.* A unit, consisting of 4 rowing oars and one steering oar not less than 8 feet in length shall be provided for life rafts for 7 persons or more. For life rafts for 6 persons or less, a unit shall consist of 2 paddles not less than 5 feet in length.

(h) *Oil, storm.* One gallon of vegetable, fish, or animal oil shall be provided in a suitable metal container so constructed as to permit a controlled distribution of oil on the water, and so arranged that it can be attached to the sea anchor.

(i) *Painter.* Painters shall be of manila rope not less than 2¾ inches in circumference and of a length not less than 3 times the distance between the deck on which the life rafts are stowed and the light draft of the vessel.

(j) *Provisions.* Two pounds of hard bread or its approved equivalent shall be provided for each person the life raft is certified to carry. The provisions shall be packaged in hermetically sealed cans of an approved type. The cans shall be stowed in compartments providing suitable protection.

(k) *Rowlocks.* A unit consisting of 5 rowlocks attached to the life raft by separate chains and ready for immediate use, together with proper rowlock sockets so arranged as to provide 4 rowing positions and one steering position with the life raft floating either side up. Rowlocks and rowlock sockets are not required on life rafts for 6 persons or less.

(l) *Sea anchor.* The sea anchor shall be constructed of good quality canvas or other satisfactory material, and shall be not less than 2 feet in diameter.

(m) *Signals, distress.* A unit, consisting of equipment as specified in subparagraphs (1) to (3) of this paragraph. The service use of this equipment shall be limited to three years from date of manufacture, and replacement shall be made no later than the first annual inspection of the vessel after the date of expiration.

(1) Twelve approved hand red flare distress signals in a watertight container and two approved floating orange smoke distress signals, constructed in accordance with Subparts 160.021 and 160.022 of Subchapter Q (Specifications) of this chapter, or

(2) Twelve approved hand red flare distress signals in a watertight container and 12 approved hand orange smoke distress signals, constructed in accordance with Subparts 160.021 and 160.037 of Subchapter Q (Specifications) of this chapter, or

(3) Twelve approved hand combination flare and smoke distress signals, constructed in accordance with Subpart 160.023 of Subchapter Q (Specifications) of this chapter.

(n) *Water.* (1) For each person the life raft is certified to carry, there shall be provided one quart of drinking water consisting of three approved hermetically sealed containers per person, constructed and filled in accordance with Subpart 160.026 of Subchapter Q (Specifications) of this chapter. The service life of this equipment shall be limited to five years from date of packing, and replacement shall be made no later than the first annual stripping, cleaning, and overhaul of the life raft after the date of expiration.

(2) The drinking water containers shall be stowed in compartments providing suitable protection.

(o) *Water light.* The water light shall be of an approved type, constructed in accordance with Subparts 160.012 or 161.001 of Subchapter Q (Specifications) of this chapter. The water light shall be attached to the life raft by a 12-thread manila lanyard 3 fathoms in length.

[CGFR 52-43, 17 F.R. 9456, Oct. 18, 1952, as amended by CGFR 57-18, 22 F.R. 3470, May 17, 1957; CGFR 58-44, 23 F.R. 8983, Nov. 19, 1958; CGFR 60-36, 26 F.R. 9290, Sept. 30, 1960]

§ 94.20-30 Required equipment for life floats and buoyant apparatus.

(a) The life floats and buoyant apparatus for all vessels shall be equipped in accordance with Table 94.20-30(a). For a description of the items contained in this table, and the units comprising the items, see the applicable paragraphs of § 94.20-35. The letter identification prefixing the item in the table corresponds to the paragraph designation in § 94.20-35.

TABLE 94.20-30(a)

Letter identification	Item	Number required for each life float and buoyant apparatus		
		Ocean and coastwise	Great Lakes	Lakes, bays, sounds, and rivers
a	Boathook [1]	1	1	1
b	Life line	1	1	1
c	Paddles [1]	4	4	4
d	Painter	1	1	1
e	Water light [2]	1	1	None

[1] Buoyant apparatus need not be equipped with boathook or paddles.

[2] Equipment for 24 persons or less not required to have a water light.

[CGFR 61-15, 26 F.R. 9290, Sept. 30, 1961]

§ 94.20–35 Description of equipment for life floats and buoyant apparatus.

(a) *Boathook.* Boathooks shall be of the single hook ball point type. Boathook handles shall be of clear grained white ash, or equivalent, not less than 6 feet long and 1½ inches in diameter.

(b) *Life line.* The life line shall be properly secured around the sides and ends of the life float or buoyant apparatus, festooned in bights not longer than 3 feet, with a seine float in each bight, which float may be omitted if the line is of an inherently buoyant material and absorbs little or no water. The life line shall be of a size and strength not less than ⅜-inch diameter manila.

(c) *Paddles.* Paddles shall be not less than 5 feet long.

(d) *Painter.* (1) The painter for buoyant apparatus shall be of manila rope not less than 2 inches in circumference and of a length not less than 6 feet plus the distance between the deck on which the buoyant apparatus is stowed and the light draft of the vessel.

(2) The painter for life floats shall be of manila rope not less than 2¾ inches in circumference and of a length not less than 3 times the distance between the deck on which the life floats are stowed and the light draft of the vessel.

(e) *Water light.* The water light shall be of an approved type, constructed in accordance with Subpart 160.012 or 161.001 of Subchapter Q (Specifications) of this chapter. The water light shall be attached to the life float or buoyant apparatus by a 12-thread manila lanyard 3 fathoms in length.

[CGFR 61–15, 26 F.R. 9290, Sept. 30, 1961]

§ 94.20–90 Vessels coutracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 94.20–5 through 94.20–25 shall be complied with insofar as the number of items of equipment and the method of stowage of the equipment is concerned. Existing items of equipment previously approved, but not meeting the applicable specifications or requirements set forth in §§94.20–5 through 94.20–25 may be continued in service so long as they are maintained in a good condition to the satisfaction of the Officer in Charge, Marine Inspection. All new installations or replacements shall meet the applicable specifications or requirements in this part.

(2) Lifeboats previously approved without automatic drain plugs shall have two plugs or caps attached to the lifeboat by separate chains.

(3) Decked lifeboats shall have no drain holes or plugs, but shall be equipped with two bilge pumps.

(4) On vessels in ocean or coastwise service, unless other approved means are provided to achieve the same purpose, three ½-inch-diameter manila grab lines shall be fitted extending from gunwale to gunwale under the keel to enable persons to cling to and climb upon the upturned lifeboat. The ends of each grab line shall be securely attached to the side benches or other permanent part of the lifeboat and each grab line shall be made up with figure eight knots spaced approximately 18 inches apart in order to provide hand grips. Means shall be provided for taking up any slack in the grab lines.

[CGFR 52–43, 17 F.R. 9457, Oct. 18, 1952, as amended by CGFR 52–62, 17 F.R. 11879, Dec. 31, 1952; CGFR 62–17, 27 F.R. 9040, Sept. 11, 1962]

Subpart 94.25—Davits

SOURCE: §§ 94.25–1 to 94.25–90 contained in CGFR 52–43, 17 F.R. 9457, Oct. 18, 1952, except as otherwise noted.

§ 94.25–1 Application.

(a) The provisions of this subpart, with the exception of § 94.25–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of § 94.25–90.

§ 94.25–5 General.

(a) All gravity and mechanical type davits shall be of an approved type, constructed in accordance with Subpart 160.032 of Subchapter Q (Specifications) of this chapter.

(b) Davits for lifeboats weighing in excess of 5,000 pounds when fully equipped (but without persons) shall be of the gravity type.

(c) All davits shall be so arranged that the lifeboats do not require lifting prior to being swung out, except on small vessels where such requirement is unreasonable or impracticable in the opinion of the Officer in Charge, Marine Inspection.

(d) All davits and necesary gear shall be such as to meet the requirements for the installation test set forth in Subpart 94.35. The design, arrangements, and installation shall be such as to preclude undue delay in getting the lifeboats into the water .

(e) Radial davits, where permitted, shall comply with the following requirements:

(1) They shall be fitted with means to prevent them from being jerked from their sockets.

(2) They shall maintain a factor of safety of six based on the weight of the fully equipped and loaded lifeboat, except that the weight of the fully equipped lifeboat alone may be used where the lifeboat is launched before being loaded with people.

(3) They shall be fitted with hand gear of sufficient power to insure that the boat can be turned out against a maximum list of 15 degrees.

(4) They shall be shop tested and show no permanent set or undue stress when subjected to a load equal to 2.2 times the working load. In addition, they shall be shop tested with a load equal to 1.1 times the weight of the fully equipped lifeboat with the davit set up to simulate a 15-degree list inboard, and it shall be determined that the hand gear can adequately handle the load in this condition.

(f) Davits shall be so disposed on one or more decks as to permit the lifeboats placed under them to be safely lowered without interference from the operation of any other davits.

(g) On a vessel on which inflatable life rafts have been substituted for lifeboats, a launching device for each lifeboat to be used for rescue purposes shall be installed. Radial type davits or other means may be used in sheltered waters if acceptable to the Officer in Charge, Marine Inspection.

[CGFR 52-43, 17 F.R. 9457, Oct. 18, 1952, as amended by CGFR 60-36, 25 F.R. 10632, Nov. 5, 1960]

§ 94.25-10 Requirements for vessels in ocean or coastwise service.

(a) All vessels shall be fitted with a set of approved gravity or mechanical davits for each lifeboat carried except that on small vessels radial type davits or other means may be used if specifically approved by the Commandant.

(b) All davit installations shall have 2 lifelines fitted to a davit span. The lifelines shall be of such length as to reach the water at the lightest sea going draft with the vessel listed 15 degrees either way.

§ 94.25-15 Requirements for vessels in Great Lakes, lakes, bays, and sounds, or river service.

(a) All vessels shall be fitted with a set of approved gravity or mechanical davits for each lifeboat carried, except that on small vessels. radial type davits or other means may be used if specifically approved by the Commandant.

(b) For vessels in Great Lakes service, all davit installations shall have 2 life lines fitted to a davit span. The life lines shall be of such length as to reach the water at the lightest draft with the vessel listed 15 degrees either way.

[CGFR 52-43, 17 F.R. 9457, Oct. 18, 1952, as amended by CGFR 60-36, 25 F.R. 10632, Nov. 5, 1960]

§ 94.25-90 Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 94.25-5 through 94.25-15 shall be complied with insofar as the number and general type of equipment is concerned. Existing items of equipment previously approved, but not meeting the applicable specifications or requirements set forth in §§ 94.25-5 through 94.25-15 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alterations, and replacements may be made to the same standards as the orlginal installation. However, all new installations or major replacements shall meet the applicable specifications or requirements.

(2) On vessels the keels of which were laid after September 1, 1941, all davits for lifeboats weighing in excess of 5,000 pounds when fully equipped (but without persons) shall be of the gravity type.

Subpart 94.30—Lifeboat Winches

SOURCE: §§ 94.30-1 to 94.30-90 contained in CGFR 52-43, 17 F.R. 9458, Oct. 18, 1952.

§ 94.30-1 Application.

(a) The provisions of thls subpart, with the exception of § 94.30-90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels con-

tracted for prior to November 19, 1952, shall meet the requirements of § 94.30–90.

§ 94.30–5 General.

(a) All lifeboat winches shall be of an approved type, constructed in accordance with Subpart 160.015 of Subchapter Q (Specifications) of this chapter.

(b) Where ice conditions are likely to be encountered, suitable fabric covers shall be provided for all lifeboat winches, so fitted over exposed mechanism, that ice formations may be readily broken adrift when necessary to operate the winch.

(c) Where lifeboat winches are used, wire falls shall be employed.

§ 94.30–10 Number and type required.

(a) Lifeboat winches shall be fitted for each set of davits on all vessels in ocean or coastwise service where the height of the deck on which lifeboats are carried exceeds 20 feet from the lightest seagoing draft.

(b) Lifeboat winches shall be used in all cases where gravity type davits are employed.

(c) Lifeboat winches for use with gravity davits shall have grooved drums of such size that there will be only one layer of wire on the drums. Lifeboat winches for use with mechanical davits need not have grooved drums, and may be designed to take more than one layer of wire.

§ 94.30–15 Installation.

(a) Lifeboat winches shall be so located that the operator can observe the movement of the lifeboat during the lowering operation. In addition, any electrical controls provided shall meet the requirements of Subpart 111.65 of Subchapter J (Electrical Engineering) of this chapter.

(b) The lead of the falls to the lifeboat winches and length and size of wire shall be in accordance with Subpart 94.33.

§ 94.30–90 Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 94.30–5 through 94.30–15 with the exception of § 94.30–10 (a), shall be complied with insofar as the number and general type of equipment is concerned. Existing items of equipment previously approved, but not meeting the applicable specifications or requirements set forth in §§ 94.30–5 through 94.30–15 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. However, all new installations or major replacements shall meet the applicable specifications or requirements.

(2) Existing arrangements previously approved, but not meeting the requirements of § 94.30–15 (a), need not be changed. However, new installations or major alterations should conform with such requirements where reasonable and practicable.

(3) Where lifeboat winches are used with gravity davits, the installation shall comply with the requirements contained in § 160.015–3(k) of Subchapter Q (Specifications) of this chapter for lifeboat winches.

Subpart 94.33—Blocks and Falls

SOURCE: §§ 94.33–1 to 94.33–90 contained in CGFR 52–43, 17 F.R. 9458, Oct. 18, 1952.

§ 94.33–1 Application.

(a) The provisions of this subpart, with the exception of § 94.33–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of § 94.33–90.

§ 94.33–5 General.

(a) All blocks, falls, fairleads, padeyes, shackles, links, fastenings, etc., used in connection with lifeboat gear shall be designed with a minimum factor of safety of six, based on the maximum working load.

(b) Falls shall be of such length that the lifeboat may be lowered to the water with the vessel at its lightest draft and listed 15 degrees.

(c) Falls, where exposed and subject to damage or fouling, shall be suitably protected.

(d) Such blocks or other fittings shall be fitted as are necessary to permit the falls to lead fair in all positions of the davits.

(e) Means for lubrication shall be provided for all moving parts of blocks, sheaves, fairleads, etc.

§ 94.33–10 Installations where lifeboat winches are used.

(a) All falls shall be of wire rope.

(b) Wire rope falls of 6 x 19 regular lay filler wire construction, prelubricated at the factory with suitable neutral wire rope lubricant, shall be accepted as standard. Any other wire rope, superior or equal to this minimum standard may be used if specifically approved.

(c) Not more than two-part falls may be used, except in special cases where three-part falls may be permitted by the Commandant.

(d) The lead sheaves to the drums shall be located so as to provide fleet angles of not more than 8 degrees for grooved drums and not more than 4 degrees for nongrooved drums. By fleet angle is meant the angle included between an imaginary line from the lead sheave perpendicular to the axis of the drum and the line formed by the wire rope when led from the lead sheave to either extremity of the drum.

(e) Sheaves shall have a diameter at the base of the groove at least equal to 12 times the diameter of the wire rope.

§ 94.33–15 Installations where lifeboat winches are not used.

(a) All falls shall be of manila rope or equivalent. Wire rope may not be used.

(b) All vessels of over 1,000 gross tons shall be provided with covered tubs, boxes, or reels for the stowage and protection of the falls, and cruciform bitts shall be provided for properly lowering the lifeboats. Vessels of 1,000 gross tons and less shall have the falls protected from ice and ready for immediate use, and shall be provided with suitable lowering bitts or cleats.

(c) There shall be ample clearance between the cheeks of all blocks. The width between the cheeks shall be ½ inch greater than the diameter of new rope when rope of 3¾ inches circumference or greater is used. Blocks for smaller rope shall be designed with proportional clearances.

§ 94.33–90 Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 94.33–5 through 94.33–15, as applicable, shall be complied with insofar as the general type of equipment is concerned. Existing equipment previously approved, but not meeting the detailed requirements of §§ 94.33–5 through 94.33–15 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alterations, and replacements may be made to the same standards as the original installation. However, all new installations or major replacements shall meet the applicable requirements.

Subpart 94.35—Installation of Lifeboats, Davits, and Winches

SOURCE: §§ 94.35–1 and 94.35–5 contained in CGFR 52–43, 17 F.R. 9459, Oct. 18, 1952.

§ 94.35–1 Application.

(a) The provisions of this subpart shall apply to all installations contracted for on or after November 19, 1952, except as set forth in § 97.15–45(c) of this subchapter.

§ 94.35–5 Tests and examinations.

(a) Upon completion of installation of lifeboats, davits, or winches, tests and examinations as required by this section shall be made to the satisfaction of the inspector before the vessel may be navigated.

(b) The lifeboat shall be swung out from the chocks and lowered to the embarkation deck. At this point the lifeboat shall be loaded with deadweight equivalent to the number of persons allowed (165 pounds per person) together with weight of equipment, plus 10 percent of the total load including the weight of the lifeboat. No persons shall be permitted in the lifeboat while it is being loaded or lowered. The lifeboat shall then be lowered to the water and disengaged from the falls.

(1) None of the equipment or parts thereof nor deck connections shall show signs of permanent set or excessive deflection.

(2) Mechanical and radial type davits shall be capable of being swung out without lifting the lifeboat, except on small vessels where such requirement is unreasonable or impracticable in the opinion of the Officer in Charge, Marine Inspection.

(3) The falls shall be of sufficient length to lower the lifeboat to the light load line with the vessel heeled 15 degrees inboard.

(4) Where lifeboat winches are used, the following additional determinations shall be made:

(i) During lowering, the lifeboat shall be stopped at intervals of approximately six feet by the action of the counterweight alone. The counterweight shall be capable of stopping and holding the lifeboat. The brake action shall be smooth, but positive.

(ii) Brakes exposed to the weather shall be tested under the load conditions with the braking surfaces both wet and dry.

(iii) The governor brake shall be capable of controlling the speed of lowering of the fully equipped lifeboat with its complenient of persons on board to not more than 120 feet per minute. In addition, the speed of lowering of the fully equipped lifeboat without its complement of persons shall be not less than 40 feet per minute.

Subpart 94.40—Life Preservers

§ 94.40–1 Application.

(a) The provisions of this subpart, with the exception of § 94.40–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of § 94.40–90.

[CGFR 52–43, 17 F.R. 9459, Oct. 18, 1952]

§ 94.40–5 General.

(a) All life preservers shall be of an approved type, constructed in accordance with Subparts 160.002, 160.003, 160.004, 160.005, or 160.055 of Subchapter Q (Specifications) of this chapter.

(b) On or before July 1, 1963, all kapok and fibrous glass life preservers which do not have plastic covered pad inserts as required by Subparts 160.002 and 160.005 shall be removed from service.

[CGFR 60–36, 25 F.R. 10633, Nov. 5, 1960]

§ 94.40–10 Number required.

(a) All vessels shall be provided with a life preserver for each person on board except as specifically modified by paragraph (b) of this section.

(b) For vessels in Great Lakes service of 3000 tons or over having berthing and/or working spaces forward widely separated from messing or recreational spaces aft there shall be provided in addition to those life preservers required by paragraph (a) of this section sufficient additional life preservers for 50 percent of the total number of persons on board.

[CGFR 60–36, 25 F.R. 10633, Nov. 5, 1960]

§ 94.40–15 Distribution and stowage.

(a) *Distribution.* (1) Life preservers shall be properly distributed throughout the crew quarters and other readily accessible places. If passengers are carried in addition to the crew, the additional life preservers shall be placed in the staterooms, berthings, and other places convenient for the passengers.

(2) The additional 50 percent life preservers required by § 94.40–10(b) shall be properly stowed in the vicinity of the lifeboats.

(b) *Stowage.* (1) Lockers, boxes, and closets in which life preservers are stowed shall not be capable of being locked, shall be plainly marked, and the life preservers contained therein shall be readily available.

(2) Life preservers stowed overhead shall be so supported that they can be quickly released and distributed. Where life preservers are stowed at a height greater than 7 feet from the deck below, efficient means shall be provided for their immediate release and distribution to be operated by persons standing on the deck.

[CGFR 52–43, 17 F.R. 9459, Oct. 18, 1952, as amended by CGFR 60–36, 25 F.R. 10633, Nov. 5, 1960]

§ 94.40–90 Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 94.40–5 through 94.40–15 shall be complied with insofar as the number of items of equipment and the method of stowage is concerned. Existing items of equipment previously approved, but not meeting the applicable specifications or requirements set forth in §§ 94.40–5 through 94.40–15 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. All new installations or replacements shall meet the applicable specifications or requirements in this subpart.

[CGFR 52–43, 17 F.R. 9459, Oct. 18, 1952]

Subpart 94.43—Ring Life Buoys and Water Lights

SOURCE: §§ 94.43–1 to 94.43–90 contained in CGFR 52–43, 17 F.R. 9459, Oct. 18, 1952, except as otherwise noted.

§ 94.43–1 Application.

(a) The provisions of this subpart, with the exception of §94.43–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of § 94.43–90.

§ 94.43–5 General.

(a) All ring life buoys shall be of an approved type, constructed in accordance with Subpart 160.009 or 160.050 of Subchapter Q (Specifications) of this chapter.

(b) All water lights shall be of an approved type, constructed in accordance with Subparts 160.012 or 161.001 of Subchapter Q (Specifications) of this chapter.

[CGFR 52–43, 17 F.R. 9459, Oct. 18, 1952, as amended by CGFR 54–46, 19 F.R. 8699, Dec. 18, 1954]

§ 94.43–10 Number required.

(a) The minimum number of approved 30-inch ring life buoys, and the minimum number of which shall have water lights attached, shall be in accordance with Table 94.43–10(a).

TABLE 94.43–10 (a)

Length of vessel in feet	Ocean [1]		All services other than ocean	
	Minimum number of ring life buoys	Minimum number of ring life buoys in column 2 which shall have water lights attached	Minimum number of ring life buoys	Minimum number of ring life buoys in column 4 which shall have water lights attached
Col. 1	Col. 2	Col. 3	Col. 4	Col. 5
Under 100	8	6	2	0
100 and under 200	8	6	4	2
200 and under 300	8	6	6	2
300 and under 400	12	6	12	4
400 and under 600	18	9	18	9
600 and under 800	24	12	24	12
800 and over	30	15	30	15

[1] Manned seagoing barges shall be equipped with 1 ring life buoy at each end of the vessel.

(b) One of the ring life buoys on each side of the vessel shall have secured to it a line at least 15 fathoms in length.

[CGFR 52–43, 17 F.R. 9459, Oct. 18, 1952, as amended by CGFR 54–16, 19 F.R. 4927, Aug. 6, 1954; CGFR 60–36, 25 F.R. 10633, Nov. 5, 1960]

§ 94.43–15 Distribution and securing.

(a) All ring life buoys shall be placed so as to be readily accessible to the persons on board, and their positions plainly indicated so as to be known to the persons concerned.

(b) The ring life buoys shall always be capable of being cast loose, and shall not be permanently secured in any way.

§ 94.43–90 Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 94.43–5 through 94.43–15 shall be complied with insofar as the number of items of equipment and the method of stowage is concerned. Existing items of equipment previously approved, but not meeting the applicable specifications or requirements set forth in §§ 94.43–5 through 94.43–15 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. All new installations or replacements shall meet the applicable specifications or requirements in this subpart.

Subpart 94.45—Line-Throwing Appliances

§ 94.45–1 Application.

(a) The provisions of this subpart, with the exception of § 94.45–90, shall apply to all mechanically propelled vessels of 150 gross tons and over in ocean or coastwise service. Such vessels contracted for prior to November 19, 1952, shall meet the requirements of § 94.45–90.

[CGFR 54–16, 19 F. R. 4927, Aug. 6, 1954]

§ 94.45–5 General.

(a) Line-throwing appliances of the impulse-projected rocket type, and the equipment auxiliary thereto, shall be of an approved type, constructed in accordance with Subpart 160.040 of Subchapter Q (Specifications) of this chapter. The service use of rockets shall be limited to a period of four years from date of manufacture, and replacement of out-dated items shall be made at the first port of arrival in the United States where such rockets are available, except that replacement shall be made in all cases within twelve months after the date of expiration.

(b) Line-throwing appliances of the shoulder-gun type, and the equipment auxiliary thereto, shall be of an approved type, constructed in accordance with Subpart 160.031 of Subchapter Q (Specifications) of this chapter.

[CGFR 52-43, 17 F.R. 9460, Oct. 18, 1952, as amended by CGFR 57-18, 22 F.R. 3470, May 17, 1957]

§ 94.45-10 Type required.

(a) All vessels shall be fitted with an approved line-throwing appliance of the impulse-projected rocket type. However, vessels of less than 500 gross tons may substitute a line-throwing appliance of the shoulder-gun type.

[CGFR 54-16, 19 F. R. 4927, Aug. 6, 1954]

§ 94.45-15 Equipment for line-throwing appliances.

(a) The equipment enumerated in this paragraph shall be carried for impulse-projected rocket type line-throwing appliances. Except as noted, the equipment and the appliance shall be stowed together in a suitable case or box:

(1) Four rockets, two of which shall be of the buoyant type.

(2) Four primer-ejector cartridges.

(3) Four service lines, each of a length not less than that specified in the approval of the appliance carried, of 7/32-inch to 9/32-inch diameter, of flax or manila, and having a breaking strength of at least 500 pounds, to be kept in faking boxes or on reels. These lines may be kept either in the box or case with the remainder of the equipment, or be stowed in an accessible location nearby.

(4) One cleaning brush, one can of oil, and twelve wiping patches.

(5) One set of instructions furnished by the manufacturer.

(6) One auxiliary line, 1,500 feet of 3-inch circumference manila. This line may be kept either in the box or case with the remainder of the equipment or be stowed in an accessible location nearby.

(b) The equipment enumerated in this paragraph shall be carried for shoulder-gun-type line-throwing appliances. Except as noted, the equipment and the appliance shall be stowed together in a suitable case or box.

(1) Ten service projectiles.

(2) Twenty-five cartridges.

(3) Four service lines, each not less than 400 feet in length, of ⅜-inch circumference flax or cotton and having a breaking strength of at least 250 pounds, or each not less than 600 feet in length of 1/16-inch or more diameter woven or braided nylon, very flexible, having a breaking strength not less than 140 pounds, or equivalent, to be kept in faking boxes or on reels. These lines may be kept either in the box or case with the remainder of the equipment or be stowed in an accessible location nearby.

(4) One cleaning rod with brush, one can of oil, and twelve wiping patches.

(5) One set of instructions furnished by the manufacturer.

(6) One auxiliary line, 500 feet of 3 inch circumference manila.

[CGFR 52-43, 17 F.R. 9460, Oct. 18, 1952, as amended by CGFR 53-25, 18 F.R. 7854, Dec. 5, 1953; CGFR 62-17, 27 F.R. 9040, Sept. 11, 1962]

§ 94.45-20 Accessibility.

(a) The line-throwing appliance and its equipment shall be kept easily and readily accessible and ready for use. No part of this equipment shall be used for any other purpose.

[CGFR 52-43, 17 F.R. 9460, Oct. 18, 1952]

§ 94.45-25 Service recommendations.

(a) In firing the line-throwing appliances, the operating instructions and safety precautions furnished by the manufacturer should be followed.

[CGFR 52-43, 17 F.R. 9460, Oct. 18, 1952]

§ 94.45-90 Vessels contracted for prior to November 19, 1952.

(a) Vessels of 150 gross tons and over in ocean or coastwise service contracted for prior to November 19, 1952, shall meet the requirements set forth in §§ 94.45-5 through 94.45-25. However, if a Lyle gun-type line-throwing appliance is already in service on such vessel, it may be continued in use so long as it is in good and serviceable condition, but may not be replaced by a similar installation. Where Lyle guns are used, the following requirements shall be met:

(1) The equipment enumerated in this subparagraph shall be carried for Lyle gun type line-throwing appliances. The equipment and the gun shall be stowed together in a suitable case or box. If the case or box does not meet the requirements of Subpart 160.038 of Subchapter Q (Specifications) of this chapter for portable magazine chest, the powder and primers shall be separately stowed in a chest meeting such requirement.

(i) Six service projectiles.

(ii) Eighteen bags (2½ ounces each) of black powder marked "One-half normal charge for Lyle gun, 2½ ounces black powder" in a nonferrous metal screw-top container.

(iii) One approved firing attachment with accessories consisting of lanyard, wrench, washer to fit between barrel and shoulder of firing attachment, blank plug for screwing into gun when firing attachment is not in place, cartridge extractor, and 25 primers in a watertight metal box.

(iv) Twenty-five paper wads.

(v) Four service lines, each 1,700 feet in length, of 7/32-inch to 9/32-inch diameter flax or manila, and having a breaking strength of at least 500 pounds, to be kept in faking boxes or on reels.

(vi) One ram rod, 1 wire brush, 1 can of light petrolatum, and 12 wiping patches.

(vii) One tapered wooden plug for muzzle of gun when not in use.

(viii) One set of instructions furnished by the manufacturer of the gun.

(ix) One auxiliary line, 1,500 feet of 3-inch circumference manila.

(2) Accessibility. Same as § 94.45–20.

[CGFR 52–43, 17 F.R. 9460, Oct. 18, 1952]

Subpart 94.50—Embarkation Aids

§ 94.50–1 Application.

(a) The provisions of this subpart, with the exception of § 94.50–90, shall apply to all vessels other than yachts and fishing vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of § 94.50–90.

[CGFR 52–43, 17 F.R. 9460, Oct. 18, 1952]

§ 94.50–5 Ladders.

(a) *General.* All ladders required by this section shall be of an approved type constructed in accordance with Subpart 160.017 of Subchapter Q (Specifications) of this chapter.

(b) *Vessels in ocean, coastwise or Great Lakes service.* (1) All vessels in ocean, coastwise or Great Lakes service shall have an approved Type II (chain suspension) ladder for each set of lifeboat davits, but existing ladders previously approved by the Coast Guard may be continued in service so long as they are maintained in good condition. Such ladders shall be kept ready and convenient for use on the lifeboat deck, and shall reach from such deck to the vessel's light water line, no heel assumed.

(2) All ocean and coastwise vessels which normally employ a pilot shall have an approved type ladder for the use of the pilot in addition to the ladders required by subparagraph (1) of this paragraph. All pilot ladders shall be approved Type I (rope suspension) or Type II (chain suspension) ladders, and suitable spreaders and man ropes shall be kept readily available for use in conjunction with the pilot ladders whenever circumstances may so require.

[CGFR 60–36, 25 F.R. 10633, Nov. 5, 1960]

§ 94.50–7 Embarkation aids into inflatable life rafts.

(a) Where inflatable life rafts are substituted for lifeboats, unless freeboard at embarkation point is such that embarkation devices are not necessary, suitable arrangements shall be made for embarkation which shall include sufficient ladders or other suitable devices to facilitate embarkation into the inflatable life rafts when waterborne.

[CGFR 60–36, 25 F.R. 10633, Nov. 5, 1960]

§ 94.50–10 Illumination for lifeboat launching operations.

(a) Provisions shall be made on all vessels on an international voyage and all other vessels where the lifeboat deck is more than 30 feet above the light water line, for readily and continuously available illumination from the vessel of lifeboats when alongside and in process of or immediately after being launched. Details of the illuminating system shall be in accordance with Subchapter J (Electrical Engineering) of this chapter.

[CGFR 54–16, 19 F. R. 4927, Aug. 6, 1954]

§ 94.50–90 Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 94.50–5 through 94.50–10 shall be complied with insofar as the number of items of equipment and the method of stowage is concerned. Existing items of equipment previously approved, but not meeting the applicable specifications or requirements of §§ 94.40–5 through 94.50–10 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. All new in-

stallations or replacements shall meet the applicable specifications or requirements.

(2) The illumination for lifeboat launching operations need not meet the detailed requirements of Subchapter J (Electrical Engineering) of this chapter.

[CGFR 52-43, 17 F.R. 9460, Oct. 18, 1952]

Subpart 94.55—Portable Radio Apparatus

§ 94.55-1 Required on international voyage.

(a) All vessels on an international voyage carrying less than 20 lifeboats shall be provided with a portable radio apparatus complying with the requirements of the Federal Communications Commission unless at least one lifeboat on each side of the vessel is fitted with a fixed radio installation. Such portable radio shall be kept in the radio room, chart room, or other suitable location ready to be moved to one or other of the lifeboats in the event of an emergency.

[CGFR 54-16, 19 F. R. 4927, Aug. 6, 1954]

Subpart 94.90—Ship's Distress Signals

§ 94.90-1 Application.

(a) The provisions of this subpart shall apply to all manned vessels of 150 gross tons and over as specifically noted.

[CGFR 54-46, 19 F. R. 8699, Dec. 18, 1954]

§ 94.90-5 Vessels in ocean or coastwise service.

(a) All vessels in ocean and coastwise service shall carry within the pilothouse or on the navigator's bridge twelve approved hand-held rocket-propelled parachute red flare distress signals, contained in a portable watertight container, constructed in accordance with Subpart 160.036 of Subchapter Q (Specifications) of this chapter. The service use of the distress signals shall be limited to a period of three years from date of manufacture, and replacement of outdated items shall be made at the first port of arrival in the United States where such distress signals are available, except that replacement shall be made in all cases within twelve months after the date of expiration.

[CGFR 57-18, 22 F.R. 3470, May 17, 1957]

§ 94.90-10 Vessels in Great Lakes service.

(a) All vessels in Great Lakes service shall carry within the pilothouse or on the navigator's bridge, twelve approved hand-held red flare distress signals, contained in a portable watertight container, constructed in accordance with Subpart 160.021 or Subpart 160.023 of Subchapter Q (Specifications) of this chapter. The service use of distress signals shall be limited to a period of three years from date of manufacture, and replacement of out-dated items shall be made at the first port of arrival in the United States where such distress signals are available, except that replacement shall be made in all cases within twelve months after the date of expiration.

[CGFR 57-18, 22 F. R. 3470, May 19, 1957]

PART 95—FIRE PROTECTION EQUIPMENT

Subpart 95.01—Application

Sec.

Subpart 95.05—Fire Detecting and Extinguishing Equipment, Where Required

Subpart 95.10—Fire Main System, Details

Subpart 95.13—Steam Smothering System, Details

Subpart 95.15—Carbon Dioxide Extinguishing Systems, Details

Subpart 95.17—Foam Extinguishing Systems, Details

AUTHORITY: §§ 95.01–1 to 95.60–10 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4488, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 17, 54 Stat. 166, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 391, 392, 404, 481, 395, 363, 367, 526p, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167–14, November 26, 1954, 19 F.R. 8026; CGFR 56–28, July 24, 1956, 21 F.R. 5659; 167–38, October 26, 1959, 24 F.R. 8857.

SOURCE: §§ 95.01–1 to 95.60–10 contained in CGFR 52–43, 17 F.R. 9461, Oct. 18, 1952; CGFR 52–62, 17 F.R. 11879, Dec. 31, 1952, except as otherwise noted.

NOTE: For changes in authority citation to Part 95 not otherwise noted, see 27 F.R. 9040, Sept. 11, 1962.

Subpart 95.01—Application

§ 95.01–1 General.

(a) The provisions of this part shall apply to all vessels except as specifically noted in this part.

§ 95.01–5 Equipment installed but not required.

(a) Where fire detecting or extinguishing systems or equipment are not required, but are installed, the system or equipment and its installation shall meet the requirements of this part.

Subpart 95.05—Fire Detecting and Extinguishing Equipment, Where Required

§ 95.05–1 Fire detecting, manual alarm, and supervised patrol systems.

(a) Fire detecting, manual alarm, and supervised patrol systems are not required, but if installed, the systems shall meet the applicable requirements of Part 76 of Subchapter H (Passenger Vessels) of this chapter.

§ 95.05–5 Fire main system.

(a) Fire pumps, hydrants, hose, and nozzles shall be installed on the following vessels:

(1) On all self-propelled vessels.

(2) On all barges with sleeping accommodations for more than 12 persons.

(b) The arrangements and details of the fire main system shall be as set forth in Subpart 95.10.

[CGFR 52–43, 17 F.R. 9461, Oct. 18, 1952, as amended by CGFR 57–27, 22 F.R. 4019, June 7, 1957; CGFR 60–36, 25 F.R. 10633, Nov. 5, 1960]

§ 95.05–10 Fixed fire extinguishing systems.

(a) Approved fire extinguishing systems may be used or required in locations delineated in this section on the following vessels:

(1) On all self-propelled vessels other than yachts and fishing vessels.

(2) On all barges with sleeping accommodations for more than 12 persons.

(b) A fixed carbon dioxide or other approved system shall be installed in all cargo compartments and tanks for combustible cargo, except that vessels engaged exclusively in the carriage of coal or grain in bulk need not be fitted with such system. For cargo compartments and tanks fitted with a fixed carbon dioxide or other approved system a deck foam system is not required. The provisions of this paragraph shall not apply to motorboats contracted or prior to November 19, 1952. In lieu of the carbon dioxide or other approved system, the following systems may be used or required in special cases:

(1) A fixed foam system may be used in cargo tanks.

(2) In cases where a cargo compartment is normally accessible and is considered to be a part of the working or

living quarters, a water sprinkling system may be required, and the details of such system will be subject to special approval.

(3) On 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 systems contracted for on or after January 1, 1962, will be permitted.

(c) On vessels other than motorboats a fixed carbon dioxide or other approved system shall be installed in all lamp and paint lockers, oil rooms, and similar spaces. On vessels contracted for prior to January 1, 1962, a steam smothering system may be accepted in lieu of the carbon dioxide system. However, although existing steam smothering systems may be repaired, replaced, or extended, no new systems contracted for on or after January 1, 1962, will be permitted.

(d) On vessels of 1,000 gross tons and over, contracted for on or after November 19, 1952, or where conversion from coal to oil is contracted for on or after November 19, 1952, a fixed carbon dioxide, foam, or water spray system shall be installed in all spaces containing oil fired boilers, either main or auxiliary, or their fuel oil units, valves, or manifolds in the line between the settling tanks and the boilers.

(e) If a fixed fire extinguishing system is installed to protect an internal combustion propelling machinery installation, the system shall be of the carbon dioxide type.

(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 shall be installed in such system.

(g) The arrangements and details of the fixed fire extinguishing systems shall be as set forth in Subparts 95.13 through 95.20.

[CGFR 57-27, 22 F.R. 4019, June 7, 1957, as amended by CGFR 60-36, 25 F.R. 10633, Nov. 5, 1960; CGFR 61-15, 26 F.R. 9290, Sept. 30, 1961]

§ 95.05-15 Hand portable fire extinguishers and semiportable fire extinguishing systems.

(a) Approved hand portable fire extinguishers and semiportable fire extinguishing systems shall be installed on all vessels, other than unmanned barges and fishing vessels, as set forth in Subpart 95.50.

[CGFR 54-46, 19 F. R. 8699, Dec. 18, 1954]

§ 95.05-20 Sand.

(a) On vessels of over 1,000 gross tons there shall be in each space containing oil fired boilers a metal receptacle containing not less than 10 cubic feet of sand, sawdust impregnated with soda, or other approved dry materials together with a scoop or shaker for distributing the same. On vessels of 1,000 gross tons or less, at least 5 cubic feet of such materials shall be similarly carried.

Subpart 95.10—Fire Main System, Details

§ 95.10-1 Application.

(a) The provisions of this subpart, with the exception of § 95.10-90, shall apply to all fire main installations contracted for on or after November 19, 1952. Installations contracted for prior to November 19, 1952, shall meet the requirements of § 95.10-90.

§ 95.10-5 Fire pumps.

(a) Vessels shall be equipped with independently driven fire pumps in accordance with Table 95.10-5(a).

TABLE 95.10-5 (a)

Gross tons		Minimum number of pumps	Hose and hydrant size, inches	Nozzle orifice size, inches	Length of hose, feet
Over	Not over				
-----	100	[1] 1	[1] 1½	[1] ½	[1] 50
100	1,000	1	1½	⅝	50
1,000	1,500	2	1½	⅝	50
1,500	-----	2	[2] 2½	[2] ⅞	[2] 50

[1] On vessels of 65 feet in length or less, ¾-inch hose of good commercial grade together with a commercial garden hose nozzle may be used. The pump may be hand operated and the length of hose shall be sufficient to assure coverage of all parts of the vessel.

[2] 75 feet of 1½-inch hose and ⅝-inch nozzle may be used where specified by § 95.10-10 (b) for interior locations and 50 feet of 1½-inch hose may be used in exterior locations on vessels in other than ocean or coastwise service.

(b) Vessels on an international voyage shall have a minimum total fire pump capacity at least equal to ⅔ of the required total bilge pump capacity, but in no case less than that required by this section.

(c) Each pump shall be capable of delivering water simultaneously from the two highest outlets at a Pitot tube pressure of approximately 50 p. s. i. Where

1½-inch hose is permitted in lieu of 2½-inch hose by footnote 2 of Table 95.10-5 (a), the pump capacity shall be determined on the same basis as if 2½-inch hose had been permitted. Where ¾-inch hose is permitted by Table 95.10-5 (a), the Pitot tube pressure need be only 35 p. s. i.

(d) Fire pumps shall be fitted on the discharge side with relief valves set to relieve at 25 p. s. i. in excess of the pressure necessary to maintain the requirements of paragraph (c) of this section or 125 p. s. i., whichever is greater. Relief valves may be omitted if the pumps, operating under shut-off conditions, are not capable of developing a pressure exceeding this amount.

(e) Fire pumps shall be fitted with a pressure gage on the discharge side of the pumps.

(f) Fire pumps may be used for other purposes provided at least one of the required pumps is kept available for use on the fire system at all times. Unless specifically approved by the Commandant, no branch lines shall be connected to the fire mains for other than fire and deck wash purposes. Other discharge lines shall lead from a discharge manifold near the fire pump. In no case shall a pump having connection to an oil line be used as a fire pump.

(g) The total area of the pipes leading from a pump shall not be less than the discharge area of the pump.

(h) On vessels with oil fired boilers, either main or auxiliary, or with internal combustion propulsion machinery, where 2 fire pumps are required, they shall be located in separate spaces, and the arrangement of pumps, sea connections, and sources of power shall be such as to insure that a fire in any one space will not put all of the fire pumps out of operation. However, where 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 system may be accepted as an alternate method of extinguishing any fire which would affect the powering and operation of at least one of the required fire pumps.

§ 95.10-10 Fire hydrants and hose.

(a) The size of fire hydrants, hose, and nozzles and the length of hose required shall be as noted in Table 95.10-5(a).

(b) In lieu of the 2½-inch hose and hydrants specified in Table 95.10-5 (a), on vessels over 1,500 gross tons, the hydrants in interior locations may have siamese connections for 1½-inch hose. In these cases the hose shall be 75 feet in length, and only one hose will be required at each fire station; however, if all such stations can be satisfactorily served with 50-foot lengths, 50-foot hose may be used.

(c) On vessels over 1,000 gross tons there shall be at least one shore connection to the fire main available to each side of the vessel in an accessible location. Suitable cut-out valves and check valves shall be provided. Suitable adaptors also shall be provided for furnishing the vessel's shore connections with couplings mating those on the shore fire lines.

(d) Fire hydrants shall be of sufficient number and so located that any part of the vessel, other than main machinery spaces, accessible to persons on board while the vessel is being navigated and all cargo holds may be reached with at least 2 streams of water from separate outlets, at least one of which shall be from a single length of hose. In main machinery spaces, all portions of such spaces shall be capable of being reached by at least 2 streams of water, each of which shall be from a single length of hose from separate outlets; however, this requirement need not apply to shaft alleys containing no assigned space for the stowage of combustibles. Fire hydrants shall be numbered as required by § 97.37-15 of this subchapter.

(e) All parts of the fire main located on exposed decks shall either be protected against freezing or be fitted with cut-out valves and drain valves so that the entire exposed parts of such piping may be shut off and drained in freezing weather. Except when closed to prevent freezing, such valves shall be sealed open.

(f) The outlet at the fire hydrant shall be limited to any position from the horizontal to the vertical pointing downward, so that the hose will lead horizontally or downward to minimize the possibility of kinking.

(g) Each fire hydrant shall be provided with a single length of hose with nozzle attached and a spanner. A suitable hose rack or other device shall be provided for the proper stowage of the hose. If the hose is not stowed in the open or behind glass so as to be readily

seen, the enclosure shall be marked in accordance with § 97.37–15 of this subchapter.

(h) Fire hose shall be connected to the outlets at all times. However, on open decks where no protection is afforded to the hose in heavy weather, or where the hose may be liable to damage from the handling of cargo, the hose may be temporarily removed from the hydrant and stowed in an accessible nearby location.

(i) Hose nozzles shall be as follows:

(1) All nozzles shall be of good grade bronze or equivalent metal.

(2) Where smooth bore type nozzles are used, they shall have an orifice of the size indicated in Table 95.10–5 (a).

(3) Where combination solid stream and water spray fire hose nozzles are used, they shall be of approved type. New installations and replacements after June 27, 1957, shall be constructed in accordance with subpart 162.027 of subchapter Q (Specifications) of this chapter. The detachable applicator shall be stowed adjacent to the fire hydrant, except where combination nozzles are not required, in which case the applicator may be stowed at the discretion of the master.

(4) Except as noted in subparagraphs (5) and (6) of this paragraph, all hose nozzles shall be of either the smooth bore type or the approved type combination nozzle.

(5) On all vessels of 1,000 gross tons and over, the hose attached to the hydrants in propulsion machinery spaces containing oil fired boilers, internal combustion machinery, or oil fuel units shall be fitted with an approved combination nozzle. The applicator shall be not more than 6 feet in length.

(6) Where ¾-inch hose is permitted by Table 95.10–5 (a), a good commercial grade garden hose nozzle or equivalent will be accepted.

(7) Where approved combination nozzles are used, but are not required, the applicators with low velocity fog spray heads and the self-cleaning strainers may be fitted, but will not be required.

(j) [Reserved]

(k) Fire hydrants, nozzles, and other fittings shall have threads to accommodate the hose connections noted in paragraph (l) of this section.

(l) Fire hose and couplings shall be as follows:

(1) Couplings shall be of brass, bronze, or other equivalent metal. For installations on vessels contracted for on or after July 1, 1954, National Standard fire hose coupling threads shall be used for the 1½-inch and 2½-inch sizes, i. e., 9 threads per inch for 1½-inch hose and 7½ threads per inch for 2½-inch hose.

(2) Unlined hose shall not be used in the machinery spaces.

(3) Where ¾-inch hose is permitted by Table 95.10–5 (a), the hose and couplings shall be of good commercial grade.

(4) All lined and unlined hose installed after January 1, 1961, shall be of fire hose quality, in conformance with Underwriters' Laboratories, Inc., Standard 18 or 19, or Federal Specification JJ–H–571 or ZZ–H–451a. Hose which bears the label of Underwriters' Laboratories, Inc., as inspected lined or unlined fire hose will be accepted as conforming to this requirement.

[CGFR 52–43, 17 F.R. 9461, Oct. 18, 1952, as amended by CGFR 53–60, 19 F.R. 404, Jan. 22, 1954; CGFR 58–10, 23 F.R. 4676, June 26, 1958; CGFR 60–36, 25 F.R. 10633, Nov. 5, 1960]

§ 95.10–15 Piping.

(a) All piping, valves, and fittings shall meet the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(b) All distribution cut-off valves shall be marked as required by § 97.37–10 of this subchapter.

§ 95.10–90 Installations contracted for prior to November 19, 1952.

(a) Installations contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Except as specifically modified by this paragraph, the requirements of §§ 95.10–5 through 95.10–15 shall be complied with insofar as the number and general type of equipment is concerned. Existing equipment previously approved, but not meeting the applicable requirements of §§ 95.10–5 through 95.10–15 may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs, alterations, and replacements may be permitted to the same standards as the original installations. However, all new installations or major replacements shall meet the applicable requirements in this subpart.

(2) All vessels other than motorboats shall be fitted with fire pumps, hoses, and nozzles in accordance with Table 95.10–90 (a) (2).

TABLE 95.10–90 (a) (2)

Gross tons		Minimum number of pumps	Minimum hose and hydrant size, inches	Nozzle orifice size, inches	Length of hose, feet
Over	Not over				
-----	100	1	[1] 1½	[1] 5/16	[1] 50
100	1,000	1	[2] 1½	[2] 5/8	[2] 50
1,000	-----	2	[2] 1½	[2] 5/8	[2] 50

[1] On vessels of 65 feet in length or less, ¾-inch hose of good commercial grade together with a commercial garden hose nozzle may be used. The pump may be hand operated and the length of hose shall be sufficient to assure coverage of all parts of the vessel.

[2] May use 50 feet of 2½-inch hose with ⅞-inch nozzles for exterior stations. 75 feet of 1½-inch hose with 5/8-inch nozzles may be used for interior station in which case such interior stations shall have siamese connections.

(3) Vessels contracted for prior to July 1, 1935, need not meet the requirements of § 95.10–5 (h), and vessels contracted for on or after July 1, 1935, but prior to November 19, 1952, may have a carbon dioxide "bilge" in lieu of "total flooding" system. However, in vessels of both categories where a conversion from coal to oil is contracted for on or after November 19, 1952, the provisions of § 95.10–5 (h) shall apply.

(4) The general requirements of §§ 95.10–5 (c) through (g), 95.10–10 (d) through (i), and 95.10–15 shall be complied with insofar as is reasonable and practicable.

[CGFR 52–43, 17 F.R. 9461, Oct. 18, 1952, as amended by CGFR 54–22, 19 F.R. 4359, July 15, 1954]

Subpart 95.13—Steam Smothering System, Details

§ 95.13–1 Application.

(a) In accordance with § 95.05–10, steam smothering systems are not permitted on vessels contracted for on or after January 1, 1962, nor for new installations on vessels contracted for prior to that date.

(b) Where a steam smothering system is installed, the provisions of this subpart shall apply.

[CGFR 61–15, 26 F.R. 9291, Sept. 30, 1961]

§ 95.13–90 Installations contracted for prior to January 1, 1962.

(a) Installations contracted for prior to July 1, 1935, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original installation.

(2) The main pipes and their branches to the cargo compartments and similar spaces shall be not less than 1½-inch pipe size and shall emanate from not more than two stations in easily accessible locations. If located on the open deck, the distribution manifolds shall be suitably protected by an enclosing cabinet or casing which shall be marked as required by § 97.37–13 of this subchapter. Each branch line shall have a valve at the manifold which shall be marked as required by § 97.37–10 of this subchapter.

(3) Branches to paint lockers and similar small spaces may be taken from the nearest steam supply line and shall be not less than ¾-inch pipe size. The valve shall be marked as required by § 97.37–10 of this subchapter.

(b) Installations contracted for on or after July 1, 1935, but prior to November 19, 1952, shall meet the following requirements:

(1) Existing arrangements, materials and facilities previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original installation.

(2) Steam shall be available from the main or auxiliary boilers to provide at least one pound of steam per hour for each 50 cubic feet of gross volume of the largest compartment protected. Where reasonable and practicable, the steam pressure shall be at least 100 p. s. i.

(3) The piping system shall meet the general requirements of subparagraphs (5) through (12) of paragraph (c) of this section insofar as is reasonable and practicable.

(4) The minimum size of distribution piping and the number of branches to the various spaces shall be as given in

Table 95.13-90 (b) (4) or by the following formula:

$$D=\sqrt{\frac{C}{30{,}000}} \quad (1)$$

where:

D=Required diameter of pipe in inches.
C=Volume of compartment in cubic feet.

TABLE 95.13-90(b) (4)

Volume of compartment in cubic feet		Number of branches to compartment	Pipe size in each branch, inches
Over	Not over		
-------	30,000	1	1
30,000	46,000	1	1¼
46,000	67,000	1	1½
67,000	94,000	2	1¼
94,000	135,000	2	1½
135,000	203,000	3	1½

(5) The minimum size of the steam supply line from the boiler to the distribution manifold shall be as given by the following formula:

$$D=\sqrt{\frac{C}{60{,}000}} \quad (2)$$

where:

D=Diameter of pipe in inches.
C=Volume of all compartments in cubic feet.

(c) Installations contracted for on or after November 19, 1952, but prior to January 1, 1962, shall meet the following requirements:

(1) Existing arrangements, materials and facilities previously approved will be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standard as the original installation.

(2) Steam shall be available from main or auxiliary boilers to provide at least 1 pound of steam per hour for each 12 cubic feet of the gross volume of the largest compartment to be protected.

(3) Although separate piping shall be led to each cargo hold and 'tween deck, for the purpose of determining the amount of steam required, a cargo compartment will be considered as the space between adjacent watertight bulkheads and from tank top or lowest deck to the deck head of the uppermost deck on which cargo may be carried. If a trunk extends beyond such deck, the trunk space shall be included. Tonnage openings shall be considered as sealed for this purpose.

(4) A steam pressure of at least 100 p.s.i. shall be available unless specifically approved otherwise.

(5) All piping, valves, and fittings shall meet the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(6) The distribution piping shall emanate from not more than three stations in easily accessible locations on the weather deck, and shall lead to the lower portion of each cargo hold, cargo 'tween deck, and other compartments protected. However, lines to paint lockers and similar small spaces may be taken from the nearest steam supply line.

(7) The distribution line to each compartment shall be fitted with a shutoff valve. The valve shall be marked as required by § 97.37-10 of this subchapter.

(8) The manifold steam supply line shall be fitted with a master valve at the manifold.

(9) Provisions shall be made for draining the manifold and distribution lines to prevent them from freezing.

(10) If located on the open deck, the distribution manifolds shall be suitably protected by an enclosing cabinet or casing. In any case, it shall be marked as required by § 97.37-13 of this subchapter.

(11) Piping shall not be led into or through spaces accessible to the persons on board while the vessel is being navigated, with the exception of machinery spaces and corridors. However, in special cases, arrangements to run piping through such spaces may be specifically approved by the Commandant, provided all joints are welded, suitable expansion bends are provided, and all piping is extra heavy.

(12) Piping shall be used for no other purposes except that it may be incorporated with the fire-detecting system, if installed, and where suitable provisions are made, it may be used for steaming out tanks.

(13) The minimum size and number of branches to the various spaces shall be as given in Table 95.13-90(c) (13). The distribution piping from the manifold to the branch lines shall have an area approximately equal to the combined areas of the branch lines served.

TABLE 95.13-90 (c)(13)

Volume of space in cubic feet		Number of branches to space	Pipe size of each branch, inches
Over	Not over		
--------	500	1	¾
500	5,000	1	1
5,000	15,000	1	1¼
15,000	30,000	1	1½
30,000	60,000	2	1½
60,000	100,000	3	1½
100,000	190,000	4	1½

(14) The steam supply line from the boiler to any distribution manifold shall be of sufficient size to supply all the branch lines to the largest compartment and to all adjacent compartments.

[CGFR 61-15, 26 F.R. 9291, Sept. 30, 1961, as amended by CGFR 62-17, 27 F.R. 9040, Sept. 11, 1962]

Subpart 95.15—Carbon Dioxide Extinguishing Systems, Details

§ 95.15-1 Application.

(a) Where a carbon dioxide extinguishing system is installed, the provisions of this subpart, with the exception of § 95.15-90, shall apply to all installations contracted for on or after November 19, 1952. Installations contracted for prior to November 19, 1952, shall meet the requirements of § 95.15-90.

(b) The requirements of this subpart are based on a "high pressure system," i. e., one in which the carbon dioxide is stored in liquid form at atmospheric temperature. Details for "low pressure systems," i. e., those in which the carbon dioxide is stored in liquid form at a continuously controlled low temperature, may be specifically approved by the Commandant where it is demonstrated that a comparable degree of safety and fire extinguishing ability is achieved.

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

(a) *General.* The amount of carbon dioxide required for each space shall be as determined by paragraphs (b) through (e) of this section.

(b) *Total available supply.* A separate supply of carbon dioxide need not be provided for each space protected. The total available supply shall be at least sufficient for the space requiring the greatest amount.

(c) *Cargo spaces.* (1) The number of pounds of carbon dioxide required for each space shall be equal to the gross volume of the space in cubic feet divided by 30.

(2) Although separate piping shall be led to each cargo hold and 'tween deck, for the purpose of determining the amount of carbon dioxide required, a cargo compartment will be considered as the space between watertight or fire-screen bulkheads and from the tank top or lowest deck to the deck head of the uppermost space on which cargo may be carried. If a trunk extends beyond such deck, the trunk volume shall be included. Tonnage openings shall be considered as sealed for this purpose.

(3) Branch lines to the various cargo holds and 'tween decks shall not be less than ¾-inch standard pipe size.

(4) No specific discharge rate need be applied to such systems.

(d) *Enclosed ventilation systems for rotating electrical propulsion equipment.* (1) The number of pounds of carbon dioxide required for the initial charge shall be equal to the gross volume of the system divided by 10 for systems having a volume of less than 2,000 cubic feet, and divided by 12 for systems having a volume of 2,000 cubic feet or more.

(2) The piping for the initial charge shall be in accordance with Table 95.15-5 (e) (3), and the discharge of the required amount shall be completed within 2 minutes.

(3) In addition to the above there shall be sufficient carbon dioxide available to permit delayed discharges of such quantity as to maintain at least a 25 percent concentration until the equipment can be stopped. If the initial discharge is such as to achieve this concentration until the equipment is stopped, no delayed discharge need be provided.

(4) The piping for the delayed discharge shall not be less than ½-inch standard pipe, and no specific discharge rate need be applied to such systems. On small systems, this pipe may be incorporated with the initial discharge piping.

(e) *Machinery spaces, paint lockers, tanks, and similar spaces.* (1) The number of pounds of carbon dioxide required for each space shall be equal to the gross volume of the space divided by the ap-

propriate factor noted in Table 95.15–5 (e) (1). If fuel can drain from the compartment being protected to an adjacent compartment, or if the compartments are not entirely separate, the requirements for both compartments shall be used to determine the amount of carbon dioxide to be provided. The carbon dioxide shall be arranged to discharge into both such compartments simultaneously.

TABLE 95.15–5 (e) (1)

Gross volume of compartment, cubic feet		Factor
Over	Not over	
------	500	15
500	1,600	16
1,600	4,500	18
4,500	50,000	20
50,000	------	22

(2) For the purpose of the requirements of this paragraph, the volume of the machinery space shall be taken as exclusive of the normal machinery casing unless the boiler, internal combustion machinery, or fuel oil installations extend into such space, in which case the volume shall be taken to the top of the casing or the next material reduction in casing area, whichever is lower. For installations contracted for on or after October 1, 1959, "normal machinery casing" and "material reduction in casing area" shall be defined as follows:

(i) By "normal machinery casing" shall be meant a casing the area of which is not more than 40 percent of the maximum area of the machinery space.

(ii) By "material reduction in casing area" shall be meant a reduction to at least 40 percent of the casing area.

(3) Branch lines to the various spaces shall be as noted in Table 95.15–5 (e) (3).

TABLE 95.15–5(e) (3)

Maximum quantity of carbon dioxide required, pounds	Minimum pipe size, inches	Maximum quantity of carbon dioxide required, pounds	Minimum pipe size, inches
100	½	2,500	2½
225	¾	4,450	3
300	1	7,100	3½
600	1¼	10,450	4
1,000	1½	15,000	4½
2,450	2		

(4) Distribution piping within the space shall be proportioned from the supply line to give proper distribution to the outlets without throttling.

(5) The number, type, and location of discharge outlets shall be such as to give a uniform distribution throughout the space.

(6) The total area of all discharge outlets shall not exceed 85 percent nor be less than 35 percent of the nominal cylinder outlet area or the area of the supply pipe, whichever is smaller. The nominal cylinder outlet area in square inches shall be determined by multiplying the factor 0.0022 by the number of pounds of carbon dioxide required, except that in no case shall this outlet area be less than 0.110 square inches.

(7) The discharge of the required amount of carbon dioxide shall be complete within 2 minutes.

[CGFR 52–43, 17 F.R. 9461, Oct. 18, 1952, as amended by CGFR 59–21, 24 F.R. 7191, Sept. 5, 1959; CGFR 62–17, 27 F.R. 9040, Sept. 11, 1962]

§ 95.15–10 Controls.

(a) Except as noted in § 95.15–20(b) all controls and valves for the operation of the system shall be outside the space protected, and shall not be located in any space that might be cut off or made inaccessible in the event of fire in any of the spaces protected.

(b) If the same cylinders are used to protect more than one hazard, a manifold with normally closed stop valves shall be used to direct the carbon dioxide into the proper space. If cylinders are used to protect only one hazard, a normally closed stop valve shall be installed between the cylinders and the hazard except for systems of the type indicated in paragraph (e) of § 95.15–5 which contain not more than 300 pounds of carbon dioxide.

(c) Distribution piping to the various cargo spaces shall be controlled from not more than two stations. One of the stations controlling the system for the main machinery space shall be located as convenient as practicable to one of the main escapes from the space. All control stations and the individual valves and controls shall be marked as required by §§ 97.37–10 and 97.37–13 of this subchapter.

(d) Systems of the type indicated in § 95.15–5(e) shall be actuated by one control operating the valve to the space and a separate control releasing at least the required amount of carbon dioxide. These two controls shall be located in a

box or other enclosure clearly identified for the particular space. Those systems installed without a stop valve shall be operated by one control releasing at least the required amount of carbon dioxide.

(e) Where provisions are made for the simultaneous release of a given amount of carbon dioxide by operation of a remote control, provisions shall also be made for manual control at the cylinders. Where gas pressure from pilot cylinders is used as a means for releasing the remaining cylinders, not less than two pilot cylinders shall be used for systems consisting of more than two cylinders. Each of the pilot cylinders shall be capable of manual control at the cylinder, but the remaining cylinders need not be capable of individual manual control.

(f) Systems of the type indicated in § 95.15-5(e), other than systems for tanks, which are of more than 300 pounds of carbon dioxide, shall be fitted with an approved delayed discharge so arranged that the alarm will be sounded for at least 20 seconds before the carbon dioxide is released into the space. Such systems of not more than 300 pounds of carbon dioxide shall also have a similar delayed discharge, except for those systems for tanks and for spaces which have a suitable horizontal escape. This paragraph shall be applicable only to systems installed on or after July 1, 1957.

(g) All distribution valves and controls shall be of an approved type. All controls shall be suitably protected.

(h) Complete but simple instructions for the operation of the system shall be located in a conspicuous place at or near the releasing control device.

(i) If the space or enclosure containing the carbon dioxide supply or controls is to be locked, a key to the space or enclosure shall be in a break-glass-type box conspicuously located adjacent to the opening.

[CGFR 57-27, 22 F. R. 4020, June 7, 1957]

§ 95.15-15 Piping.

(a) The piping, valves, and fittings shall have a bursting pressure of not less than 6,000 pounds per square inch.

(b) All piping, in nominal sizes not over ¾ inch shall be at least Schedule 40 (standard weight) and in nominal sizes over ¾ inch, shall be at least Schedule 80 (extra heavy).

(c) All piping, valves, and fittings of ferrous materials shall be protected inside and outside against corrosion unless specifically approved otherwise by the Commandant.

(d) A pressure relief valve or equivalent set to relieve between 2,400 and 2,800 pounds per square inch shall be installed in the distributing manifold or such other location as to protect the piping in the event that all branch line shut-off valves are closed.

(e) All dead-end lines shall extend at least 2 inches beyond the last orifice and shall be closed with cap or plug.

(f) All piping, valves, and fittings shall be securely supported, and where necessary, protected against injury.

(g) Drains and dirt traps shall be fitted where necessary to prevent the accumulation of dirt or moisture. Drains and dirt traps shall be located in accessible locations where possible.

(h) Piping shall be used for no other purpose except that it may be incorporated with the fire-detecting system.

(i) Piping passing through living quarters shall not be fitted with drains or other openings within such spaces.

(j) Installation test requirements are:

(1) Upon completion of the piping installation, and before the cylinders are connected, a pressure test shall be applied as set forth in this paragraph. Only carbon dioxide or other inert gas shall be used for this test.

(2) The piping from the cylinders to the stop valves in the manifold shall be subjected to a pressure of 1,000 pounds per square inch. With no additional gas being introduced to the system, it shall be demonstrated that the leakage of the system is such as not to permit a pressure drop of more than 150 pounds per square inch per minute for a 2-minute period.

(3) The individual branch lines to the various spaces protected shall be subjected to a test similar to that described in the preceding subparagraph with the exception that the pressure used shall be 600 pounds per square inch in lieu of 1,000 pounds per square inch. For the purpose of this test, the distribution piping shall be capped within the space protected at the first joint ahead of the nozzles.

(4) In lieu of the tests prescribed in subparagraphs (1) through (3) of this paragraph, small independent systems protecting spaces such as emergency generator rooms, lamp lockers, etc., may be tested by blowing out the piping with air at a pressure of at least 100 pounds per square inch.

§ 95.15–20 Carbon dioxide storage.

(a) Except as provided in paragraph (b) of this section, the cylinders shall be located outside the spaces protected, and shall not be located in any space that might be cut off or made inaccessible in the event of a fire in any of the spaces protected.

(b) Systems of the type indicated in § 95.15–5(e), consisting of not more than 300 pounds of carbon dioxide, may have the cylinders located within the space protected. If the cylinder stowage is within the space protected, the system shall be arranged in an approved manner to be automatically operated by a heat actuator within the space in addition to the regular remote and local controls.

(c) The space containing the cylinders shall be properly ventilated and designed to preclude an anticipated ambient temperature in excess of 130 degrees F.

(d) Cylinders shall be securely fastened and supported, and where necessary, protected against injury.

(e) Cylinders shall be so mounted as to be readily accessible and capable of easy removal for recharging and inspection. Provisions shall be available for weighing the cylinders.

(f) Where subject to moisture, cylinders shall be so installed as to provide a space of at least 2 inches between the flooring and the bottom of the cylinders.

(g) Cylinders shall be mounted in an upright position or inclined not more than 30 degrees from the vertical. However, cylinders which are fitted with flexible or bent siphon tubes may be inclined not more than 80 degrees from the vertical.

(h) Where check valves are not fitted on each independent cylinder discharge, plugs or caps shall be provided for closing outlets when cylinders are removed for inspection or refilling.

(i) All cylinders used for storing carbon dioxide shall be fabricated, tested, and marked in accordance with the regulations of the Interstate Commerce Commission as noted in § 147.04–1 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels) of this chapter.

[CGFR 57–27, 22 F. R. 4020, June 7, 1957]

§ 95.15–25 Discharge outlets.

(a) Discharge outlets shall be of an approved type.

§ 95.15–30 Alarms.

(a) Spaces which are protected by a carbon dioxide extinguishing system and are normally accessible to persons on board while the vessel is being navigated, other than paint and lamp lockers and similar small spaces, shall be fitted with an approved audible alarm in such spaces which will be automatically sounded when the carbon dioxide is admitted to the space. The alarm shall be conspicuously and centrally located and shall be marked as required by § 97.37–9 of this subchapter. For systems installed on or after July 1, 1957, alarms will be mandatory only for systems required to be fitted with a delayed discharge. Such alarms shall be so arranged as to sound during the 20 second delay period prior to the discharge of carbon dioxide into the space, and the alarm shall depend on no source of power other than the carbon dioxide.

[CGFR 57–27, 22 F.R. 4020, June 7, 1957]

§ 95.15–35 Enclosure openings.

(a) Where mechanical ventilation is provided for spaces other than cargo and similar spaces which are protected by a carbon dioxide extinguishing system, provisions shall be made so that the ventilation system is automatically shut down with the operation of the system to that space.

(b) Where natural ventilation is provided for spaces protected by a carbon dioxide extinguishing system, provisions shall be made for easily and effectively closing off the ventilation.

(c) Means shall be provided for closing all other openings to the space protected from outside such space. In this respect, relatively tight doors, shutters, or dampers shall be provided for openings in the lower portion of the space. The construction shall be such that openings in the upper portion of the space can be closed off either by permanently installed means or by the use of canvas or other material which is normally carried by the vessel.

§ 95.15–40 Pressure relief.

(a) Where necessary, relatively tight compartments such as refrigeration spaces, paint lockers, etc., shall be pro-

vided with suitable means for relieving excessive pressure accumulating within the compartment when the carbon dioxide is injected.

§ 95.15-90 Installations contracted for prior to November 19, 1952.

(a) Installations contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Existing arrangments, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§ 95.15-5 through 95.15-40 insofar as is reasonable and practicable, with the exception of § 95.15-5 (e) (1) through (3) covering spaces other than cargo spaces, which systems may be installed in accordance with subparagraphs (3) through (6) of this paragraph.

(3) In boiler rooms, the bilges shall be protected by a system discharging principally below the floor plates. Perforated pipe may be used in lieu of discharge nozzles for such systems. The number of pounds of carbon dioxide shall be equal to the gross volume of the boiler room taken to the top of the boilers divided by 36. In the event of an elevated boiler room which drains to the machinery space, the system shall be installed in the engine room bilge and the gross volume shall be taken to the flat on which the boilers are installed.

(4) In machinery spaces where main propulsion internal combustion machinery is installed, the number of pounds of carbon dioxide required shall be equal to the gross volume of the space taken to the under side of the deck forming the hatch opening divided by 22.

(5) In miscellaneous spaces other than cargo or main machinery spaces the number of pounds of carbon dioxide required shall be equal to the gross volume of the space divided by 22.

(6) Branch lines to the various spaces other than cargo and similar spaces shall be as noted in Table 95.15-90 (a) (6). This table is based on cylinders having discharge outlets and siphon tubes of ⅜ inch diameter.

TABLE 95.15-90 (a) (6)

Number of cylinders		Nominal pipe size, inches
Over	Not over	
------	2	½—standard.
2	4	¾—standard.
4	6	1—extra heavy.
6	12	1¼—extra heavy.
12	16	1½—extra heavy.
16	27	2—extra heavy.
27	39	2½—extra heavy.
39	60	3—extra heavy.
60	80	3½—extra heavy.
80	104	4—extra heavy.
104	165	5—extra heavy.

Subpart 95.17—Foam Extinguishing Systems, Details

§ 95.17-1 Application.

(a) Where a foam extinguishing system is installed, the provisions of this subpart, with the exception of § 95.17-90, shall apply to all installations contracted for on or after November 19, 1952. Installations contracted for prior to November 19, 1952, shall meet the requirements of § 95.17-90.

§ 95.17-5 Quantity of foam required.

(a) *Area protected.* (1) For machinery and similar spaces, the system shall be so designed and arranged as to spread a blanket of foam over the entire tank top or bilge of the space protected. The arrangement of piping shall be such as to give a uniform distribution over the entire area protected.

(2) Where an installation is made to protect an oil fired boiler installation on a flat which is open to or can drain to the lower engine room or other space, both the flat and the lower space shall be protected simultaneously. The flat shall be fitted with suitable coamings on all openings other than deck drains to properly restrain the oil and foam at that level. Other installations of a similar nature will be considered in a like manner.

(3) Where a system is installed to protect a tank, it shall be so designed and arranged as to spread a blanket of foam over the entire liquid surface of the tank within the range of usual trim. The arrangement of piping shall be such as to give a uniform distribution over the entire area protected.

(b) *Rate of application.* (1) For spaces other than tanks, the rate of discharge to foam outlets protecting the hazard shall be at least as set forth in this subparagraph.

(i) For chemical foam systems with stored "A" and "B" solutions, a total of at least 1.6 gallons per minute of the two solutions shall be discharged for each 10 square feet of area protected.

(ii) For other types of foam systems, the water rate to the dry powder generators or air foam production equipment shall be at least 1.6 gallons per minute for each 10 square feet of area protected.

(2) For tanks, the rate of discharge to foam outlets protecting the hazard shall be as set forth in subparagraph (1) of this paragraph, except that the value of 1 gallon per minute shall be substituted in both cases for the value of 1.6 gallons per minute.

(c) *Supply of foam producing material.* (1) There shall be provided a quantity of foam producing material sufficient to operate the equipment at the discharge rate specified in paragraph (b) of this section for a period of at least 3 minutes for spaces other than tanks, and for at least 5 minutes for tanks.

(d) *Separate supply of foam agent.* A separate supply of foam agent need not be provided for each space protected. The total available supply shall be at least sufficient for the space requiring the greatest amount.

(e) *Water supply for required pumps.* Where pumps are required, the water supply shall be from outside the space protected and shall in no way be dependent upon power from the space protected.

§ 95.17-10 Controls.

(a) The foam agent, its container, and all controls and valves for the operation of the system shall be of an approved type.

(b) The foam agent container and all controls and valves for the operation of the system shall be outside the space protected and shall not be located in such space as might be cut off or made inaccessible in the event of fire in any of the spaces protected. The control space shall be as convenient as practicable to one of the main escapes from the spaces protected, and shall be marked as required by § 97.37-13 of this subchapter. Where pumps are required, it shall not be necessary that they be started from the control space.

(c) Complete, but simple instructions for the operation of the system shall be located in a conspicuous place at or near the controls.

(d) The valves to the various spaces served shall be marked as required by § 97.37-10 of this subchapter.

§ 95.17-15 Piping.

(a) All piping, valves, and fittings shall meet the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(b) All piping, valves, and fittings of ferrous materials shall be protected inside and outside against corrosion unless specifically approved otherwise by the Commandant.

(c) All piping, valves, and fittings shall be securely supported, and where necessary, protected against injury.

(d) Drains and dirt traps shall be fitted where necessary to prevent the accumulation of dirt or moisture.

(e) Piping shall be used for no other purpose.

§ 95.17-20 Discharge outlets.

(a) Discharge outlets shall be of an approved type.

§ 95.17-25 Additioual protection required.

(a) In order that any residual fires above the floor plates may be extinguished when a foam system is installed for the protection of spaces other than tanks, at least 2 fire hydrants, in addition to those required for the machinery space by Subpart 95.10, shall be installed outside of the machinery space entrance. Such hydrants shall be fitted with sufficient hose so that any part of the machinery space may be reached with at least 2 streams of water, and each hose shall be equipped with an approved combination nozzle, applicator, and self-cleaning strainer as described in § 95.10-10 (i) (3).

§ 95.17-90 Installations contracted for prior to Novemher 19, 1952.

(a) Installations contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in

good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§ 95.17-5 through 95.17-20, with the exception of § 95.17-5 (a) (2), insofar as is reasonable and practicable. A 6-inch blanket of foam in 5 minutes for tanks and 3 minutes for other spaces will be considered as meeting the requirements of § 95.17-5.

Subpart 95.20—Water Spray Extinguishing System, Details

§ 95.20-1 Application.

(a) Where a water spray extinguishing system is installed, the provisions of this subpart, with the exception of § 95.20-90, shall apply to all installations contracted for on or after November 19, 1952. Installations contracted for prior to November 19, 1952, shall meet the requirements of § 95.20-90.

§ 95.20-5 Capacity.

(a) The capacity and arrangement shall be such as to effectively blanket the entire area of the tank top. The rate of discharge and the arrangement of piping and nozzles shall be such as to give a uniform distribution over the entire area protected.

(b) Where an installation is made to protect an oil fired boiler installation on a flat which is open to or can drain to the lower engine room or other space, both the flat and the lower space shall be protected simultaneously. The flat shall be fitted with suitable coamings on all openings other than deck drains to properly restrain the oil and water at that level. Other installations of a similar nature will be considered in a like manner.

(c) The water supply shall be from outside the space protected and shall in no way be dependent upon power from the space protected. The pump supplying water for the system shall either be reserved exclusively for the system or it may be one of the fire pumps, provided the capacity of the fire pump as set forth in Table 95.10-5 (a) is increased by the required capacity of the system.

§ 95.20-10 Controls.

(a) The controls and valves for the operation of the system shall be outside the space protected and shall not be located in such space as might be cut off or made inaccessible in the event of fire in any of the spaces protected. The control space shall be located as convenient as practicable to one of the main escapes from the spaces protected, and shall be marked as required by § 97.37-13 of this subchapter. It shall not be necessary to start the pumps from the control space.

(b) Complete, but simple instructions for the operation of the system shall be located in a conspicous place at or near the controls.

(c) The valves to the various spaces shall be marked as required by § 97.37-10 of this subchapter.

§ 95.20-15 Piping.

(a) All piping, valves, and fittings shall meet the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(b) All piping, valves, and fittings of ferrous materials shall be protected inside and outside against corrosion unless specifically approved otherwise by the Commandant.

(c) All piping, valves, and fittings shall be securely supported, and where necessary, protected against injury.

(d) Drains, strainers, and dirt traps shall be fitted where necessary to prevent the accumulation of dirt or moisture.

(e) Piping shall be used for no other purpose.

§ 95.20-20 Discharge outlets.

(a) Discharge outlets shall be of an approved type.

§ 95.20-25 Additional protection required.

(a) In order that any residual fires above the floor plates may be extinguished when a water spray system is installed, at least 2 fire hydrants, in addition to those required for the machinery space by Subpart 95.10, shall be installed outside the machinery space entrances. Such hydrants shall be fitted with sufficient hose so that any part of the machinery space may be reached with at least 2 streams of water, and each hose shall be equipped with an approved combination nozzle, applicator, and self-cleaning strainer as described in § 95.10-10(i) (3).

[CGFR 52-43, 17 F.R. 9461, Oct. 18, 1952, as amended by CGFR 62-52, 27 F.R. 12833, Dec. 28, 1962]

§ 95.20–90 Installations contracted for prior to November 19, 1952.

(a) Installations contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Existing arrangements, materials, and facilities previously approved shall be considered satisfactory so long as they meet the minimum requirements of this paragraph and they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. Minor repairs and alterations may be made to the same standards as the original installation.

(2) The details of the systems shall be in general agreement with §§ 95.20–5 through 95.20–20, with the exception of § 95.20–5 (b), insofar as is reasonable and practicable.

Subpart 95.50—Hand Portable Fire Extinguishers and Semiportable Fire Extinguishing Systems; Arrangements and Details

§ 95.50–1 Application.

(a) The provisions of this subpart, with the exception of § 95.50–90, shall apply to all vessels, other than unmanned barges and fishing vessels, contracted for on or after November 19, 1952. Such vessels contracted for prior to November 19, 1952, shall meet the requirements of § 95.50–90.

[CGFR 54–46, 19 F. R. 8699, Dec. 18, 1954]

§ 95.50–5 Classification.

(a) Hand portable fire extinguishers and semiportable fire extinguishing systems shall be classified by a combination letter and number symbol. The letter indicating the type of fire which the unit could be expected to extinguish, and the number indicating the relative size of the unit.

(b) The types of fire will be designated as follows:

(1) "A" for fires in ordinary combustible materials where the quenching and cooling effects of quantities of water, or solutions containing large percentages of water, are of first importance.

(2) "B" for fires in flammable liquids, greases, etc., where a blanketing effect is essential.

(3) "C" for fires in electrical equipment where the use of nonconducting extinguishing agent is of first importance.

(c) The number designations for size will start with "I" for the smallest to "V" for the largest. Sizes I and II are considered hand portable fire extinguishers and sizes III, IV, and V are considered semiportable fire extinguishing systems which shall be fitted with suitable hose and nozzle or other practicable means so that all portions of the space concerned may be covered. Examples of size graduations for some of the typical hand portable and semiportable fire extinguishing systems are set forth in Table 95.50–5 (c).

TABLE 95.50-5 (c)

Classification		Soda-acid and water, gallons	Foam, gallons	Carbon dioxide, pounds	Dry chemical, pounds
Type	Size				
A	II	2½	2½		
B	I		1¼	4	2
B	II		2½	15	10
B	III		12	35	20
B	IV		20	50	30
B	V		40	100	50
C	I			4	2
C	II			15	10

(d) All hand portable fire extinguishers and semiportable fire extinguishing systems shall have permanently attached thereto a metallic name plate giving the name of the item, the rated capacity in gallons, quarts, or pounds, the name and address of the person or firm for whom approved, and the identifying mark of the actual manufacturer.

(e) Vaporizing-liquid type fire extinguishers containing carbon tetrachloride or chlorobromomethane or other toxic vaporizing liquids shall be removed from all vessels on or before January 1, 1962. Existing installations of such extinguishers may be continued in use if in good and serviceable condition until the removal date.

[CGFR 52–43, 17 F.R. 9461, Oct. 18, 1952, as amended by CGFR 58–29, 23 F.R. 6881, Sept. 6, 1958; CGFR 58–51, 23 F.R. 10368, Dec. 25, 1958]

§ 95.50–10 Location.

(a) Approved hand portable fire extinguishers and semiportable fire extinguishing systems shall be installed in accordance with Table 95.50–10(a). The location of the equipment shall be to the satisfaction of the Officer in Charge, Marine Inspection. Nothing in this paragraph shall be construed as limiting the Officer in Charge, Marine Inspection, from requiring such additional equipment as he deems necessary for the proper protection of the vessel.

TABLE 95.50-10 (a)—HAND PORTABLE FIRE EXTINGUISHER AND SEMIPORTABLE FIRE-EXTINGUISHING SYSTEMS

Space	Classification (see § 95.50-5)	Quantity and location
Safety areas [1]		
Wheelhouse or fire control room		None required.
Stairway and elevator enclosures		Do.
Communicating corridors	A-II	1 in each main corridor not more than 150 feet apart. (May be located in stairways.)
Lifeboat embarkation and lowering stations		None required.
Radio room	C-I [2]	2 in vicinity of exit [2]
Accommodations [1]		
Staterooms, toilet spaces, public spaces, offices, lockers, isolated storerooms, and pantries, open decks, etc.		None required
Service spaces [1]		
Galleys	B-II or C-II	1 for each 2,500 square feet or fraction thereof suitable for hazards involved.
Paint and lamp rooms	B-II	1 outside space in vicinity of exit
Accessible baggage, mail, and specie rooms, and storerooms.	A-II	1 for each 2,500 square feet or fraction thereof located in vicinity of exits, either inside or outside the spaces.
Carpenter shop and similar spaces	A-II	1 outside the space in vicinity of exit.
Machinery spaces		
Coal-fired boilers: Bunker and boiler space		None required.
Oil-fired boilers: Spaces containing oil-fired boilers, either main or auxiliary, or their fuel-oil units.	B-II B-V	2 required. [3] 1 required. [4]
Internal combustion or gas turbine propelling machinery spaces	B-II B-III	1 for each 1,000 brake horsepower, but not less than 2 nor more than 6 [5] 1 required. [6] [7]
Electric propulsive motors or generators of open type	C-II	1 for each propulsion motor or generator unit.
Enclosed ventilating systems for motors and generators of electric propelling machinery.		None required.
Auxiliary spaces:		
Internal combustion or gas turbine	B-II	1 outside the space in vicinity of exit. [7]
Electric emergency motors or generators	C-II	1 outside the space in vicinity of exit. [8]
Steam		None required.
Trunks to machinery spaces		Do.
Fuel tanks		Do.
Cargo spaces		
Inaccessible during voyage, including trunks and cargo tanks.		None required.
Accessible during voyage		Do.

[1] For motorboats, the total number of hand portable fire extinguishers required for safety areas, accommodation spaces, and service spaces shall be 1 B-II for motorboats of less than 50 gross tons and 2 B-II for motorboats of 50 gross tons and over. Two B-I hand portable fire extinguishers may be substituted for 1 B-II.

[2] For vessels on an international voyage, substitute 1 C-II in vicinity of exit.

[3] Vessels of less than 1,000 gross tons require 1.

[4] Vessels of less than 1,000 gross tons may substitnte 1 B-IV.

[5] Only 1 required for motorboats.

[6] If oil burning donkey boiler fitted in space, the B-V previously required for the protection of the boiler may be substituted. Not required where a fixed carbon dioxide system is installed.

[7] Not required on vessels of less than 300 gross tons if fuel has a flash point higher than 110° F.

[8] Not required on vessels of less than 300 gross tons.

(b) Semiportable fire extinguishing systems shall be located in the open so as to be readily seen.

(c) If hand portable fire extinguishers are not located in the open or behind glass so that they may be readily seen, they may be placed in enclosures together with the fire hose, provided such enclosures are marked as required by § 97.37-15 of this subchapter.

(d) Hand portable fire extinguishers and their stations shall be numbered in accordance with § 97.37-23 of this subchapter.

(e) Hand portable fire extinguishers in which the medium is stored under pressure shall not be kept in passenger or crew accommodations. However, where specifically required, they may be located in passageways adjacent to entrances of rooms containing hazards.

(f) Hand portable or semiportable extinguishers, which are required on their name plates to be protected from freezing, shall not be located where freezing temperatures may be expected.

[CGFR 52-43, 17 F.R. 9461, Oct. 18, 1952, as amended by CGFR 54-16, 19 F.R. 4927, Aug. 6, 1954; CGFR 62-17, 27 F.R. 9040, Sept. 11, 1962]

§ 95.50–15 Spare charges.

(a) For all vessels other than motorboats spare charges shall be carried for at least 50 percent of each size and each variety, i.e. foam, soda-acid, carbon dioxide, etc., of hand portable fire extinguisher required by § 95.50–10(a). However, if the unit is of such variety that it cannot be readily recharged by the vessel's personnel, one spare unit of the same classification shall be carried in lieu of spare charges for all such units of the same size and variety.

(b) Spare charges shall be so packaged as to minimize the hazards to personnel while recharging the units. Acid shall be contained in a Crown stopper type of bottle.

[CGFR 52–43, 17 F.R. 9461, Oct. 18, 1952, as amended by CGFR 53–25, 18 F.R. 7854, Dec. 5, 1953; CGFR 62–17, 27 F.R. 9040, Sept. 11, 1962]

§ 95.50–90 Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) The provisions of §§ 95.50–5 through 95.50–15 shall be met with the exception that existing installations in safety areas and service spaces may be maintained if in the opinion of the Officer in Charge, Marine Inspection, they are in general agreement with the degree of safety prescribed by Table 95.50–10 (a). In such cases, minor modifications may be made to the same standard as the original installation: *Provided,* That in no case will a greater departure from the standards of Table 95.50–10 (a) be permitted than presently exists.

Subpart 95.60—Fire Axes

§ 95.60–1 Application.

(a) The provisions of this subpart shall apply to all vessels other than motorboats.

§ 95.60–5 Number required.

(a) All vessels except barges shall carry at least the minimum number of fire axes as set forth in Table 95.60–5(a). Nothing in this paragraph shall be construed as limiting the Officer in Charge, Marine Inspection, from requiring such additional fire axes as he deems necessary for the proper protection of the vessel.

TABLE 95.60–5 (a)

Gross tons		Number of axes
Over	Not over	
------	50	1
50	200	2
200	500	4
500	1,000	6
1,000	------	8

(b) Manned barges shall carry at least two fire axes.

§ 95.60–10 Location.

(a) Fire axes shall be distributed throughout the spaces available to persons on board so as to be most readily available in the event of emergency.

(b) If fire axes are not located in the open, or behind glass, so that they may be readily seen, they may be placed in enclosures together with the fire hose, provided such enclosures are marked as required by § 97.37–15 of this subchapter.

PART 96—VESSEL CONTROL AND MISCELLANEOUS SYSTEMS AND EQUIPMENT

Subpart 96.20—Whistles

Sec.
96.20-1 Vessels other than sailing vessels, barges, and motorboats.
96.20-5 Motorboats operating on the high seas.
96.20-10 Motorboats operating on the navigable waters of the United States.

Subpart 96.23—Foghorns

96.23-1 Vessels other than motorboats.
96.23-5 Motorboats.

Subpart 96.25—Fog Sound Signol Devices

96.25-1 Vessels other than motorboats.
96.25-5 Motorboats operating on the high seas.
96.25-10 Motorboats operating on the navigable waters of the United States.

Subpart 96.27—Sounding Equipment

96.27-1 When required.

Subpart 96.30—Emergency Equipment

96.30-1 Application.
96.30-5 General.
96.30-10 Stowage.
96.30-15 Refrigeration masks.
96.30-20 Spare charges.
96.30-90 Vessels contracted for prior to November 19, 1952.

AUTHORITY: §§ 96.01-1 to 96.30-90 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 391, 392, 404, 435, 895, 363, 367, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167-14, November 26, 1954, 19 F.R. 8026; CGFR 56-28, July 24, 1956, 21 F.R. 5659. Additional authority cited with sections affected.

SOURCE: §§ 96.01-1 to 96.30-90 contained in CGFR 52-43, 17 F.R. 9468, Oct. 18, 1952, except as otherwise noted.

NOTE: For changes in authority citations to Part 96 not otherwise noted, see 27 F.R. 9040, Sept. 11, 1962.

Subpart 96.01—Application

§ 96.01-1 General.

(a) The provisions of this part shall apply to all vessels except as specifically noted in this part.

Subpart 96.03—Marine Engineering Systems

§ 96.03-1 Installation and details.

(a) The installation of all systems of a marine engineering nature, together with the details of design, construction, and installation, shall be in accordance with the requirements of Subchapter F (Marine Engineering) of this chapter. Systems of this type include the following:

Steering Systems.
Bilge and Ballast Systems.
Tank Vent and Sounding Systems.
Overboard Discharges and Shell Connections.
Pipe and Pressure Systems.
Liquefied Petroleum Gas For Cooking and Heating.

Subpart 96.05—Electrical Engineering and Interior Communications Systems

§ 96.05-1 Installation and details.

(a) The installation of all systems of an electrical engineering or interior communication nature, together with the details of design, construction, and installation, shall be in accordance with the requirements of Subchapter J (Electrical Engineering) of this chapter. Systems of this type include the following:

Ship's Service Lighting and Power Systems.
Emergency Lighting and Power Systems.
General Alarm Systems.
Sound Powered Telephone and Voice Tube Communication Systems.
Engine Order Telegraph Systems.
Rudder Angle Indicator Systems.
Refrigerated Spaces Alarm Systems.
Miscellaneous Machinery Alarms and Controls.
Daylight Signaling Lamps.

Subpart 96.07—Anchors, Chains, and Hawsers

AUTHORITY: §§ 96.07-1 to 96.07-90 interpret or apply R.S. 4488, as amended; 46 U.S.C. 481. Treasury Department Order 167-38, October 26, 1959, 24 F.R. 8857.

§ 96.07-1 Application.

(a) The provisions of this subpart, with the exception of § 96.07-90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of § 96.07-90.

§ 96.07-5 Ocean, coastwise, or Great Lakes service.

(a) Vessels in ocean, coastwise, or Great Lakes service shall be fitted with anchors, chains, and hawsers in general agreement with the standards established by the American Bureau of Shipping, see Subpart 90.35 of this subchapter.

§ 96.07–10 Lakes, bays, and sounds, or river service.

(a) Vessels in lakes, bays and sounds, or river service shall be fitted with such ground tackle and hawsers as deemed necessary by the Officer in Charge, Marine Inspection, depending upon the size of the vessel and the waters on which it operates.

§ 96.07–90 Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Installations previously accepted or approved shall be considered satisfactory for the same service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection. If the service of the vessel is changed, the suitability of the equipment will be established by the Officer in Charge, Marine Inspection.

Subpart 96.13—Radiotelegraph and Radiotelephone [1]

§ 96.13–1 Required by Federal Communications Commission.

(a) Radio-telegraph and radiotelephone installations are required on certain vessels. Details of the application of this requirement as well as details of the installation shall be as required by the statutes and regulations under the jurisdiction of the Federal Communications Commission.

[CGFR 53–25, 18 F. R. 7854, Dec. 5, 1953]

Subpart 96.15—Radio Direction Finder

§ 96.15–1 Application.

(a) The provisions of this subpart, with the exception of § 96.15–90, shall apply to all mechanically propelled vessels of 1,600 gross tons and over in ocean service or on an international voyage contracted for on or after November 19, 1952. Such vessels contracted for prior to November 19, 1952, shall meet the requirements of § 96.15–90.

§ 96.15–5 Required by Federal Communications Commission.

(a) All vessels shall be fitted with a radio direction finder. Details of the installation shall be as required by the statutes and regulations under the jurisdiction of the Federal Communications Commission.

§ 96.15–90 Vessels contracted for prior to November 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) Vessels of over 5,000 gross tons shall meet the requirements of § 96.15–5.

(2) Vessels of from 1,600 gross tons through 5,000 gross tons shall meet the requirements of § 96.15–5 on or before November 19, 1954.

Subpart 96.17—Navigation Lights and Shapes

§ 96.17–1 When required.

(a) All vessels and motorboats shall be equipped with navigation lights and shapes as prescribed by law and regulation.

[CGFR 59–27, 24 F.R. 5801, July 21, 1959]

Subpart 96.20—Whistles

AUTHORITY: §§ 96.20–1 to 96.20–10 interpret or apply sec. 17, 54 Stat. 166, as amended; 46 U.S.C. 526p.

§ 96.20–1 Vessels other than sailing vessels, barges, and motorboats.

(a) All vessels other than sailing vessels, barges, and motorboats, shall be equipped with an efficient whistle or similar appliance to give the necessary whistle signals required by the Rules of the Road applicable to the waters on which the vessel is navigated. The location of the whistle and operating devices shall be as follows:

(1) Means shall be provided to operate the whistle or other appliance from a position adjacent to the main steering station and from the steering station on top of the wheelhouse where such steering station is fitted. Details of the whistle operating device shall be as described in Subchapter J (Electrical Engineering) of this chapter.

(2) In general, the whistle shall be located on the forward side of or above the structure of the vessel so as to be as free of obstructions as possible. Where practicable, it shall be installed at least 6 feet above the wheelhouse, except that on vessels navigating the Western Rivers, and any vessel of less than 100 gross tons, it shall be at least 2 feet above the wheelhouse.

(3) On double ended ferry vessels and similar vessels, where steam whistles are employed, they shall be installed both

[1] CGFR 53–25, 18 F.R. 7854, Dec. 5, 1953.

forward and aft of the stacks or one such whistle on either the port or starboard side of the stack.

[CGFR 52-43, 17 F.R. 9468, Oct. 18, 1952, as amended by CGFR 59-27, 24 F.R. 5801, July 21, 1959; CGFR 61-15, 26 F.R. 9291, Sept. 30, 1961]

§ 96.20-5 Motorboats operating on the high seas.

(a) All motorboats operating on the high seas outside the navigable waters of the United States shall meet the requirements for whistles or similar appliances prescribed by § 96.20-1 for vessels other than motorboats.

§ 96.20-10 Motorboats operating on the navigable waters of the United States.

(a) Motorboats operating on the navigable waters of the United States shall be provided with an efficient whistle or other sound-producing mechanical device as set forth in Table 96.20-10 (a).

TABLE 96.20-10 (a)

Class of motorboat	Type of device
A	None.
1	Mouth, hand or power operated, capable of producing a blast of 2 seconds or more duration and audible for at least ½ mile.
2	Hand or power operated, capable of producing a blast of 2 seconds or more duration, and audible for a distance of at least 1 mile.
3	Power operated, capable of producing a blast of 2 seconds or more duration, and audible for a distance of at least 1 mile.

Subpart 96.23—Fog Horns

§ 96.23-1 Vessels other than motorboats.

(a) All vessels other than motorboats shall be equipped with an efficient foghorn as prescribed by the Rules of the Road applicable to the waters on which the vessel is navigated. On vessels in ocean or coastwise service, the foghorn shall be sounded by mechanical means.

[CGFR 52-43, 17 F.R. 9468, Oct. 18, 1952, as amended by CGFR 59-27, 24 F.R. 5801, July 21, 1959]

§ 96.23-5 Motorboats.

(a) All motorboats operating on the high seas outside the navigable waters of the United States shall meet the requirements for foghorns prescribed by § 96.23-1 for vessels other than motorboats.

(Sec. 17, 54 Stat. 166, as amended; 46 U.S.C. 526p.) [CGFR 52-43, 17 F.R. 9468, Oct. 18, 1952, as amended by CGFR 62-17, 27 F.R. 9041, Sept. 11, 1962]

Subpart 96.25—Fog Sound Signal Devices [1]

AUTHORITY: §§ 96.25-1 to 96.25-10 interpret or apply sec. 17, 54 Stat. 166, as amended; 46 U.S.C. 526p.

§ 96.25-1 Vessels other than motorboats.

(a) All vessels other than motorboats shall be provided with an efficient fog bell at least 8 inches in diameter. The fog bell shall be located where the sound will be least obstructed.

(b) All vessels of more than 350 feet in length shall be provided with a fog gong which will produce a sound easily distinguishable from the sound of the bell required by paragraph (a) and shall have a range of audibility approximating that of the bell. Vessels operating exclusively on the Great Lakes and the inland waters of the United States shall be exempt from this section.

[CGFR 52-43, 17 F.R. 9468, Oct. 18, 1952, as amended by CGFR 54-46, 19 F.R. 8699, Dec. 18, 1954]

§ 96.25-5 Motorboats operating on the high seas.

(a) All motorboats operating on the high seas outside the navigable waters of the United States shall meet the requirements for fog bells prescribed by § 96.25-1 for vessels other than motorboats.

§ 96.25-10 Motorboats operating on the navigable waters of the United States.

(a) When operating on the navigable waters of the United States, motorboats of Classes A and 1 are not required to carry fog bells. However, motorboats of Classes 2 and 3 operating on the navigable waters of the United States shall be provided with an efficient fog bell.

Subpart 96.27—Sounding Equipment

§ 96.27-1 When required.

(a) All mechanically propelled vessels in ocean or coastwise service of 500 gross tons and over, and all mechanically propelled vessels in Great Lakes service of 1,500 gross tons and over, except paddle

[1] CGFR 54-46, 19 F.R. 8699, Dec. 18, 1954.

wheel vessels, shall be fitted with an efficient mechanical or electronic deep-sea sounding apparatus in addition to the deep-sea hand leads. On Great Lakes vessels, a shallow water alarm may be substituted.

[CGFR 58-10, 23 F. R. 4676, June 26, 1958]

Subpart 96.30—Emergency Equipment

AUTHORITY: §§ 96.30-1 to 96.30-90 interpret or apply R.S. 4488, as amended; 46 U.S.C. 481. Treasury Department Order 167-38, October 26, 1959, 24 F.R. 8857.

§ 96.30-1 Application.

(a) The provisions of this subpart, with the exception of § 96.30-90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of § 96.30-90.

§ 96.30-5 General.

(a) All self-contained breathing apparatus and gas masks shall be of an approved type, constructed in accordance with Subpart 160.11 of Subchapter Q (Specifications) of this chapter.

(b) All flame safety lamps shall be of an approved type, constructed in accordance with Subpart 160.011 of Subchapter Q (Specifications) of this chapter.

(c) All emergency equipment shall be maintained in an operative condition, and it shall be the responsibility of the master and chief engineer to ascertain that a sufficient number of the crew are familiar with the operation of the equipment.

§ 96.30-10 Stowage.

(a) On all vessels of 1,000 gross tons and over on an international voyage, emergency equipment consisting of one self-contained breathing apparatus, one flame safety lamp, one axe, and one portable electric drill, together with such other items as the master may deem necessary, shall be stowed in convenient, accessible locations for use in case of emergency.

§ 96.30-15 Refrigeration masks.

(a) On all vessels equipped with refrigeration, other than small unit type refrigerations of not more than 20 cubic feet capacity, a gas mask suitable for protection against each refrigerant used shall be provided. The refrigeration gas masks shall be stowed convenient to, but outside of, the spaces containing the refrigeration equipment.

§ 96.30-20 Spare charges.

(a) A complete recharge shall be carried for each gas mask and self-contained breathing apparatus. The spare charge shall be stowed in the same location as the equipment it is to reactivate.

§ 96.30-90 Vessels contracted for prior to Novemher 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the following requirements:

(1) The requirements of §§ 96.30-5 through 96.30-20 shall be complied with insofar as the number of items of equipment and the method of stowage of the equipment is concerned. Existing items of equipment previously approved, but not meeting the applicable specifications set forth in § 96.30-5, may be continued in service so long as they are maintained in good condition to the satisfaction of the Officer in Charge, Marine Inspection, but all new installations or replacements shall meet the applicable specifications or requirements in this subpart.

PART 97—OPERATIONS

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Sec.

Subpart 97.03—Statutory Penalties

Subpart 97.05—Notice to Mariners and Aids to Navigation

Subpart 97.07—Notice of Casualty and Voyage Records

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97.13–15 Emergency signals.
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97.15–1 Application.
97.15–3 Steering gear, whistle, and means of communication.
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97.15–50 Radio apparatus for lifeboats.
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97.20–1 Unnecessary whistling prohibited.

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97.23–1 Unauthorized lights prohibited.

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97.25–1 Improper use prohibited.

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97.30–1 Repairs to boilers and pressure vessels.
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97.35–3 Logbooks and records.
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97.37–1 Application.
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97.37–90 Vessels contracted for prior to November 19, 1952.

Subpart 97.40—Markings on Vessels

97.40–1 Application.
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97.45–1 Master and chief engineer responsible.

Subpart 97.47—Routing Instructions

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Subpart 97.50—Compliance With Provisions of Certificate of Inspection

97.50–1 Master or person in charge responsible.

AUTHORITY: §§ 97.01–1 to 97.75–1 issued under R.S. 4405, as amended, 4462, as amended; 46 U.S.C. 375, 416. Interpret or apply R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4453, as amended, sec. 10, 35 Stat. 428, as amended, 41 Stat. 305, as amended, secs. 1, 2, 49 Stat. 1544, 1545, as amended, sec. 3, 68 Stat. 675; 46 U.S.C. 391, 392, 404, 435, 395, 363, 367, 50 U.S.C. 198; E.O. 10402, 17 F.R. 9917, 3 CFR, 1952 Supp. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167–14, November 26, 1954, 19 F.R. 8026; CGFR 56–28, July 24, 1956, 21 F.R. 5659. Additional authority cited with sections affected.

SOURCE: §§ 97.01–1 to 97.75–1 contained in CGFR 52–43, 17 F.R. 9470, Oct. 18, 1952; CGFR 52–62, 17 F.R. 11879, Dec. 31, 1952, except as otherwise noted.

NOTE: For changes in authority citations to Part 97 not otherwise noted, see 27 F.R. 9041, Sept. 11, 1962.

Subpart 97.01—Application

§ 97.01–1 General.

(a) The provisions of this part shall apply to all vessels except as specifically noted in this part.

Subpart 97.03—Statutory Penalties

§ 97.03–1 General.

(a) The marine safety and criminal statutes provide penalties for the violation of the applicable provisions of this subchapter, which penalties, depending upon the gravity of the violation, are as follows:

(1) Assessment and collection of civil monetary penalty.

(2) Criminal prosecution where no loss of life results.

(3) Criminal prosecution for manslaughter where loss of life results from violation of statute or regulation or from misconduct, negligence, or inattention to duty.

(4) Libel against vessel.

(b) In addition to the foregoing, any licensed or certificated personnel committing an act of misbehavior, negligence, unskillfulness, endangering life, violation of marine safety statutes or regulations or requirements thereunder, and incompetency shall be subject to proceedings under the provisions of 46 U. S. C. 239 and regulations thereunder (Part 137 of this chapter) with respect to suspension or revocation of license or certificate.

Subpart 97.05—Notice to Mariners and Aids to Navigation

§ 97.05–1 Duty of officers.

(a) Licensed deck officers are required to acquaint themselves with the latest information published by the Coast Guard and the United States Navy regarding aids to navigation. Neglect to do so is evidence of neglect of duty. It is desirable that vessels other than motorboats shall have available in the pilothouse for convenient reference at all times a file of the applicable Notice to Mariners.

(1) Notice to Mariners, published weekly by the Coast Guard, contains announcements and information regarding aids to navigation and charts of waters of the United States and is available for free distribution at field offices of the Coast Guard, United States Coast and Geodetic Survey field stations, and the Marine Division, Customhouse.

(2) Notice to Mariners, published weekly by the United States Navy for the correction of charts, sailing directions, light lists, and other publications, and which includes foreign waters and certain waters of the United States, is available for free distribution at the Hydrographic Office, Branch Hydrographic Offices, or any of the agencies of seaboard ports, and is also on file in the United States consulates where they may be inspected.

§ 97.05–5 Charts.

(a) All vessels, except barges, vessels operating exclusively on rivers, and motorboats other than those certificated for ocean and coastwise routes, shall have charts of the waters upon which they operate available for convenient reference at all times.

[CGFR 55–28, 20 F. R. 4461, June 25, 1955]

Subpart 97.07—Notice of Casualty and Voyage Records

§ 97.07–1 Notice of casualty.

(a) The owner, agent, master, or person in charge of a vessel involved in a marine casualty shall give notice as soon as possible to the nearest marine inspection office of the U.S. Coast Guard whenever the casualty results in any of the following:

(1) Damage to property in excess of $1,500.

(2) Material damage affecting the seaworthiness or efficiency of a vessel.

(3) Stranding or grounding.

(4) Loss of life.

(5) Injury causing any persons to remain incapacitated for a period in excess of 72 hours; except injuries to harbor workers not resulting in death and not resulting from vessel casualty or vessel equipment casualty.

(b) The master of any nuclear vessel shall immediately inform the Commandant in the event of any accident or casualty to the nuclear vessel which may lead to an environmental hazard. The master shall also immediately inform the competent governmental authority of the country in whose waters the vessel may be in, or whose waters the vessel approaches in a damaged condition.

[CGFR 52–43, 17 F.R. 9470, Oct. 18, 1952, as amended by CGFR 61–15, 26 F.R. 9292, Sept. 30, 1961]

§ 97.07–5 Information required.

(a) The notice required by § 97.07–1 shall show the name and official number of the vessel involved, the owner or agent thereof, the nature and probable occasion of the casualty, the locality in which it occurred, the nature and extent of injury to persons and the damage to property.

(46 U.S.C. 239, 481, 526*l*(c), 33 U.S.C. 361)
[CGFR 61–26, 26 F.R. 5997, July 4, 1961]

§ 97.07–10 Written report.

(a) In addition to the notice required by § 97.07–1, the person in charge of the vessel shall, as soon as possible, report in writing and in person to the Officer in Charge, Marine Inspection, at the port in which the casualty occurred or nearest the port of first arrival. However, if from a distance it may be inconvenient to report in person, it may be done in writing only. The written report required for personal accident shall be made on Form CG–924E and submitted for each individual injured and each loss of life. For all other vessel casualties the written report shall be made on Form CG–2692.

(b) If filed without delay, the Form CG–924E or CG–2692 may also provide the notice required by § 97.07–1.

(46 U.S.C. 239, 481, 526*l*(c), 33 U.S.C. 361)
[CGFR 61–26, 26 F.R. 5997, July 4, 1961]

§ 97.07–15 Retention of records.

(a) The owner, agent, master, or other person in charge of any vessel involved in a marine casualty shall retain such voyage records of the vessel as are maintained by the vessel, such as both rough and smooth deck and engine room logs, bell books, navigation charts, navigation work books, compass deviation cards, gyrocompass records, storage plans, record of draft, aids to mariners, radiograms sent and received, the radio log and crew and passenger lists. The owner, agent, master, or other officer in charge, shall make these records available to a duly authorized Coast Guard officer or employee for examination upon request.

§ 97.07–20 Aids to navigation.

(a) Whenever a vesel collides with a lightship, buoy, or other aid to navigation under the jurisdiction of the Coast Guard, or is connected with any such collision, it shall be the duty of the person in charge of such vessel to report the accident to the nearest Officer in Charge, Marine Inspection. No report on Form CG–2692 is required unless any of the results listed in § 97.07–1 (a) occur.

§ 97.07–25 Reports when state of war exists.

(a) During the period when a state of war exists between the United States and any foreign nation, communications in regard to casualties or accidents shall be handled with caution and

the reports shall not be made by radio or by telegram.

Subpart 97.10—Persons Allowed in Pilothouse and on Navigation Bridge

§ 97.10-1 Application.

(a) The provisions of this subpart shall apply to all vessels carrying passengers.

§ 97.10-5 Persons excluded.

(a) Masters and pilots shall exclude from the pilothouse and navigator's bridge while under way, all persons not connected with the navigation of the vessel. However, inspectors of the Coast Guard, licensed officers of vessels, persons regularly engaged in learning the profession of pilot, officers of the Coast Guard, United States Navy, United States Coast and Geodetic Survey, and the Engineer Department of the United States Army, or Maritime Administration personnel, may be allowed in the pilothouse or upon the navigator's bridge upon the responsibility of the officer in charge.

§ 97.10-10 Posting.

(a) The master of every vessel other than a motorboat shall keep three printed copies of § 97.10-5, Form CG-802, posted in conspicuous places on such vessel, one of which shall be kept posted in the pilothouse. On motorboats, only one copy need be posted.

(b) Such printed copies may be obtained from the Officer in Charge, Marine Inspection.

Subpart 97.12—Cargo Stowage

§ 97.12-1 Bulk ores and similar cargoes.

(a) The owners or operators of general cargo vessels which carry bulk cargoes such as ore, ore concentrates, and similar cargoes shall furnish to the masters of such vessels guidance information pertaining to the safe stowage of such cargoes.

[CGFR 60-32, 25 F.R. 4240, May 12, 1960]

§ 97.12-5 Manual.

(a) The manual on the "Stowage of Bulk Cargoes Such as Ore, Ore Concentrates, and Similar Cargoes when carried in General Cargo Vessels," 1959,[1] printed and distributed by the National Cargo Bureau, Inc., 99 John Street, New York 38, N.Y., is endorsed and recognized by the Coast Guard for use in compliance with the requirements of § 97.12-1(a).

[CGFR 60-32, 25 F.R. 4240, May 12, 1960]

[1] A copy of this manual has been filed with the Office of the Federal Register. Copies are also on file with the various Coast Guard District Commanders for reference purposes.

Subpart 97.13—Station Bills

AUTHORITY: §§ 97.13-1 to 97.13-20 interpret or apply R.S. 4488, as amended; 46 U.S.C. 481. Treasury Department Order 167-38, October 26, 1959, 24 F.R. 8857.

§ 97.13-1 Application.

(a) The provisions of this subpart shall apply to all vessels of over 500 gross tons except barges.

[CGFR 54-46, 19 F. R. 8699, Dec. 18, 1954]

§ 97.13-5 Master's responsibility.

(a) A station bill (muster list) shall be prepared by the master of the vessel who shall be responsible to sign such station bill and to ascertain that it is duly posted in conspicuous locations in the vessel, particularly in the crew quarters, before the vessel sails.

§ 97.13-10 Duties of crew.

(a) The station bill shall set forth the special duties and duty station of each member of the crew for the various emergencies. The duties shall, as far as possible, be comparable with the regular work of the individual. The duties shall in general include the following and in addition, such other duties shall be assigned as are necessary in the case of the particular vessel for the proper handling of the particular emergency:

(1) The closing of airports, watertight doors, scuppers, sanitary and other discharges which lead through the vessel's hull below the margin line, etc., the stopping of fans and ventilating systems, and the operation of all safety equipment.

(2) The preparation and launching of lifeboats and life rafts.

(3) The extinction of fire.

(4) The muster of passengers, if carried, which shall in general be assigned to the stewards department, and shall include the following:

(i) Warning the passengers.

(ii) Seeing that they are dressed and have put on their life preservers in a proper manner.

(iii) Assembling the passengers and directing them to the appointed stations.

(iv) Keeping order in the passageways and stairways and generally controlling the movement of the passengers.

(v) Seeing that a supply of blankets is taken to the lifeboats.

(5) The custody of the portable radio apparatus required by Subpart 94.55 of this subchapter.

§ 97.13–15 Emergency signals.

(a) The station bill shall set forth the various signals to be used for the calling of the crew to their stations and for giving instructions while at their stations. These signals shall be as set forth in this section.

(b) (1) The fire alarm signal shall be a continuous rapid ringing of the ship's bell for a period not less than ten seconds supplemented by the continuous ringing of the general alarm bells for not less than ten seconds.

(2) For dismissal from fire alarm stations, the general alarm shall be sounded three times supplemented by three short blasts of the whistle.

(c) (1) The signal for boat stations or boat drill shall be a succession of more than six short blasts followed by one long blast of the whistle supplemented by a comparable signal on the general alarm bells.

(2) Where whistle signals are used for handling the lifeboats, they shall be as follows:

(i) To lower lifeboats, one short blast.

(ii) To stop lowering the lifeboats, two short blasts.

(3) For dismissal from boat stations, there shall be three short blasts of the whistle.

(d) In the case of river vessels, the ship's bell may be used in lieu of the whistle signals stipulated in this section.

(e) The master of any vessel may establish such other emergency signals, in addition to the above, as will provide that all officers, crew, and passengers will have positive and certain notice of the existing emergency.

[CGFR 52–43, 17 F.R. 9470, Oct. 18, 1952, as amended by CGFR 62–17, 27 F.R. 9041, Sept. 11, 1962]

§ 97.13–20 Master to instruct crew.

(a) The master shall conduct such drills and give such instructions as are necessary to insure that all hands are familiar with their duties as specified in the station bill.

[CGFR 62–17, 27 F.R. 9041, Sept. 11, 1962]

Subpart 97.14—Manning of Lifeboats and Liferafts

AUTHORITY: §§ 97.14–1 to 97.14–20 interpret or apply R.S. 4488, as amended; 46 U.S.C. 481. Treasury Department Order 167–38, October 26, 1959, 24 F.R. 8857.

SOURCE: §§ 97.14–1 to 97.14–20 contained in CGFR 62–17, 27 F.R. 9041, Sept. 11, 1962.

§ 97.14–1 Application.

(a) The provisions of this subpart shall apply to all vessels equipped with lifeboats and/or liferafts, except unmanned barges.

§ 97.14–5 Person in command of lifeboat or liferaft.

(a) For vessels in ocean service, the master shall appoint a first and second in command of each lifeboat and each liferaft who shall be either a licensed deck officer, an able seaman, or a certificated lifeboatman.

(b) For vessels in services other than ocean service, the master shall appoint a person in command of each lifeboat and each liferaft. Except for vessels in river service, this person in command shall be either a licensed deck officer or an able seaman: *Provided,* That liferafts for 15 persons or less carried on vessels in Great Lakes service or lakes, bays and sounds service may be placed in the charge of a certificated lifeboatman.

(c) The person in charge of each lifeboat or liferaft shall have a list of its crew, and shall see that the persons under his orders are acquainted with their several duties.

§ 97.14–10 Certificated lifeboatmen.

(a) Except for vessels in river service, there shall be for each lifeboat and each liferaft a number of certificated lifeboatmen equal to that specified in Table 97.14–10(a): *Provided,* That vessels required to carry sufficient lifeboats on each side to accommodate all persons on board need only carry the certificated lifeboatmen required for the manning of the lifeboats on one side.

TABLE 97.14-10(a)

Prescribed complement of lifeboat or liferaft		Minimum number of lifeboatmen	
Over	Not over	Ocean service	All services other than ocean [1]
----------	25	2	1
25	40	2	2
40	60	3	3
60	85	4	4
85	110	5	5
110	----------	6	6

[1] Certificated lifeboatmen are not required on vessels in river service.

(b) The allocation of the certificated lifeboatmen to each lifeboat and each liferaft shall be at the discretion of the master according to the circumstances.

§ 97.14–15 Motor-propelled lifeboat.

(a) The master shall assign to each motor-propelled lifeboat a man capable of working the motor.

§ 97.14–20 Lifeboat carrying a wireless and/or searchlight.

(a) The master shall assign to each lifeboat carrying a wireless and/or searchlight a man capable of operating such equipment.

Subpart 97.15—Tests, Drills, and Inspections

AUTHORITY: §§ 97.15–1 to 97.15–60 interpret or apply R.S. 4488, as amended; 46 U.S.C. 481. Treasury Department Order 167–38, October 26, 1959, 24 F.R. 8857.

§ 97.15–1 Application.

(a) Except as specifically noted, the provisions of this subpart shall apply to all vessels other than motorboats, and to all motorboats on an international voyage. Motorboats not on an international voyage shall meet the general intent of this subpart insofar as is reasonable and practicable with the exception that the logging of information is not required.

§ 97.15–3 Steering gear, whistle, and means of communication.

(a) On all vessels making a voyage of more than 48 hours' duration, the entire steering gear, the whistle, and the means of communication between the bridge or pilot-house and the engine room shall be examined and tested by an officer of the vessel within a period of not more than 12 hours prior to departure. On all other vessels similar examinations and tests shall be made at least once in every week.

(b) The date of the test and the condition of the equipment shall be noted in the official log book.

§ 97.15–5 Drafts and load line markings.

(a) The master of every vessel on an ocean, coastwise, or Great Lakes voyage shall enter the drafts of the vessel, forward and aft, in the official log book when leaving port.

(b) On vessels subject to the requirements of Subchapter E (Load Lines) of this chapter at the time of departure from port on an ocean, coastwise, or Great Lakes voyage, the master shall insert in the official log book a statement of the position of the load line mark, port and starboard, in relation to the surface of the water in which the vessel is then floating.

(1) When an allowance for draft is made for density of the water in which the vessel is floating, this density is to be noted in the official log book.

§ 97.15–10 Sanitation.

(a) It shall be the duty of the master and chief engineer to see that the vessel, and, in particular, the quarters are in a clean and sanitary condition. The chief engineer shall be responsible only for the sanitary condition of the engineering department.

§ 97.15–15 Examination of boilers and machinery.

(a) It shall be the duty of the chief engineer when he assumes charge of the boilers and machinery of a vessel to examine them thoroughly. If any parts thereof are in bad condition, or if the safety-valve seals are broken, the fact shall immediately be reported to the master, owner or agent, and the Officer in Charge, Marine Inspection.

§ 97.15–20 Hatches and other openings.

(a)(1) With the exception stated in subparagraph (2) of this paragraph, it shall be the responsibility of the master to assure himself that all exposed cargo hatches and other openings in the hull of his vessel are closed, made properly watertight by the use of tarpaulins, gaskets or similar devices, and in all respects properly secured for sea before leaving protected waters.

(2) A vessel engaged in a voyage exclusively on Great Lakes waters and having 6 feet or more of freeboard, measured vertically from the water's edge at the lowest point of sheer to the top of deck at the ship's side, may, at the master's discretion, omit tarpaulins on the ship's hatches from 16 May through 15 September (both dates inclusive). This exemption does not relieve the master of any responsibility for the securing and protection of his hatches during the interval of exemption and, in case of indications of bad weather or other threatening conditions, he shall not leave protected waters until the exposed cargo hatches and other openings in the hull of his vessel are properly covered, secured and protected.

(b) The openings to which this section applies are as follows:

(1) Exposed cargo hatches.

(2) Gangway, cargo and coaling ports fitted below the freeboard deck.

(3) Port lights that are not accessible during navigation including the dead lights for such port lights.

(c) Vessels which, by their design, do not require cargo hatch closing devices and to which § 45.01–20 of Subchapter E (Load Line Regulations) of this chapter applies need not comply with the requirements of this section as to exposed cargo hatches.

(d) The master at his discretion may permit hatches or other openings to remain uncovered or open, or to be uncovered or opened for reasonable purposes such as ship's maintenance while the vessel is being navigated: *Provided,* That in his opinion existing conditions warrant such action.

(e) In the event the master employs the discretionary provisions of this section after leaving port he shall cause appropriate entries to be made in the official log or equivalent thereof setting forth the time of uncovering, opening, closing or covering of the hatches or other openings to which this section applies and the circumstances warranting the action taken.

(f) The discretionary provisions of this section shall not relieve the master of his responsibility for the safety of his vessel, her crew or cargo.

[CGFR 55–32, 20 F. R. 5725, Aug. 9, 1955]

§ 97.15–25 Line-throwing appliances.

(a) On vessels fitted with a line-throwing appliance, it shall be the duty of the master to drill his crew in the use of such appliance, and require it to be fired at least once in every 3 months. Each drill shall be recorded in the vessel's official log book. The service line shall not be used for drill purpose. The drill shall be conducted as follows:

(1) For impulse-projected rocket type, by actually firing the rocket with any flexible line of proper size and length, suitably faked or laid out.

(2) For shoulder gun type, by actually firing, using the regular cartridge and projectile with any flexible line of proper size and length, suitably faked or laid out.

(3) For Lyle gun type, by actually firing, using 2½ ounces of powder, the regular service projectile with any flexible line of proper size and length suitably faked or laid out.

§ 97.15–30 Emergency lighting and power systems.

(a) Where fitted, it shall be the duty of the master to see that the emergency lighting and power systems are operated and inspected at least once in each week that the vessel is navigated to be assured that the system is in proper operating condition.

(b) Internal combustion engine driven emergency generators shall be operated under load for at least 2 hours, at least once in each month that the vessel is navigated.

(c) Storage batteries for emergency lighting and power systems shall be tested at least once in each 6-month period that the vessel is navigated to demonstrate the ability of the storage battery to supply the emergency loads for the specified period of time.

(d) The date of the tests and the condition and performance of the apparatus shall be noted in the official log book.

§ 97.15–35 Fire and boat drills.

(a) The master shall be responsible for conducting a fire and boat drill at least once in every week. The scheduling of such drills shall be at the discretion of the Master except that at least one fire and boat drill shall be held within 24 hours of leaving a port if more than 25 percent of the crew have been replaced at that port.

(b) The fire and boat drill shall be conducted as if an actual emergency existed. All hands should report to their respective stations and be prepared to perform the duties specified in the station bill.

(1) Fire pumps shall be started and a sufficient number of outlets used to ascertain that the system is in proper working order.

(2) All rescue and safety equipment shall be brought from the emergency equipment lockers and the persons designated shall demonstrate their ability to use the equipment.

(3) All watertight doors which are in use while the vessel is under way shall be operated.

(4) Weather permitting, lifeboat covers and strongbacks shall be removed, plugs or caps put in place, boat ladders secured in position, painters led forward and tended, and other life-saving equipment prepared for use. The motor and hand-propelling gear of each lifeboat, where fitted, shall be operated for at least 5 minutes.

(5) The passengers, if carried, shall be encouraged to fully participate in these drills and shall be instructed in the use of the life preservers.

(6) In port, every lifeboat shall be swung out, if practicable, and the unobstructed lifeboats shall be lowered to the water and the crew exercised in the use of the oars and other means of propulsion if provided for the lifeboat. Although all lifeboats may not be used in a particular drill, care shall be taken that all lifeboats are given occasional use to ascertain that all lowering equipment is in proper order and the crew properly trained. The Master shall be responsible that each lifeboat is lowered to the water at least once in each 3 months.

(7) When the vessel is under way, and weather permitting, all lifeboats shall be swung out to ascertain that the gear is in proper order.

(8) The person in charge of each lifeboat shall have a list of its crew and shall see that the men under his command are acquainted with their duties.

(9) Lifeboat equipment shall be examined at least once a month to insure that it is complete.

(c) An entry shall be made in the vessel's official log book relative to each fire and boat drill setting forth the date and hour, length of time of the drill, numbers on the lifeboats swung out and numbers on those lowered, the length of time that motor and hand-propelled lifeboats are operated, the number of lengths of hose used, together with a statement as to the condition of all fire and lifesaving equipment, watertight door mechanisms, valves, etc. An entry shall also be made to report the monthly examination of the lifeboat equipment. If in any week the required fire and boat drills are not held or only partial drills are held, an entry shall be made stating the circumstances and extent of the drills held.

(d) A copy of these requirements, Form CG 809, shall be framed under glass and posted in a conspicuous place about the vessel. This form may be obtained from the Officer in Charge, Marine Inspection.

[CGFR 61-15, 26 F.R. 9292, Sept. 30, 1961]

§ 97.15-40 Electric power operated lifeboat winches.

(a) It shall be the duty of the master to see that all lifeboat winch control apparatus, including motor controllers, emergency switches, master switches, and limit switches, are examined at least once in each 3 months. The examination shall include the removal of drain plugs and/or the opening of drain valves in such appliances to assure that the enclosures are free of water.

(b) The date of the examination required by this section and the condition of the equipment shall be noted in the official log book.

§ 97.15-45 Lifeboats, rescue boats, life rafts, life floats, and buoyant apparatus.

(a)(1) It shall be the duty of the master or person in charge to see that the lifeboats, rescue boats, life rafts, life floats, and buoyant apparatus are properly maintained at all times, and that all equipment for his vessel required by the regulations in this subchapter is provided, maintained, and replaced as indicated.

(2) The master shall assign to one or more officers the duty of seeing that the lifeboats, rescue boats, life rafts, life floats, and buoyant apparatus are at all times ready for immediate use.

(3) The decks on which lifeboats, rescue boats, life rafts, life floats, and buoyant apparatus are stowed shall be kept clear of cargo or any other obstructions which would interfere with the immediate launching of such equipment.

(b) Where motor-propelled lifeboats are carried, the motor of each lifeboat shall be operated in the ahead and astern position for a period of not less than 5 minutes at least once in each week.

(c) All lifeboats, rescue boats and rigid type life rafts shall be stripped, cleaned, and thoroughly overhauled at least once in every year. When lifeboats are removed from a vessel for this purpose on a rotational basis, the installation test prescribed by Subpart 94.35 of this subchapter need not be made.

(d) The fuel tanks of all motor-propelled lifeboats shall be emptied and the fuel changed at least once in every year.

(e) Vessels in ocean or coastwise service having a sufficient number of lifeboats on each side to accommodate all persons on board may care for their lifeboats at sea: *Provided,* That a number of lifeboats sufficient to accommodate all persons on board are fully equipped and ready for use at all times.

(f) Inflatable life rafts shall be serviced at an approved service facility every 12 months or not later than the next inspection for certification provided the

time since date of last servicing does not exceed 15 months. Except in emergencies no servicing should be done aboard vessels.

[CGFR 60-36, 25 F.R. 10633, Nov. 5, 1960]

§ 97.15-50 Radio apparatus for lifeboats.

(a) It shall be the duty of the master to require that all batteries for all fixed and portable radio apparatus for lifeboats are brought up to full charge weekly if the batteries are of a type which require recharging.

(b) In any case, the transmitter shall be tested weekly using a suitable artificial aerial.

[CGFR 53-25, 18 F. R. 7855, Dec. 5, 1953]

§ 97.15-55 Requirements for fuel oil.

(a) It shall be the duty of the chief engineer to cause an entry in the log to be made of each supply of fuel oil received on board, stating the quantity received, the name of the vendor, the name of the oil producer, and the flash point (closed cup test) for which it is certified by the producer.

(b) It shall be the further duty of the chief engineer to cause to be drawn and sealed and suitably labeled at the time the supply is received on board, a half-pint sample of each lot of fuel oil. These samples shall be preserved until the particular supply of oil is exhausted.

[CGFR 53-25, 18 F. R. 7855, Dec. 5, 1953]

§ 97.15-60 Fire-fighting equipment, general.

(a) It shall be the duty of the owner, master, or person in charge to see that the vessel's fire-fighting equipment is at all times ready for use and that all such equipment required by the regulations in this subchapter is provided, maintained, and replaced as indicated.

(b) It shall be the duty of the owner, master, or person in charge to require and have performed at least once in every twelve months the tests and inspections of all hand portable fire extinguishers, semi-portable fire extinguishing systems, and fixed fire extinguishing systems on board, as described in Tables 91.25-20 (a)(1) and 91.25(a)(2) of this subchapter. The owner, master, or person in charge shall keep records of such tests and inspections showing the dates when performed, the number and/or other identification of each unit tested and inspected, and the name(s) of the person(s) and/or company conducting the tests and inspections. Such records shall be made available to the inspector upon request and shall be kept for the period of validity of the vessel's current certificate of inspection. Where practicable these records should be kept in or with the vessel's log book. The conduct of these tests and inspections does not relieve the owner, master, or person in charge of his responsibility to maintain this fire-fighting equipment in proper condition at all times.

[CGFR 57-18, 22 F. R. 3471, May 17, 1957]

Subpart 97.17—Steering Orders

§ 97.17-1 Method of communicating.

(a) All steering orders shall be given and communicated in terms of "right rudder" where it is intended that the top of the wheel, the rudder blade, and the head of the ship should go to the right, and "left rudder" where it is intended that the top of the wheel, the rudder blade, and the head of the ship should go to the left.

Subpart 97.20—Whistling

§ 97.20-1 Unnecessary whistling prohibited.

(a) The unnecessary sounding of the vessel's whistle is prohibited within any harbor limits of the United States.

Subpart 97.23—Unauthorized Lights

§ 97.23-1 Unauthorized lights prohibited.

(a) The master shall not authorize or permit the carrying of any lights not required by law that in any way will interfere with the distinguishing of the signal lights.

Subpart 97.25—Searchlights

§ 97.25-1 Improper use prohibited.

(a) No person shall flash or cause to be flashed the rays of a searchlight or other blinding light onto the bridge or into the pilothouse of any vessel under way.

Subpart 97.27—Lookouts

§ 97.27-5 Master's and officer's responsibility.

(a) Nothing in this part shall exonerate any master or officer in command from the consequences of any neglect to keep a proper lookout or to maintain a proper fire watch or from any neglect of any precaution which may be

required by the ordinary practice of seamen or by the special circumstances of the case. When circumstances require it, additional watches shall be maintained to guard against fire or other danger and to give an alarm in case of accident or disaster.

[CGFR 52–43, 17 F.R. 9470, Oct. 18, 1952, as amended by CGFR 59–24, 24 F.R. 5023, June 20, 1959]

§ 97.27–10 Reckless or negligent operation prohibited by law.

(a) Subsection 13(a) of the act of April 25, 1940 (46 U.S.C. 526*l*), reads as follows:

No person shall operate any motorboat or any vessel in a reckless or negligent manner so as to endanger the life, limb, or property of any person. To "operate" means to navigate or otherwise use a motorboat or a vessel.

[CGFR 58–40, 23 F. R. 8549, Nov. 1, 1958]

Subpart 97.30—Reports of Accidents, Repairs, and Unsafe Equipment

§ 97.30–1 Repairs to boilers and pressure vessels.

(a) Before making any repairs to boilers or unfired pressure vessels, the chief engineer shall submit a report covering the nature of the repairs to the Officer in Charge, Marine Inspection, at or nearest to the port where the repairs are to be made.

§ 97.30–5 Accidents to machinery.

(a) In the event of an accident to a boiler, unfired pressure vessel, or machinery tending to render the further use of the item unsafe until repairs are made, or if by ordinary wear such items become unsafe, a report shall be made, by the chief engineer immediately to the Officer in Charge, Marine Inspection, or if at sea immediately upon arrival at port.

§ 97.30–10 Notice required before repair.

(a) No repairs or alterations, except in an emergency, shall be made to any lifesaving or fire detecting or extinguishing equipment without advance notice to the Officer in Charge, Marine Inspection. When emergency repairs or alterations have been made, notice shall be given to the Officer in Charge, Marine Inspection, as soon as practicable.

§ 97.30–20 Breaking of safety valve seal.

(a) If at any time it is necessary to break the seal on a safety valve for any purpose, the chief engineer shall advise the Officer in Charge, Marine Inspection, at the next port of call, giving the reason for breaking the seal and requesting that the valve be examined and adjusted by an inspector.

[CGFR 53–25, 18 F.R. 7855, Dec. 5, 1953]

Subpart 97.33—Cable Traveler

§ 97.33–1 When required.

(a) On vessels where the distance between deck houses is more than 150 feet, a wire cable shall be stretched between the deck houses at all times when the vessel is navigating in other than protected waters. As many loose rings with lanyards shall be attached as deemed necessary by the master. In any case, a properly constructed raised catwalk or raised bridge or a below deck passage may be substituted for the required cable.

Subpart 97.34—Work Vests

AUTHORITY: §§ 97.34–1 to 97.34–20 interpret or apply R.S. 4488, as amended, 4491, as amended; 46 U.S.C. 481, 489. Treasury Department Order 167–38, October 26, 1959, 24 F.R. 8857.

§ 97.34–1 Application.

(a) Provisions of this subpart shall apply to all vessels inspected and certificated in accordance with this subchapter.

[CGFR 59–22, 24 F.R. 4961, June 18, 1959]

§ 97.34–5 Approved unicellular plastic foam work vests.

(a) Buoyant work vests carried under the permissive authority of this subpart shall conform to the specifications contained in Subpart 160.053 in Subchapter Q (Specifications) of this chapter.

[CGFR 59–22, 24 F.R. 4961, June 18, 1959]

§ 97.34–10 Use.

(a) Approved buoyant work vests are considered to be items of safety apparel and may be carried aboard vessels to be worn by crew members when working near or over the water under favorable working conditions. They shall be used under the supervision and control of designated ship's officers. When carried, such vests shall not be accepted in lieu of any portion of the required number of approved life preservers and shall not be substituted for the approved life preservers required to be worn during drills and emergencies.

[CGFR 59–22, 24 F.R. 4961, June 18, 1959]

§ 97.34–15 Shipboard stowage.

(a) The approved buoyant work vests shall be stowed separately from the regular stowage of approved life preservers.

(b) The locations for the stowage of work vests shall be such as not to be easily confused with that for approved life preservers.

[CGFR 59–22, 24 F.R. 4961, June 18, 1959]

§ 97.34–20 Shipboard inspections.

(a) Each work vest shall be subject to examination by a marine inspector to determine its serviceability. If found to be satisfactory, it may be continued in service, but shall not be stamped by a marine inspector with a Coast Guard stamp. If a work vest is found not to be in a serviceable condition, then such work vest shall be removed from the vessel. If a work vest is beyond repair, it shall be destroyed or mutilated in the presence of a marine inspector so as to prevent its continued use as a work vest.

[CGFR 59–22, 24 F.R. 4961, June 18, 1959]

Subpart 97.35—Log Book Entries

§ 97.35–1 Application.

(a) Except as specifically noted, the provisions of this subpart shall apply to all vessels other than motorboats and barges. Motorboats on an international or intercoastal voyage may be required to carry a log book in accordance with § 97.35–10.

[CGFR 54–46, 19 F. R. 8699, Dec. 18, 1954]

§ 97.35–3 Loghooks and records.

(a) Under various statutes or by regulations in this subchapter, vessels engaged in all trades, with the exception of vessels engaged exclusively in trade on rivers of the United States shall have certain logbooks or records, and, when the occasion arises, it is the duty of the master or person in charge to place therein specific entries as required by law or regulations in this chapter.

(b) R.S. 4290, as amended (46 U.S.C. 201), states: "Every vessel making voyages from a port in the United States to any foreign port, or, being of the burden of 75 tons or upward, from a port on the Atlantic to a port on the Pacific, or vice versa, shall have an Official Logbook; * * *." This Official Logbook is furnished gratuitously to masters of United States' flag vessels by the Coast Guard, as Form CG–706B or CG–706C, depending upon the number of persons employed as crew. There is printed in the first several pages of this Official Logbook various acts of Congress relating to logbooks and the entries required to be made therein. When a voyage is completed, or after a specified period of time is completed, the Official Logbooks with required entries therein shall be filed with the Officer in Charge, Marine Inspection, at or nearest the port where the vessel may be.

(c) For vessels other than those required to have Official Logbooks by R.S. 4290, the owners, operators, and/or masters are to supply their own logs or records in any form desired, which will be considered to take the place of the Official Logbooks and may be used for the purpose of making entries therein as required by law or regulations in this subchapter. Such logs or records are not filed with the Officer in Charge, Marine Inspection, but shall be kept available for review by a marine inspector for a period of one year after the date to which the records refer, except for separate records of tests and inspections of fire-fighting equipment which shall be maintained with the vessel's logs for the period of validity of the vessel's certificate of inspection.

[CGFR 61–15, 26 F.R. 9292, Sept. 30, 1961]

§ 97.35–5 Actions required to be logged.

(a) The actions and observations noted in this section shall be entered in the official log book. This section contains no requirements which are not made in other portions of this subchapter, the items being merely grouped together for convenience.

(1) Fire and Boat Drills. Weekly. See § 97.15–35.

(2) Steering Gear, Whistle, and Means of Communication. Prior to departure. See § 97.15–3.

(3) Drafts and Load Line Markings. Prior to leaving port, ocean, coastwise, and Great Lakes services only. See § 97.15–5.

(4) Hatches and other openings. All openings and closings, or leaving port without closing. Except vessels on protected waters. See § 97.15–20.

(5) Line Throwing Appliances. Once every 3 months. See § 97.15–25.

(6) Emergency Lighting and Power Systems. Weekly and semi-annually. See § 97.15–30.

(7) Electric Power Operated Lifeboat Winches. Once every 3 months. See § 97.15–40.

(8) Fuel oil data: Upon receipt of fuel oil on board. See § 97.15–55.

(9) Cargo gear inspections: At least once a month. See § 91.37–70 of this subchapter.

[CGFR 52–43, 17 F.R. 9470, Oct. 18, 1952, as amended by CGFR 53–25, 18 F.R. 7855, Dec. 5, 1953; CGFR 62–17, 27 F.R. 9041, Sept. 11, 1962]

§ 97.35–10 Official log entries.

(a) On vessels where an Official Logbook is required by R.S. 4290 (46 U.S.C. 201), all items relative to the crew and passengers, as well as with respect to any casualties which may occur, shall be entered in the Official Logbook as required by this law.

[CGFR 61–15, 26 F.R. 9292, Sept. 30, 1961]

Subpart 97.36—Display of Plans

§ 97.36–1 When required.

(a) Barges with sleeping accommodations for more than six persons and all self-propelled vessels shall have permanently exhibited for the guidance of the officer in charge of the vessel, general arrangement plans showing for each deck the various fire retardant bulkheads together with particulars of the fire detecting, manual alarm and fire extinguishing systems, fire doors, means of ingress to the different compartments, and the ventilating systems including the positions of the dampers, the location of the remote means of stopping the fans, and the identification of the fans serving each section.

(R.S. 4488, as amended, 46 U.S.C. 481. Treasury Department Order 167–38, October 26, 1959, 24 F.R. 8857) [CGFR 62–17, 27 F.R. 9041, Sept. 11, 1962]

Subpart 97.37—Markings for Fire and Emergency Equipment, Etc.

AUTHORITY: §§ 97.37–1 to 97.37–90 interpret or apply R.S. 4488, as amended; 46 U.S.C. 481. Treasury Department Order 167–38, October 26, 1959, 24 F.R. 8857.

§ 97.37–1 Application.

(a) The provisions of this subpart, with the exception of § 97.37–90, shall apply to all vessels contracted for on or after November 19, 1952. Vessels contracted for prior to November 19, 1952, shall meet the requirements of § 97.37–90.

§ 97.37–3 General.

(a) It is the intent of this subpart to provide such markings as are necessary for the guidance of the persons on board in case of an emergency. In any specific case, and particularly on small vessels, where it can be shown to the satisfaction of the Officer in Charge, Marine Inspection, that the prescribed markings are unnecessary for the guidance of the persons on board in case of emergency, such markings may be modified or omitted.

(b) In addition to English, all stateroom notices, directional signs, etc., shall be printed in languages appropriate to the service of the vessel or other action be taken to achieve the same purpose.

(c) Where in this subpart red letters are specified, letters of a contrasting color on a red background will be accepted.

§ 97.37–5 General alarm bell switch.

(a) The general alarm bell switch in the pilothouse shall be clearly and permanently identified by lettering on a metal plate or with a sign in red letters on a suitable background: "GENERAL ALARM."

§ 97.37–7 General alarm bells.

(a) All general alarm bells shall be identified by red lettering at least ½ inch high: "GENERAL ALARM—WHEN BELL RINGS GO TO YOUR STATION."

§ 97.37–9 Carbon dioxide alarm.

(a) All carbon dioxide alarms shall be conspicuously identified: "WHEN ALARM SOUNDS—VACATE AT ONCE. CARBON DIOXIDE BEING RELEASED."

§ 97.37–10 Fire extinguishing system branch lines.

(a) The branch line valves of all fire extinguishing systems shall be plainly and permanently marked indicating the spaces served.

§ 97.37–13 Fire extinguishing system controls.

(a) The control cabinets or spaces containing valves or manifolds for the various fire extinguishing systems shall be distinctly marked in conspicuous red letters at least 2 inches high: "STEAM FIRE APPARATUS," "CARBON DIOXIDE FIRE APPARATUS," "FOAM FIRE APPARATUS," or "WATER SPRAY FIRE APPARATUS" as the case may be.

§ 97.37–15 Fire hose stations.

(a) Each fire hydrant shall be identified in red letters and figures at least two inches high "FIRE STATION NO. 1," "2," "3," etc. Where the hose is not stowed in the open or behind glass so as to be readily seen, this identification shall be so placed as to be readily seen from a distance.

§ 97.37–20 Self-contained breathing apparatus and gas masks.

(a) Lockers or spaces containing self-contained breathing apparatus shall be marked "SELF-CONTAINED BREATHING APPARATUS."

§ 97.37–23 Hand portable fire extinguishers.

(a) Each hand portable fire extinguisher shall be marked with a number and the location where stowed shall be marked with a corresponding number at least ½ inch high. Where only one type and size of hand portable fire extinguisher is carried, the numbering may be omitted.

§ 97.37–25 Emergeney lights.

(a) All emergency lights shall be marked with a letter "E" at least ½ inch high.

§ 97.37–33 Instructions for changing steering gear.

(a) Instructions in at least ½ inch letters and figures shall be posted in the steering engine room, relating in order, the different steps to be taken in changing to the emergency steering gear. Each clutch, gear, wheel, lever, valve, or switch which is used during the change-over shall be numbered or lettered on a metal plate or painted so that the markings can be recognized at a reasonable distance. The instructions shall indicate each clutch or pin to be "in" or "out" and each valve or switch which is to be "opened" or "closed" in shifting to any means of steering for which the vessel is equipped. Instructions shall be included to line up all steering wheels and rudder amidship before changing gears.

§ 97.37–35 Rudder orders.

(a) At all steering stations, there shall be installed a suitable notice on the wheel or device or in such other position as to be directly in the helmsman's line of vision, to indicate the direction in which the wheel or device must be turned for "right rudder" and for "left rudder."

§ 97.37–37 Lifeboats.

(a) The name of the vessel shall be plainly marked or painted on each side of the bow of each lifeboat in letters not less than 3 inches high.

(b) The number of each lifeboat shall be plainly marked or painted on each side of the bow of each lifeboat in figures not less than 3 inches high. The lifeboats on each side of the vessel shall be numbered from forward aft, with the odd numbers on the starboard side.

(c) The cubical contents and number of persons allowed to be carried in each lifeboat shall be plainly marked or painted on each side of the bow of each lifeboat in letters and numbers not less than 1½ inches high. In addition, the number of persons allowed shall be plainly marked or painted on top of at least 2 thwarts in letters and numbers not less than 3 inches high.

(d) All oars shall be conspicuously marked with the vessel's name.

(e) Where mechanical disengaging apparatus is used, the control effecting the release of the lifeboat shall be painted bright red and shall have thereon in raised letters either the words—"DANGER-LEVER DROPS BOAT", or the words—"DANGER—LEVER RELEASES HOOKS".

(f) The top of thwarts, side benches and footings of lifeboats shall be painted or otherwise colored international orange. The area in way of the red mechanical disengaging gear control lever, from the keel to the side bench, shall be painted or otherwise colored white, to provide a contrasting background for the lever. This band of white should be approximately 12 inches wide depending on the internal arrangements of the lifeboat.

[CGFR 52–43, 17 F.R. 9470, Oct. 18, 1952, as amended by CGFR 53–25, 18 F.R. 7855, Dec. 5, 1953; CGFR 57–27, 22 F.R. 4021, June 7, 1957; CGFR 62–8, 27 F.R. 4172, May 2, 1962]

§ 97.37–40 Life rafts, life floats, and buoyant apparatus.

(a) Rigid type life rafts, life floats, and buoyant apparatus, together with their oars and paddles, shall be conspicuously marked with the vessel's name.

(b) The number of persons allowed on each rigid type life raft, life boat, and buoyant apparatus shall be conspicuously marked or painted thereon in letters and numbers at least 1½ inches high.

(c) There shall be stenciled in a conspicuous place in the immediate vicinity of each inflatable life raft the following:

INFLATABLE LIFE RAFT NO. ----------
---------- PERSONS CAPACITY

These markings shall not be placed on the inflatable life raft containers.

NOTE: § 160.051–8(a) of Subchapter Q (Specifications) of this chapter requires permanently attached name plates of each inflatable life raft and carrying case. The name plate contains the following information: The name of manufacturer, approval number, the manufacturer's model number, serial number, and lot number, and the number of persons for which the inflatable life raft is approved. In addition, the carrying case shall be marked "Ocean Service Equipment" or "Limited Service Equipment," as applicable, together with the marine inspector's initials, the date, and the letters "USCG."

[CGFR 61–15, 26 F.R. 9292, Sept. 30, 1961]

§ 97.37–43 Life preservers and ring life buoys.

(a) All life preservers, wood floats, and ring life buoys shall be marked with the vessel's name.

§ 97.37–45 Fire hose and axes.

(a) All fire hose and axes shall be marked with the vessel's name.

§ 97.37–47 Portable magaziue chests.

(a) Portable magazine chests shall be marked in letters at least 3 inches nigh: "PORTABLE MAGAZINE CHEST—INFLAMMABLE—KEEP LIGHTS AND FIRE AWAY."

§ 97.37–90 Vessels contracted for prior to Novemher 19, 1952.

(a) Vessels contracted for prior to November 19, 1952, shall meet the requirements of this paragraph.

(1) The requirements of §§ 97.37–5 through 97.37–47 shall be met with the exception that existing signs and markings containing the same general intent, but not necessarily identical wording or exact letter type, size, or color, may be retained so long as they are in good condition to the satisfaction of the Officer in Charge, Marine Inspection.

Subpart 97.40—Markings on Vessels

§ 97.40–1 Application.

(a) The provisions of this subpart shall apply to all vessels except as specifically noted.

§ 97.40–5 Markings required by Customs Regulatious.

(a) The following markings are required by the Customs Regulations. Details of the application of the requirements as well as details of the required markings will be found in those regulations.

(1) *Name of vessel.* On both bows and the stern (yachts excepted), and on steam vessels the name is also required on both sides of the pilothouse, and on steam paddle wheel vessels on the outer side of each paddle box. Yachts shall have the name on the hull.

(2) *Hailing port.* On the stern.

(3) [Reserved]

(4) *Official number.* On the vessel's main beam.

(5) *Net tonnage.* On the vessel's main beam.

[CGFR 52–43, 17 F.R. 9470, Oct. 18, 1952, as amended by CGFR 55–43, 20 F.R. 7167, Sept. 24, 1955]

§ 97.40–10 Draft marks.

(a) All vessels 50 gross tons and over, under the jurisdiction of the U.S. Coast Guard, shall have the draft of the vessel plainly and legibly marked upon the stem and upon the sternpost or rudderpost or at any place at the stern of the vessel as may be necessary for easy observance. The draft shall be taken from the bottom of the keel at the marks to the surface of the water, the bottom of the mark to indicate the draft in feet.

(b) In cases where the keel does not extend forward or aft to the location of the draft marks, due to raked stem or cut-away skeg, the datum line from which the draft shall be taken shall be obtained by projecting the line of the bottom of keel forward or aft, as the case may be, to the location of the draft marks.

(c) In cases where a vessel may have a skeg or other appendage extending locally below the line of the keel, the draft at the end of the vessel adjacent to such appendage shall be measured to a line tangent to the lowest part of such appendage and parallel to the line of the bottom of the keel.

§ 97.40–15 Load line marks.

(a) Vessels assigned a load line shall have the deck line and the load line marks permanently scribed or embossed as required by Subchapter E (Load Lines) of this chapter.

Subpart 97.43—Placard of Breeches Buoy Instructions

§ 97.43–1 Application.

(a) The provisions of this subpart shall apply to all vessels on an international voyage and all other vessels of 150 gross tons and over in ocean, coastwise, or Great Lakes service.

§ 97.43–5 Where posted.

(a) A placard containing instructions for the use of breeches buoys, Form CG 811, shall be posted in the pilothouse, the engine room, and the crew quarters of all vessels.

Subpart 97.45—Carrying of Excess Steam

§ 97.45–1 Master and chief engineer responsible.

(a) It shall be the duty of the master and the engineer in charge of the boilers of any vessel to require that a steam pressure is not carried in excess of that allowed by the certificate of inspection, and to require that the safety valves, once set and sealed by the inspector, are in no way tampered with or made inoperative except as provided in § 97.30–20.

[CGFR 53–25, 18 F. R. 7855, Dec. 5, 1953]

Subpart 97.47—Routing Instructions

§ 97.47–1 All persons must comply.

(a) Due to existing mine field dangers, all licensed masters, officers, and certificated seamen on United States vessels shall comply strictly with the routing instructions issued by competent naval authority. Failure to comply with such routing instructions shall be deemed misconduct within the meaning of R. S. 4450, as amended (46 U. S. C. 239). Nothing herein shall be construed as relieving the master of the responsibility for the safety of his vessel.

Subpart 97.50—Compliance With Provisions of Certificate of Inspection

§ 97.50–1 Master or person in charge responsible.

(a) It shall be the duty of the master or other person in charge of the vessel to see that all of the provisions of the certificate of inspection are strictly adhered to. Nothing in this subpart shall be construed as limiting the master or other person in charge of the vessel, at his own responsibility, from diverting from the route prescribed in the certificate of inspection or taking such other steps as he deems necessary and prudent to assist vessels in distress or for other similar emergencies.

Subpart 97.53—Exhibition of License

§ 97.53–1 Licensed officers.

(a) All licensed officers on a vessel shall have their licenses conspicuously displayed as required by R.S. 4446, 46 U.S.C. 232.

Subpart 97.55—De-Energizing of Cargo Hold Lighting Circuits When Grain or Other Combustible Bulk Cargo Is Carried

AUTHORITY: §§ 97.55–1 and 97.55–5 interpret or apply R.S. 4488, as amended; 46 U.S.C. 481. Treasury Department Order 167–38, October 26, 1959, 24 F.R. 8857.

§ 97.55–1 Master's responsibility.

(a) Before loading bulk grain, or similar combustible bulk cargo, the master shall have the lighting circuits to cargo compartments in which the bulk cargo is to be loaded de-energized at the distribution panel or panel board. He shall thereafter have periodic inspections made of the panel or panel board as frequently as necessary to ascertain that the affected circuits remain de-energized while this bulk cargo remains within the vessel.

[CGFR 60–36, 25 F.R. 10634, Nov. 4, 1960]

§ 97.55–5 Warning notice posted.

(a) As a precaution against any subsequent unintentional re-energizing of the circuits specified above, an appropriate notice shall be posted at the location where the control is effected warning against re-energizing these circuits. Such notice shall remain posted while this bulk cargo remains within the vessel.

[CGFR 60–36, 25 F.R. 10654, Nov. 4, 1960]

Subpart 97.60—Motion Picture Film and Equipment

§ 97.60–1 Type required.

(a) Only acetate or slow-burning film may be used. Nitrocellulose film is specifically prohibited.

(b) Projectors shall be of an approved type.

(R.S. 4488, as amended; 46 U.S.C. 481. Treasury Department Order 167–38, October 26, 1959, 24 F.R. 8857) [CGFR 61–15, 26 F.R. 9293, Sept. 30, 1961, as amended by CGFR 62–17, 27 F.R. 9042, Sept. 11, 1962]

Subpart 97.70—Power-Operated Industrial Trucks

AUTHORITY: §§ 97.70–1 to 97.70–35 interpret or apply R.S. 4417a, as amended, 4472, as amended, 4488, as amended, 4491, as amended; 46 U.S.C. 391a, 170, 481, 489. Treasury Department Orders 120, July 31, 1950, 15 F.R. 6521; 167–38, October 26, 1959, 24 F.R. 8857.

§ 97.70–1 Application.

(a) *Power-operated industrial trucks.* (1) Except as provided in subparagraph (3) of this paragraph, power-operated industrial trucks carried on board a vessel as part of the vessel's equipment for handling materials of any kind shall be in compliance with the applicable provisions of this subpart.

(2) Except as provided in subparagraph (3) of this paragraph, power-operated industrial trucks placed on board vessels for handling materials of any kind shall be in compliance with the applicable provisions of this subpart when such vessels are within the navigable waters of the United States, its territories and possessions but not including the Panama Canal Zone.

(3) When power-operated industrial trucks are used in spaces not containing dangerous or hazardous articles, as set forth in § 97.70–10(f), the installation of the minimum safety features of § 97.70–7(c) shall be carried out at the earliest opportunity but in any case not later than July 1, 1963.

(b) *Vessels.* (1) Vessels shall be in compliance with the applicable provisions of this subpart during those periods of time when power-operated industrial trucks are on board as part of the vessel's equipment or when such trucks are placed on board for handling materials of any kind.

NOTE: The regulations affecting the use of power-operated industrial trucks on foreign vessels are in Part 146 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels), or in the case of foreign tank vessels in Subpart 35.70 of Subchapter D (Tank Vessels) of this chapter.

[CGFR 61–44, 26 F.R. 11014, Nov. 23, 1961]

§ 97.70–3 Alternates.

(a) In cases of undue hardship resulting from unavoidable delays in bringing existing power-operated industrial trucks into compliance with the applicable provisions of this subpart, the Commandant may permit the use of alternate equipment, apparatus, or arrangement for such period of time, and to such extent, and upon such conditions as will assure, to the Commandant's satisfaction, a degree of safety consistent with the minimum standards as set forth in this subpart.

(b) The methods and procedures adopted in connection with the modification of existing equipment to meet required laboratory designations will be taken into consideration in granting permission to use alternate arrangements for a limited period of time.

[CGFR 61–44, 26 F.R. 11014, Nov. 23, 1961]

§ 97.70–5 Definitions of terms nsed in subpart.

(a) Power-operated industrial trucks are considered to be tractors, lift trucks, and other specialized industrial trucks used for material handling on board a vessel.

(b) For the purpose of the regulations in this subpart, the words "flammable" and "inflammable" are interchangeable or synonymous terms.

[CGFR 61–44, 26 F.R. 11014, Nov. 23, 1961]

§ 97.70–7 Approved power-operated industrial trucks.

(a) Where approved power-operated industrial trucks are required by the regulations in this subchapter such approved trucks shall have a specific designation of a recognized testing laboratory. The following laboratories are recognized for the specific type designations listed:

(1) Underwriters' Laboratories, Inc. (Mailing address, P.O. Box 247, Northbrook, Illinois) for trucks having recognized testing laboratory type designations E, EE, EX, G, GS, LP, LPS, D and DS.

(2) Factory Mutual Laboratories, Engineering Division, 1115 Boston-Providence Turnpike, Norwood, Massachusetts for trucks having recognized testing laboratory type designations E, EE, EX, G, GS, LP, LPS, D and DS.

(b) Description of recognized testing laboratory type designations are as follows:

(1) The "E" designated units are electrically powered units that have minimum acceptable safeguards against inherent fire hazards.

(2) The "EE" designated units are electrically powered units that have, in addition to all of the requirements for the "E" units, the electric motors and all other electrical equipment completely

enclosed. In certain locations the "EE" unit may be used where the use of an "E" unit may not be considered safe.

(3) The "EX" designated units are electrically powered units that differ from the "E" and "EE" units in that the electrical fittings and equipment are so designed, constructed and assembled that the units may be used in certain atmospheres containing flammable vapors or dusts.

(4) The "G" designated units are gasoline powered units having minimum acceptable safeguards against inherent fire hazards.

(5) The "GS" designated units are gasoline powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where the use of a "G" unit may not be considered safe.

(6) The "LP" designated units are similar to the "G" units except that they are liquefied petroleum gas engine powered instead of gasoline powered.

(7) The "LPS" designated units are units similar to the "GS" units except that liquefied petroleum gas is used for fuel instead of gasoline.

(8) The "D" designated units are units similar to the "G" units except that they are diesel engine powered instead of gasoline engine powered.

(9) The "DS" designated units are diesel powered units that are provided with additional safeguards to the exhaust, fuel and electrical systems. They may be used in some locations where a "D" unit may not be considered safe.

(c) In addition to the construction and design safety features required in order to obtain a recognized laboratory type designation, approved power-operated industrial trucks shall have at least the following minimum safety features where applicable:

(1) Power-operated industrial trucks shall be equipped with a warning horn, whistle, or gong, or other device that can be heard clearly above the normal shipboard noises.

(2) Wherever power-operated industrial truck operation exposes the operator to danger from falling objects, the truck shall be equipped with a driver's overhead guard. Where overall height of the truck with forks in the lowered position is limited by head room conditions the overhead guard may be omitted.

NOTE: This overhead guard is only intended to offer protection from the impact of small packages, boxes, bagged material, etc., representative of the job application. It is impractical to build a guard of sufficient strength to withstand the impact of a capacity load since such a guard would constitute a safety hazard because its structure would be so large that it might interfere with good visibility and would weigh so much that it might make the truck top-heavy and unstable.

(3) Power-operated fork lift trucks which handle small objects or unstable loads shall be equipped with a vertical load back rest or rack which shall have height, width and strength sufficient to prevent the load, or part of it, from falling toward the mast when the mast is in a position of maximum backward tilt.

(4) The forks on power-operated fork lift trucks shall be secured to the carriage so that unintentional lifting of the toe shall not occur on such application where this lifting may create a hazard. The factor of safety of forks shall be at least 3 to 1, based on the elastic limit of the material.

(5) Fork extensions or other attachments shall be suitably secured to prevent unintentional lifting or displacement on primary forks.

(6) All exposed wheels shall be provided with guards to prevent the wheels from throwing particles at the operator.

(7) Unless the steering mechanism is of a type that prevents road reactions from causing the steering handwheel to spin, the steering knob, if used, shall be of a mushroom type to engage the palm of the operator's hand, or shall be arranged in some other manner to prevent injury. The knob shall be mounted within the perimeter of the wheel.

(8) All steering controls shall be confined within the clearances of the truck, or so guarded that movement of the controls shall not result in injury to the operator when passing obstructions, stanchions, etc.

[CGFR 61–44, 26 F.R. 11014, Nov. 23, 1961]

§ 97.70–10 Use of power-operated industrial trucks in various locations.

(a) *Spaces containing explosives.* (1) Except as otherwise provided in this paragraph, power-operated industrial trucks shall not be used in a space in which Class A, Class B, or Class C explosives are stowed.

NOTE: Class A, Class B and Class C explosives are defined in Part 146 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels) of this chapter.

(2) The Commandant may grant authority for the use of approved power-operated industrial trucks with a recognized testing laboratory designation of EX in spaces in which Class A, Class B or Class C explosives are stowed when it can be shown that such trucks can be used with safety.

(3) In a space in which packaged small arms ammunition without explosive bullets is stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, LPS, GS and DS may be used for handling cargo including the handling of such packaged small arms ammunition.

(b) *Spaces containing flammable liquids.* (1) In a space in which packaged flammable liquids are stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, GS, LPS, and DS may be used for handling cargo including the handling of such packaged flammable liquids.

(c) *Spaces containing flammable solids or oxidizing materials.* (1) In a space in which packaged flammable solids or oxidizing materials are stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, GS, LPS, and DS may be used for handling cargo including the handling of such packaged flammable solids or oxidizing materials.

(2) When flammable solids or oxidizing materials are contained in closed cargo vans or closed containers and no other dangerous cargo is stowed in the hold or compartment, any standard commercial type power-operated industrial truck in safe operating condition and having the minimum safety features of of § 97.70-7(c) may be used in the spaces.

(3) When oxidizing materials in bulk are stowed in the holds or compartment, any approved commercial type power-operated industrial truck may be used in the spaces.

(d) *Spaces containing hazardous articles of a fibrous nature.* (1) In a space in which packaged hazardous articles of a fibrous nature are stowed, only approved power-operated industrial trucks with a recognized testing laboratory designation of EX, EE, GS, LPS and DS may be used for handling cargo including the handling of such packaged hazardous articles of a fibrous nature.

(2) When hazardous articles of a fibrous nature are contained in closed cargo vans or closed portable containers and no other dangerous cargo is stowed in the hold or compartment, any standard commercial type power-operated industrial truck in safe operating condition and having the minimum safety features of § 97.70-7(c) may be used in the spaces.

(e) *Spaces containing other dangerous cargoes and hazardous articles.* (1) In a space in which dangerous cargoes or hazardous articles subject to the regulations in Part 146 of this chapter except those provided for in paragraphs (a), (b), (c) and (d) of this section, any approved power-operated industrial truck may be used to handle cargo including the handling of such dangerous cargoes or hazardous articles.

(f) *Other spaces.* (1) Any standard commercial type power operated industrial truck in safe operating condition and having the minimum safety features of § 97.70-7(c) may be used in spaces and for handling cargo in spaces not otherwise restricted by regulation in this subpart.

[CGFR 61-44, 26 F.R. 11015, Nov. 23, 1961]

§ 97.70-15 Special operating conditions.

(a) Notification shall be given to the master or senior deck officer on board before placing power-operated industrial trucks in use aboard the vessel.

(b) When power-operated industrial trucks are in use on board vessels subject to the regulations in this subchapter, they shall be in a safe operating condition.

(c) Spaces exposed to carbon monoxide or other hazardous vapors from the exhausts of power-operated industrial trucks shall have adequate ventilation. The concentration of carbon monoxide shall be kept below 100 parts per million in the holds and intermediate decks where persons are working. When necessary, portable blowers of adequate size and location shall be utilized.

(d) The parts and/or equipment of any power-operated industrial truck requiring replacement shall be replaced only by parts and/or equipment equivalent in safety when installed with those used in the original design.

(e) Any truck that emits sparks or flames from the exhaust system shall immediately be removed from service, and not again returned to service until the cause for the emission of such sparks or flames has been eliminated.

(f) When the temperature of any part of the truck is found to be in excess of a

safe operating temperature, the truck shall be removed from service until such overheating has been corrected.

(g) Operation of trucks shall be halted immediately and the engines or motors secured, whenever an emergency condition arises aboard the vessel.

(h) Operation of trucks shall be halted immediately and the engines or motors secured in the event of breakage or leakage of containers used for the carriage of flammable liquids, flammable solids or oxidizing materials.

(i) The rated capacity of a truck shall at all times be posted on the truck in a conspicuous place and such capacity shall not be exceeded.

(j) At least one approved 2-pound dry chemical hand portable fire extinguisher, or its approved equivalent, shall be affixed to the truck in a readily accessible position or kept in close proximity available for immediate use.

(k) Vessel's fire-fighting equipment, both fixed (where installed) and portable, in vicinity of space being worked shall be kept ready for immediate use.

[CGFR 61–44, 26 F.R. 11015, Nov. 23, 1961]

§ 97.70–20 Refueling.

(a) *When permitted.* Power-operated industrial trucks are not permitted to be refueled in the hold of a vessel or on the weather deck except under the following conditions:

(1) Trucks using gasoline as fuel may be refueled in the hold or on the weather deck of a vessel only when such refueling is done with an acceptable portable nonspilling fuel handling system of not over 5 gallons capacity. Transfer of gasoline to these portable nonspilling fuel handling devices is not permitted on board the vessel.

(2) Power-operated industrial trucks using liquefied petroleum gas as fuel may be refueled in the hold or on the weather deck of a vessel only when fitted with removable tanks and provided the hand-operated shut-off valve of the depleted tank is closed and the engine is run until it stalls from lack of fuel before the quick disconnect fitting is opened. In addition, the quick disconnect fitting shall be attached to the fuel tank before the hand-operated shutoff valve is reopened.

(3) Power-operated industrial trucks using diesel oil as fuel may be refueled on the weather deck or in the hold of a vessel by means of portable containers of not over 5-gallon capacity. These trucks may also be refueled on the weather deck of a vessel or portable containers refilled from a larger container provided a suitable pump is used for the transfer operation and a drip pan of adequate size is supplied.

(b) *General requirements.* The following conditions must be met when refueling power-operated industrial trucks in the hold of a vessel or on the weather deck under the circumstances listed in paragraph (a) of this section:

(1) Refueling shall be under the direct supervision of an experienced and responsible person specifically designated for such job by the person in charge of the loading or unloading of the vessel.

(2) No refueling shall be undertaken with less than 2 persons specifically assigned and present for the complete operation, at least one of whom shall be experienced in using the portable fire extinguishers required in the fueling area.

(3) At least one approved 4-pound dry chemical hand portable fire extinguisher, or its approved equivalent shall be provided at the scene of the fueling area. This is in addition to portable extinguisher affixed to the truck in accordance with § 97.70–15(j).

(4) The location for refueling trucks shall be designated by the master or senior deck officer on board the vessel. "No Smoking" signs shall be posted in the area and smoking shall be prohibited.

(5) The location designated for refueling shall be adequately ventilated so as to insure against accumulation of a hazardous concentration of vapors. The ventilation requirements of § 97.70–15(c) when trucks are operating shall also apply when trucks are being refueled.

(6) Truck engines of all trucks in the same hold shall be stopped before any truck in that hold is refueled and before any fuel handling devices or unmounted liquefied petroleum gas cylinders are placed in the hold.

(7) All fuel handling devices and unmounted liquefied petroleum gas containers shall be removed from the hold before any truck engine is started and the trucks again placed in operation.

[CGFR 61–44, 26 F.R. 11015. Nov. 23, 1961]

§ 97.70–25 Charging or replacing batteries.

(a) Batteries for electrically-powered industrial trucks and for the ignition systems of internal combustion engine-powered industrial trucks may be

changed in the hold of a vessel provided the following conditions are met:

(1) Suitable handling equipment shall be employed.

(2) Adequate precautions shall be taken to avoid damage to the battery, short circuiting of the battery, and spillage of the electrolyte.

(b) Batteries of electrically-powered industrial trucks may be recharged in a hold of a vessel provided the following conditions are met:

(1) The batteries shall be housed in a suitable, ventilated, portable metal container with a suitable outlet at the top for connection of a portable air hose, or shall be placed directly beneath a suitable metal hood with a suitable outlet at the top for connection of a portable air hose. The air hose shall be permanently connected to an exhaust duct leading to the open deck and terminate in a gooseneck or other suitable weather head. If natural ventilation is not practicable or adequate, mechanical means of exhaust shall be employed in conjunction with the duct. The air outlet on the battery container shall be equipped with an interlock switch so arranged that the charging of the battery cannot take place unless the air hose is properly connected to the box.

(2) If mechanical ventilation is used, an additional interlock shall be provided between the fan and the charging circuit so that the fan must be in operation in order to complete the charging circuit for operation. It is preferable that this interlock switch be of a centrifugal type driven by the fan shaft.

(3) The hold shall not contain any cargo coming under the regulations in Part 146 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels) of this chapter.

(4) The charging facilities may be part of the truck equipment or may be separate from the truck and located inside or outside the cargo hold. The supply or charging circuit (whichever method is used) shall be connected to the truck by a portable plug connection of the break-away type. This portable plug shall be so engaged with the truck battery charging outlet that any movement of the truck away from the charging station will break the connection between the plug and receptacle without exposing any live parts to contact with a conducting surface or object, and without the plug falling to the deck where it may become subject to injury.

(c) All unmounted batteries shall be suitably protected or removed from an area in the hold of the vessel before trucks are operated in that area.

[CGFR 61–44, 26 F.R. 11016, Nov. 23, 1961]

§ 97.70–30 Stowage of power-operated industrial trucks aboard a vessel.

(a) Power-operated industrial trucks may be stowed in any location aboard a vessel provided the following conditions are met:

(1) Gasoline powered trucks shall have all the fuel expended from the system.

(2) Liquefied petroleum gas powered trucks shall have the fuel tanks removed and all the fuel expended from the system.

(b) Power-operated industrial trucks not meeting the conditions set forth in paragraph (a) of this section shall be stowed on the open deck except for intervals such as lunch hours, between work shifts, interdock and intraport movements. If stowed in a fixed metal enclosure located on or above the weather deck, such enclosure shall have access from the weather deck only and shall have adequate ventilation, so arranged as to remove vapors from both the upper and lower portions of the space.

[CGFR 61–44, 26 F.R. 11016, Nov. 23, 1961]

§ 97.70–35 Stowage of fuel handling devices aboard a vessel.

(a) Flammable liquids and gases to be used as fuels for power-operated industrial trucks shall be marked, labeled and stowed as follows:

(1) They shall be stowed in ICC specification containers, A.S.M.E. containers or portable safety containers having the approval of a recognized testing laboratory, which containers are authorized for the contents.

(2) Containers shall be marked with the name of the contents and shall be labeled in accordance with ICC requirements as follows:

(i) Flammable liquids—"Red Label"; or,

(ii) Flammable gases—"Red Gas Label".

(3) Containers shall be stowed on or above the weather deck in locations designated by the master. ICC specification containers, A.S.M.E. containers, or portable safety containers having the approval of a recognized testing lab-

oratory may be stowed below the weather deck in a paint or lamp locker provided such containers do not exceed 5 gallons capacity each.

(b) Diesel fuel shall be stowed in locations designated by the master.

[CGFR 61-44, 26 F.R. 11016, Nov. 23, 1961]

Subpart 97.75—Prevention of Oil Pollution

§ 97.75-1 Prohibited zones.

(a) All cargo vessels shall be so operated as to meet the requirements of the Oil Pollution Act, 1924 (33 U.S.C. 431-437). In addition, all cargo ships shall be so operated as to avoid discharging any oil or oily ballast which may foul the surface of the sea, within any of the prohibited zones set forth in the Oil Pollution Act, 1961 (33 U.S.C. 1001-1015).

(Sec. 8, 75 Stat. 403; 33 U.S.C. 1007. Treasury Department Order 167-46, November 6, 1961, 26 F.R. 10609) [CGFR 62-17, 27 F.R. 9042, Sept. 11, 1962]

PART 98—SPECIAL CONSTRUCTION, ARRANGEMENT, AND PROVISIONS FOR CERTAIN DANGEROUS CARGOES IN BULK

Subpart 98.01—Application

Sec.

Subpart 98.05—Elemental Phosphorous in Water in Bulk

Subpart 98.10—Sulfuric Acid in Bulk

Subpart 98.15—Hydrochloric Acid in Bulk

Sec.

Subpart 98.20—Liquid Chlorine in Bulk

Subpart 98.25—Anhydrous Ammonia in Bulk

Subpart 98.30—Nuclear Energy

AUTHORITY: §§ 98.01-1 to 98.30-1 issued under R. S. 4405, as amended, 4462, as amended, 4472, as amended; 46 U.S.C. 375, 416, 170. Interpret or apply sec. 3, 68 Stat. 675; 50 U.S.C. 198: E.O. 10402, 17 F.R.

9917, 3 CFR, 1952 Supp. Additional authority is cited in parentheses following the sections affected.

SOURCE: §§ 98.01-1 to 98.30-1 contained in CGFR 58-9, 23 F.R. 4829, June 28, 1958, except as otherwise noted.

Subpart 98.01—Application

§ 98.01-1 General.

(a) The provisions of this part shall apply to all vessels which carry in bulk any of the dangerous cargoes specifically noted in this part.

§ 98.01-5 Effective date.

(a) The provisions in this part which require inspection and certification of vessels shall be in effect on and after January 1, 1959, for new construction and on and after January 1, 1960, for existing vessels. Vessels in existence on January 1, 1959, and vessels contracted for prior to January 1, 1959, which may carry in bulk any of the dangerous cargoes specifically noted in this part shall meet the applicable requirements of this subchapter or Subchapter D (Tank Vessels) of this chapter, as is reasonable and practicable in the opinion of the Officer in Charge, Marine Inspection, to qualify for certification. In this respect the Officer in Charge, Marine Inspection, may grant departures from specific requirements of this chapter if in his opinion the circumstances warrant such departures. In any case the Officer in Charge, Marine Inspection, shall satisfy himself that the vessel and its equipment are in good condition and satisfactory for the purposes intended.

(b) The other provisions of this part shall be in effect on and after July 1, 1958.

Subpart 98.05—Elemental Phosphorus in Water in Bulk

§ 98.05-1 General.

(a) Elemental phosphorus, white or yellow, in water may be carried in bulk only in cargo barges, tank barges, or cargo vessels in accordance with the provisions of this subpart.

(b) Any vessel carrying elemental phosphorus in water in bulk shall be inspected and certificated in accordance with the provisions of this subchapter or Subchapter D (Tank Vessels) of this chapter, as applicable.

§ 98.05-5 Types of cargo tanks.

(a) Tanks in which the vessel's structure forms a part thereof may be employed, provided void spaces are located surrounding the tanks on the sides and bottom.

(b) Tanks independent of the hull either cylindrical or of rectangular design may be employed. The plating of such tanks shall be not less than $\frac{5}{16}$ inch thick.

(c) The tanks shall be designed and tested to a head of 8 feet above the tank top or the highest level the lading may rise, whichever is the greater.

(d) When a water displacement method of discharge is used, pressure-vessel type cargo tanks, designed and tested in accordance with Subchapter F (Marine Engineering) of this chapter shall be employed. Such tanks shall be designed for the maximum pressure to which they may be subjected when water pressure is used to discharge the cargo.

§ 98.05-10 Venting.

(a) Each cargo tank shall be fitted with an approved pressure-vacuum relief valve set to discharge at a pressure not exceeding 2 pounds per square inch. The discharge therefrom shall lead overboard above the waterline. When pressure vessel type tanks are used, each tank shall be fitted with a relief valve of suitable size.

§ 98.05-15 Installation.

(a) Adequate clearance shall be provided for the inspection and maintenance of independent cargo tanks, or such tanks shall be made movable.

§ 98.05-20 Openings in tanks.

(a) Openings in tanks are prohibited below deck except for access openings used for inspection and maintenance of tanks. Manholes or access trunks shall be of not less than 20 inches diameter. Openings shall be fitted with bolted cover plates and gaskets resistant to the attack of phosphorus pentoxide.

§ 98.05-25 Outage.

(a) Sufficient outage shall be provided to prevent the tanks from being liquid full at any time, but in no case shall the outage be less than 1 percent. When pressure vessel type tanks are used outage need not be provided.

§ 98.05-30 Cargo discharging.

(a) Pumps shall be employed in the discharge of cargo except when pressure vessel type tanks are used, water dis-

placement method may be employed. The use of compressed air to discharge cargo is prohibited.

§ 98.05–35 Cargo temperature.

(a) Cargo shall be loaded at a temperature not exceeding 140° F., and then cooled until the water above the cargo has a temperature not exceeding 105° F. prior to the movement of the vessel. Upon presentation of satisfactory proof that procedures followed will provide adequate safety in transportation and handling, the Commandant may authorize movement of the vessel following cooling of the water above the cargo to a temperature not exceeding 115° F.

§ 98.05–40 Heating coils.

(a) Coils in which steam or hot water is circulated to heat the cargo so that it may be pumped shall be located outside the cargo tanks.

§ 98.05–45 Void flooding.

(a) A fixed ballast piping system (including a power driven pump of ample capacity), or other means acceptable to the Commandant shall be installed so that any void space surrounding the fixed tanks may be flooded.

§ 98.05–50 General requirements.

(a) All enclosed compartments containing independent cargo tanks and machinery spaces containing cargo pumps for handling liquid phosphorus shall be provided with effective means of ventilation.

(b) Cargo piping shall be of steel or wrought iron. Flanges and pipe fittings shall be of steel or malleable iron. Valves shall be of steel or bronze.

(c) Cargo lines shall be traced with steam piping and secured thereto by lagging to prevent solidification of cargo during transfer operations.

(d) A water hose shall be connected ready for immediate use and any spillage of phosphorus shall be immediately washed down.

(e) At least two fresh air masks or self-contained oxygen breathing apparatus shall be stowed on board the vessel at all times for use of personnel entering the tanks or adjacent spaces.

(f) Authorization from the Commandant (OPL) shall be obtained to transport lading other than phosphorus in the cargo tanks or to have on board any other cargo when phosphorus is laden in the tanks.

(g) Mechanical ventilation of sufficient capacity to insure a change of air every three minutes shall be provided during the inspection and maintenance of the cargo tanks.

(h) During the time elemental phosphorus is laden in the tanks, the barge shall be under constant surveillance. A towing vessel engaged in transporting such barges shall not leave the barge unattended except when the barge is moored at a pier, wharf, dock or other terminal and then only if such facility is provided with watchman or guard service.

(i) The Interstate Commerce Commission standard "Dangerous" placard shall be displayed in four locations on the barge when elemental phosphorus is laden in the tanks. A placard shall be posted approximately amid ships on each side facing outboard, and a placard shall be posted at each end of the barge at about the end of the tanks facing outboard. After unloading and before a tank or tanks are cleaned, the placard shall be reversed to show the "Dangerous—Empty" legend.

(j) While fast to a dock, a vessel during transfer of bulk cargo shall display a red flag by day or a red light by night, which signal shall be so placed that it will be visible on all sides. When at anchor, a vessel during transfer of bulk cargo shall display a red flag by day, which signal shall be so placed that it will be visible on all sides.

[CGFR 58–9, 23 F.R. 4829, June 28, 1958, as amended by CGFR 60–26, 25 F.R. 10634, Nov. 5, 1960]

§ 98.05–55 Electrical bonding.

(a) Independent cargo tanks shall be electrically grounded to the hull. The barge shall be electrically connected to the shore piping prior to connecting the cargo hose. This electrical connection shall be maintained until after the cargo hose has been disconnected and any spillage has been removed.

§ 98.05–60 Tests and inspections.

(a) Each gravity tank shall be tested before being put into service as prescribed in § 98.05–5(c).

(b) Tanks shall be retested as prescribed in § 98.05–5 eight years after being placed into service and at each four-year interval thereafter, as well as before being returned to service after extensive repairs.

Subpart 98.10—Sulfuric Acid in Bulk

§ 98.10–1 General.

(a) Sulfuric acid or spent sulfuric acid may be carried in bulk only in cargo barges, tank barges, or cargo vessels in accordance with the provisions of this subpart.

(b) Any vessel carrying sulfuric acid or spent sulfuric acid in bulk shall be inspected and certificated in accordance with the provisions of this subchapter or Subchapter D (Tank Vessels) of this chapter, as applicable.

§ 98.10–5 How acid may be carried.

(a) Sulfuric acid of concentration of 77.5 percent (1.7019 specific gravity) (59.8° Baume) or greater concentrations with or without an inhibitor, provided the corrosive effect on steel measured at 100° F. is not greater than that of 66° Baume commercial sulfuric acid, may be transported in unlined gravity type cargo tanks or unlined pressure-vessel type cargo tanks.

(b) Sulfuric acid of concentration of 65.25 percent (1.559 specific gravity) (52° Baume) or greater concentrations, provided the corrosive effect on steel measured at 100° F. is not greater than that of 52° Baume commercial sulfuric acid, may be transported in unlined pressure-vessel type cargo tanks independent of the vessel's structure.

(c) Sulfuric acid of concentration not to exceed 65.25 percent (1.559 specific gravity) (52° Baume) may be transported in gravity type cargo tanks or pressure-vessel type cargo tanks which are lined with lead or other equally suitable acid-resistant material acceptable to the Commandant.

(d) Sulfuric acid of concentration not to exceed 51 percent (1.408 specific gravity) (42° Baume) and spent sulfuric acid resulting from the use of sulfuric acid in industrial processes may be transported in gravity type cargo tanks which are lined with rubber or other equally suitable acid-resistant material acceptable to the Commandant.

(e) Spent or sludge sulfuric acid resulting from the use of sulfuric acid in industrial processes may be transported in unlined gravity type cargo tanks or unlined pressure vessel type cargo tanks, provided the corrosive effect on steel is not greater than that of commercial sulfuric acid as prescribed in paragraph (a) of this section.

[CGFR 58–9, 23 F.R. 4829, June 28, 1958, as amended by CGFR 60–36, 25 F.R. 10634, Nov. 5, 1960]

§ 98.10–10 Gravity type cargo tanks.

(a) Gravity type cargo tanks shall be designed and tested to meet the rules of the American Bureau of Shipping for a head of water at least 8 feet above the tank top or the highest level the lading may rise, whichever is the greater. The plate thickness of any part of the tank shall not be less than ⅜ inch. Such tanks may form an integral part of the ship's structure, or may be independent of the ship's structure, or form a part thereof.

(b) Gravity type tanks shall be vented to atmosphere. A vent shall be fitted having a cross-sectional area of not less than that of the filling line unless an ullage opening is provided having a cross-sectional area at least equal to that of the filling line. The minimum size of a cargo tank vent shall be not less than 2½ inches. The outlet end of the vent shall terminate above the weather deck, clear of all obstructions and away from any source of flame. The vent shall terminate in a gooseneck bend and shall be fitted with a single flame screen of at least 30 x 30 mesh; or two screens of at least 20 x 20 mesh, not less than 1 inch nor more than 1½ inches apart. The flame screens shall be corrosion-resistant wire. No shut-off valve or frangible disc shall be fitted in the vent lines.

(c) Compressed air shall not be used to discharge cargo from gravity type cargo tanks.

§ 98.10–15 Pressure-vessel type cargo tanks.

(a) Pressure-vessel type tanks shall be independent of the vessel's structure and shall be designed for the maximum pressure to which they may be subjected when compressed air is used to discharge the cargo, but in no case shall the design pressure be less than 50 pounds per square inch.

(b) Pressure-vessel type cargo tanks shall be designed as Class II or Class III unfired arc-welded cylindrical pressure vessels, inspected and tested as required by Subchapter F (Marine Engineering) of this chapter.

(c) Tanks designed, inspected, and tested as required by Interstate Com-

merce Commission Specification 103A, 103A–W, 103B, or 103B–W will be accepted as pressure-vessel type cargo tanks, provided the maximum pressure to which the tanks may be subjected does not exceed 30 pounds per square inch, and provided that prior to installing such tanks on a barge or cargo vessel, the owner shall furnish the Commandant with a copy of the inspection report certifying that the tanks and appurtenances comply with Interstate Commerce Commission specifications.

(d) When compressed air is used to discharge the cargo, the tank shall be fitted with a vent led to atmosphere in which shall be installed a rupture disc. The rupture disc shall be designed to burst at a pressure not exceeding the design pressure of the tank. An auxiliary vent to relieve the pressure or vacuum in the tank during filling or discharge of the cargo may be led from the vent line between the tank and the rupture disc. A shut-off valve may be fitted in the auxiliary vent.

(e) Except as otherwise specified in this section, the vents shall conform to the requirements of § 98.10–10 (b).

§ 98.10–20 Installation.

(a) Adequate clearance shall be provided for the inspection and maintenance of independent cargo tanks, or such tanks shall be made movable.

§ 98.10–25 Openings in tanks.

(a) Openings in tanks are prohibited below deck, except for access openings used for inspection and maintenance of tanks, or unless otherwise specifically approved by the Commandant. Openings shall be fitted with bolted cover plates and acid-resistant gaskets.

§ 98.10–30 Cargo piping.

(a) Where special arrangements are approved by the Commandant to permit a pump suction to be led from the bottom of the tank, the filling and discharge lines shall be fitted with shut-off valves located above the weather deck or operable therefrom.

§ 98.10–35 Outage.

(a) Sufficient outage shall be provided to prevent the tanks from being liquid full at any time, but in no case shall the outage be less than 1 percent.

§ 98.10–40 Lining.

(a) The interior surfaces of cargo tanks shall be made smooth, welds chipped or ground smooth, and the surfaces thoroughly cleaned before the lining is applied. All interior surfaces of the tanks shall be maintained free from scale, oxidation, moisture and all foreign matter during the lining process.

(b) The material used for lining or coating the tanks shall be resistive to attack by the sulfuric acid to be carried; homogeneous, nonporous, and imperforate when applied; and not less elastic than the metal of the tank proper. It shall be of substantially uniform thickness, not less than $\frac{5}{32}$ inch for lead lining, and not less than $\frac{3}{16}$ inch for rubber lining. The lining shall be directly bonded to the tank plating, or attached by other satisfactory means acceptable to the Commandant.

(c) Rubber lining shall be scarfed at the joints to overlap at least 1½ inches, and the faying surfaces shall be beveled to an angle of approximately 45° with vulcanizing being done in place.

(d) Cargo piping, including valves, fittings, and flanges, when subject to the corrosive attack of the acid, shall be lined or coated with corrosion-resistant material. Vent piping, including flanges and fittings, shall be similarly lined or coated at least to the height of the frangible disc, if such is installed.

§ 98.10–45 General requirements.

(a) All enclosed compartments containing sulfuric acid cargo tanks and all machinery spaces containing cargo pumps for handling sulfuric acid shall be fitted with effective means of ventilation.

(b) Cargo pumps, piping, valves, fittings, and flanges used in the handling of sulfuric acid cargo shall be made of material resistive to attack by the sulfuric acid to be carried, or shall be suitably protected against such corrosive attack.

(c) A separator shall be fitted in compressed air lines to the tank when air pressure is used to discharge the cargo.

(d) The use of naked lights and artificial lights, other than electric lights or portable battery lights, is prohibited during the filling and discharge operations. Smoking is prohibited and the master or officer in charge of the vessel shall post "No Smoking" signs during filling and discharging operations. All tools used in the loading or unloading operations shall be of the nonsparking type. Fire or other naked lights shall not be applied to any tank for the pur-

pose of liquefying congealed sulfuric acid. Heating coils will only be permitted as a means of liquefying frozen or congealed sulfuric acid.

(e) A water hose shall be connected ready for immediate use and any leakage or spillage of acid shall be immediately washed down.

(f) Tanks approved for the transportation of sulfuric acid in bulk shall not be used for the transportation of any other commodity, except upon authorization by the Commandant (OPL).

(g) While fast to a dock, a vessel during transfer of bulk cargo shall display a red flag by day or a red light by night, which signal shall be so placed that it will be visible on all sides. When at anchor, a vessel during transfer of bulk cargo shall display a red flag by day, which signal shall be so placed that it will be visible on all sides.

[CGFR 58–9, 23 F.R. 4829, June 28, 1958, as amended by CGFR 60–36, 25 F.R. 10634, Nov. 5, 1960]

§ 98.10–50 Tests and inspections.

(a) Each gravity type cargo tank shall be tested before being put into service as prescribed in § 98.10–10(a).

(b) Unlined gravity type cargo tanks shall be retested as prescribed in § 98.10–10 (a) eight years after being placed into service and at each four year interval thereafter, as well as before being returned to service after extensive repairs.

(c) Unlined pressure-vessel type cargo tanks shall be subjected to a hydrostatic pressure of one and one-half times the design pressure at any time the marine inspector considers such hydrostatic tests necessary to determine the condition of the tanks.

(d) Each cargo tank shall be subjected to an internal examination at least once in every four years. Where the lining of a cargo tank has deteriorated in service or is not in place, the marine inspector may require such tank to be subjected to the prescribed hydrostatic test if deemed necessary to determine the condition of the tank.

Subpart 98.15—Hydrochloric Acid in Bulk

§ 98.15–1 General.

(a) Hydrochloric acid may be carried in bulk in cargo barges, tank barges, or cargo vessels in accordance with the provisions of this subpart.

(b) Any vessel carrying hydrochloric acid in bulk shall be inspected and certificated in accordance with the provisions of this subchapter or Subchapter D (Tank Vessels) of this chapter as applicable.

§ 98.15–5 How acid may be carried.

(a) Hydrochloric acid shall be carried in gravity or pressure type cargo tanks which are independent of the vessel's structure provided such tanks are lined with rubber or other equally suitable material acceptable to the Commandant.

§ 98.15–10 Gravity type cargo tanks.

(a) Gravity type cargo tanks shall be designed and tested to meet the rules of the American Bureau of Shipping for a head of water at least 8 feet above the tank top or the highest level the lading may rise, whichever is the greater. The plate thickness of any part of the tank shall not be less than ⅜ inch. Such tanks shall be independent of the vessel's structure.

(b) Gravity type tanks shall be vented to atmosphere. A vent shall be fitted having a cross-sectional area of not less than that of the filling line unless an ullage opening is provided having a cross-sectional area at least equal to that of the filling line. The minimum size of a cargo tank vent shall not be less than 2½ inches. The outlet end of the vent shall terminate above the weather deck, clear of all obstructions and away from any source of flame. The vent shall terminate in a gooseneck bend and shall be fitted with a single flame screen of at least 30 x 30 mesh; or two screens of at least 20 x 20 mesh, not less than 1 inch nor more than 1½ inches apart. The flame screens shall be of corrosion-resistant wire. No shut-off valve or frangible disc shall be fitted in the vent lines.

(c) Compressed air shall not be used to discharge cargo from gravity type cargo tanks.

§ 98.15–15 Pressure-vessel type cargo tanks.

(a) Pressure-vessel type cargo tanks shall be independent of the vessel's structure and shall be designed for the maximum pressure to which they may be subjected when compressed air is used to discharge the cargo, but in no case shall the design pressure be less than 50 pounds per square inch.

(b) Pressure-vessel type cargo tanks shall be designed as Class II or Class III unfired arc-welded cylindrical pressure vessels, inspected and tested as required by Subchapter F (Marine Engineering) of this chapter.

(c) Tanks designed, inspected and tested as required by Interstate Commerce Commission Specification 103B or 103B–W will be accepted as pressure-vessel type cargo tanks: *Provided,* That the maximum pressure to which the tanks may be subjected does not exceed 30 pounds per square inch, and: *Provided further,* That prior to installing such tanks on a barge or cargo vessel, the owner shall furnish the Commandant with a copy of the inspection report certifying that the tanks and appurtenances comply with Interstate Commerce Commission specifications.

(d) When compressed air is used to discharge the cargo, the tank shall be fitted with a vent led to atmosphere in which shall be installed a rupture disc. The rupture disc shall be designed to burst at a pressure not exceeding the design pressure of the tank. An auxiliary vent to relieve the pressure or vacuum in the tank during filling or discharge of the cargo may be led from the vent line between the tank and the rupture disc. A shut-off valve may be fitted in the auxiliary vent.

(e) Except as otherwise specified in this section, the vent shall conform to the requirements of § 98.15–10 (b).

§ 98.15–20 Installation.

(a) Adequate clearance shall be provided for the inspection and maintenance of the tanks, or such tanks shall be made movable.

§ 98.15–25 Openings in tanks.

(a) Openings in tanks are prohibited below deck, except for access openings used for inspection and maintenance of tanks, or unless otherwise specifically approved by the Commandant. Openings shall be fitted with bolted cover plates and acid-resistant gaskets.

§ 98.15–30 Cargo piping.

(a) Where special arrangements are approved by the Commandant to permit a pump suction to be lead from the bottom of the tank, the filling and discharge lines shall be fitted with shut-off valves located above the weather deck or operable therefrom.

§ 98.15–35 Outage.

(a) Sufficient outage shall be provided to prevent the tanks from being liquid full at any time, but in no case shall the outage be less than 1 percent.

§ 98.15–40 Lining.

(a) The interior surfaces of cargo tanks shall be made smooth, welds chipped or ground smooth, and the surfaces thoroughly cleaned before the lining is applied. All interior surfaces of the tanks shall be maintained free from scale, oxidation, moisture and all foreign matter during the lining process.

(b) The rubber or other approved lining material shall be resistive to attack by hydrochloric acid; homogeneous, nonporous, and imperforate when applied; and not less elastic than the metal of the tank proper. It shall be of substantially uniform thickness, not less than ¼ inch for rubber lining. The lining shall be directly bonded to the tank plating, or attached by other satisfactory means acceptable to the Commandant.

(c) Rubber lining shall be scarfed at the joints to overlap at least 1½ inches, and the faying surfaces shall be beveled to an angle of approximately 45 degrees with vulcanizing being done in place.

(d) Cargo piping, including valves, fittings, and flanges, when subject to the corrosive attack of the acid, shall be rubber-lined or coated with other corrosion-resistant material. Vent piping, including flanges and fittings, shall be similarly lined or coated at least to the height of the frangible disc if such is installed.

§ 98.15–45 General requirements.

(a) All enclosed compartments containing hydrochloric acid cargo tanks and all machinery spaces containing cargo pumps for handling hydrochloric acid shall be fitted with effective means of ventilation.

(b) Cargo pumps, piping, valves, fittings, and flanges used in the handling of hydrochloric acid cargo shall be made of material resistive to attack by hydrochloric acid, or shall be suitably protected against such corrosive attack.

(c) A separator shall be fitted in compressed air lines to the tank when air pressure is used to discharge the cargo.

(d) The use of naked lights and artificial lights, other than electric lights or portable battery lights, is prohibited during the filling and discharging opera-

tions. Smoking is prohibited and the master or officer in charge of the vessel shall post "No Smoking" signs during filling and discharging operations. All tools used in the loading or unloading operations shall be of the nonsparking type.

(e) A water hose shall be connected ready for immediate use and any leakage or spillage of acid shall be immediately washed down.

(f) Tanks approved for the transportation of hydrochloric acid shall not be used for the transportation of any other commodity, except upon authorization by the Commandant (OPL).

(g) Spent hydrochloric acid or hydrochloric acid adulterated by other chemicals, inhibitors, oils, solvents, water, etc., shall not be transported in bulk cargo tanks except upon authorization by the Commandant (OPL).

(h) While fast to a dock, a vessel during transfer of bulk cargo shall display a red flag by day or a red light by night, which signal shall be so placed that it will be visible on all sides. When at anchor, a vessel during transfer of bulk cargo shall display a red flag by day, which signal shall be so placed that it will be visible on all sides.

[CGFR 58-9, 23 F.R. 4829, June 28, 1958, as amended by CGFR 60-36, 25 F.R. 10634, Nov. 5, 1960]

§ 98.15-50 Tests and inspections.

(a) Each gravity type cargo tank shall be tested before being placed into service as prescribed in § 98.15-10(a).

(b) Each cargo tank shall be subjected to an internal examination at least once in every four years. Where the lining of the cargo tank has deteriorated in service or is not in place, the marine inspector may require such tank to be subjected to the prescribed hydrostatic test if deemed necessary to determine the condition of the tanks.

Subpart 98.20—Liquid Chlorine in Bulk

§ 98.20-1 General.

(a) Liquid chlorine may be carried in bulk in steel tank barges or steel cargo barges in accordance with the provisions of this subpart.

(b) Any barge carrying liquid chlorine in bulk shall be inspected and certificated in accordance with the provisions of this subchapter or Subchapter D (Tank Vessels) of this chapter, as applicable.

§ 98.20-5 How liquid chlorine may be carried.

(a) Liquid chlorine shall be carried in unfired pressure vessel type tanks independent of the structure of the vessel.

§ 98.20-10 Design and construction of cargo tanks.

(a) The cargo tanks shall meet the requirements of Class I arc-welded unfired pressure vessels and shall be fabricated, inspected and tested in accordance with the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(b) Tanks shall be designed for a pressure of not less than 300 pounds per square inch. For the maximum allowable pressure of tanks in service see § 98.20-75 (c).

(c) Each tank shall be provided with 15 x 18-inch or 18-inch minimum diameter manhole, fitted with a cover located above the maximum liquid level and as close as possible to the top of the tank.

§ 98.20-15 Markings.

(a) Upon satisfactory completion of tests and inspection, the following markings at least ⅜ inch high shall be stamped into a noncorrodible plate permanently attached to the tank by welding.

(Name and address of fabricator)

---- p. s. i. ---- p. s. i.
(Design pressure) (Shop test pressure)

(Inspector's number, initials and CG symbol)

(Manufacturer's serial number)

---- ---- U. S. gallons
(Date of manufacture) (Water capacity)

(b) In addition to the markings required to be stamped on the tank, the legend "chlorine" shall be conspicuously and legibly marked upon the dome or upper portion of the tank in letters at least 4 inches high.

(c) All tank inlet and outlet connections, except safety relief valves shall be labeled to designate whether they terminate in the vapor or liquid space. Labels of noncorrodible material may be attached to the valves.

(d) All tank markings shall be permanently and legibly stamped in a readlly visible position.

§ 98.20–20 Installation of cargo tanks.

(a) Independent tanks shall be arranged in the barge so as to provide a minimum clearance of not less than 24 inches from the barge side and not less than 15 inches from the barge bottom. Where more than one tank is installed in a barge, the distance between such tanks shall not be less than 15 inches, unless otherwise approved by the Commandant. Alternate provisions may be made for moving such tanks to provide for adequate inspection and maintenance of barge structure and the tanks.

(b) The design shall show the manner in which the tanks are to be installed, supported, and secured on board the barge and shall be approved prior to the installation. Tanks shall be supported in steel saddles and securely anchored in place. No appendages shall be welded to the tanks after they have been stress-relieved unless authorized by the Commandant.

(c) Tanks may be installed "on deck" or "under deck" with the tank protruding above deck. On installations where a portion of the tank extends above the weather deck, provision shall be made to maintain the weather tightness of the deck, except that barges operating on protected inland waters may have tanks located in the holds of hopper type barges without water-tightness of the deck being maintained. All tanks shall be installed with the manhole opening and fittings located above the weather deck.

(d) The hold or holds in which tanks are located "under deck" shall be provided with mechanical ventilation of sufficient capacity to assure a change of air every 3 minutes.

§ 98.20–25 Cargo tanks on barges.

(a) Sides of tank barges shall be fitted with suitable guards as added precaution against the cargo tanks being damaged as a result of collision.

§ 98.20–30 Valves, fittings, and accessories.

(a) All valves, flanges, fittings and accessory equipment shall be of a type suitable for use with chlorine and shall be made of forged steel, cast steel, or nonferrous metal corrosion resistant to chlorine in either the gas or liquid phase. Valves, flanges and fittings shall be of the square or round tongue and groove type or of raised face, American Standard Association 300-pound standard minimum, fitted with sheet lead or other suitable gasket material. Welding fittings shall be used wherever possible, and the number of pipe joints held to a minimum. Screwed joints in cargo lines and vapor lines are prohibited in sizes above 1 inch.

(b) Each tank shall be provided with the necessary fill and discharge liquid and vapor shut-off valves, and safety relief valves, which shall be grouped in the smallest practicable space and shall be protected against mechanical damage by a suitable protective metal housing. Other openings in tanks are prohibited. A drain connection shall be provided from the protective housing and led overboard just above deepest load line.

(c) All liquid and vapor connections to the tanks, except safety relief valves, shall have manually operated shut-off valves located as close to the tank as practicable.

(d) Excess flow valves, where required by this subpart, shall close automatically at the rated flows of vapor or liquid as specified by the manufacturer. The piping, including valves, fittings, and appurtenances, protected by excess flow valves shall have a greater capacity than the rated flow of the excess flow valve.

(e) Liquid level gaging devices of any type are prohibited on chlorine tanks.

(f) A pressure gage shall be attached to the vapor shut-off valve or vapor line so as to indicate the pressure in the tank at all times during loading and unloading.

(g) Excess flow valves shall be located on the inside of the tank. Back pressure check valves may be located on the inside of the tank or on the outside where the piping enters the tank. When installed on the outside, installation shall be in such a manner that any undue strain will not cause breakage between the tank and the back pressure check valve.

(h) Excess flow valves may be designed with a bypass, not to exceed No. 60 drill size opening, to allow for equalization of pressure.

§ 98.20–35 Filling and discharge pipes.

(a) Filling connections shall be provided with one of the following:

(1) Combination back pressure check valve and excess flow valve;

(2) One double or two single back pressure check valves; or

(3) A positive shut-off valve in conjunction with either an internal back pressure check valve or an internal excess flow valve.

(b) All other liquid and vapor connections to tanks, except filling connections and safety relief valves, shall be equipped with automatic excess flow valves.

§ 98.20–40 Cargo piping.

(a) Piping shall be of seamless drawn black steel of a thickness of not less than schedule 80.

(b) Piping shall be provided with adequate support to take the weight of the piping off the valves and fittings. Where necessary, provision shall be made for expansion and contraction of piping by means of seamless steel pipe expansion bends. Slip-type expansion joints are prohibited.

(c) In multiple tank installations the tanks shall not be interconnected by piping or manifolds. More than one cargo tank may be filled or discharged at a time, provided each tank is filled from or discharged to shore tanks through separate lines.

§ 98.20–45 Safety relief valves.

(a) Each tank shall be fitted with one or more approved safety relief valves, designed, constructed, and flow tested for capacity in conformance with Subpart 162.018 in Subchapter Q (Specifications) of this chapter. The safety valve requirements in this section are based on unlagged tanks. On lagged tanks, the Commandant will give special consideration to safety valves proposed to be used.

(b) Each safety relief valve shall be set to pop at a pressure not in excess of the maximum allowable pressure of the tank and shall be vapor tight at a pressure of not less than 80 percent of the maximum allowable pressure.

(c) The safety relief valve(s) shall have a relieving capacity sufficient to prevent a rise of pressure in the tank of more than 20 percent above the maximum allowable pressure when the safety relief valve(s) are blowing.

(d) The minimum rates of discharge of safety relief valves used on unlagged tanks shall be not less than determined by the following formula:

$$Q=53.526A^{0.82} \qquad (1)$$

where:

Q = minimum required rate of discharge, in cubic feet per minute, of standard air at 120 percent of the maximum set pressure of the safety relief valve. Discharge measured at 60° F. and atmospheric pressure (14.7 p. s. i. a.).

A = total external surface area of the tank, in square feet. $\pi(D\times U)$, for cylindrical tank with hemispherical heads. $\pi D(U+0.3D)$, for cylindrical tank with spherically dished or semi-ellipsoidal heads. πD^2, for spherical tank.

D = outside diameter of the tank, in feet.

U = external overall length of the tank, in feet.

(e) Safety relief valve(s) shall be attached to the tank near the highest point of the vapor space. Shut-off valves shall not be installed between the tanks and the safety relief valve(s).

(f) Each safety relief valve shall be tested in the presence of an inspector before or after mounting prior to being placed in service. The test shall prove that the safety valve will start to discharge at a pressure not in excess of the maximum allowable pressure of the tank. (For periodic tests see § 98.20–75 (c).)

§ 98.20–50 Filling density.

(a) The filling density, or the percent ratio of the liquefied gas that may be loaded into the tank to the weight of water the tank will hold at 60° F., shall not exceed 125 percent.

§ 98.20–55 Venting.

(a) Cargo tanks of tank barges shall have the safety relief valve outlets connected to individual or common risers which shall extend to a reasonable height above the deck, or, the safety relief valve escape may be led to a common discharge header. Where the escape of vapors from the venting system may interfere with towing operations or the operation of the barge in inland waters would be a hazard to installations extending above deck, an installation acceptable to the Commandant may be used. This arrangement shall be such as to minimize the hazard of escaping vapors.

(b) The capacity of branch vents or vent headers shall depend upon the number of cargo tanks connected to such branch or header as provided in Table 98.20–55 (b).

TABLE 98.20-55 (b)—CAPACITY OF BRANCH VENTS OR VENT HEADERS

Number cargo tanks:	*Percent total valve discharge*
1 or 2	100
3	90
4	80
5	70
6 or more	60

(c) Return bends and restrictive pipe fittings are prohibited. Vents and headers shall be so installed as to prevent stresses on safety relief valve mountings.

(d) When vent discharge risers are installed, they shall be so located as to provide protection against physical damage and be fitted with loose raincaps.

(e) Suitable provision shall be made for draining the vent escape piping if liquid can collect therein.

§ 98.20-60 Filling and discharge operation.

(a) The maximum amount of liquid chlorine that may be loaded into the cargo tanks shall be determined by weight and shall not exceed the filling density specified in § 98.20-50. Any chlorine vapors vented during the filling operation shall be disregarded when calculating the maximum amount of chlorine to be loaded into the cargo tanks.

(b) Prior to the start of filling operations, care shall be exercised to insure that the cargo tank(s) is empty and free from foreign matter. After all pipe connections and fittings are made tight, the cargo tank(s) shall be evacuated to at least 20 inches of mercury.

(c) The chlorine shall be loaded through a direct pipe line from the shore tank that is mounted on scales so that an amount of chlorine predetermined by weight is loaded into the cargo tank(s) on board the barge.

(d) After the filling operation is completed the vapor above the liquid chlorine in the cargo tank shall be analyzed to determine the percentage of gaseous chlorine in the vapor space. If it should contain less than 80 percent chlorine, vapors shall be withdrawn through the vent or vapor line until the vapor content in the cargo tanks show at least 80 percent chlorine.

(e) After filling connections are removed, upon completion of the loading of a cargo tank, all connections at the tank shall be tested for leakage of chlorine by the aqua ammonia method.

(f) The chlorine in the cargo tanks shall be discharged by the pressure differential method. Where the vapor pressure of the chlorine is not sufficient to force the liquid out of the tank, compressed air may be used to secure the desired rate of discharge, provided the air is oil-free and thoroughly dried by passing it over activated aluminum oxide, silica gel, or other acceptable drying agent. The compressed air system shall contain a relief valve arranged and set so that the air pressure in the cargo tank cannot exceed 70 percent of the allowable pressure of the tank.

(g) After completion of the filling or discharge operations, the excess liquid chlorine in the cargo piping shall be removed. The filling and discharge piping shall be disconnected at the cargo tanks, except during filling and discharge operations. After disconnecting the cargo piping, both ends of the line shall be closed and all inlet and outlet valves on the tank shall be plugged or fitted with blind flanges.

(h) Plans showing alternate methods of filling and discharging the lading may be submitted for approval.

§ 98.20-65 Cargo hose.

(a) Cargo hose fabricated of Schedule 80 seamless black steel pipe, or corrosion resistant metallic pipe not subject to deterioration by chlorine, having metallic flexible joints, or other types of flexible metallic hose acceptable to the Commandant, shall be fitted to the liquid or vapor lines during filling and discharging of the cargo tanks.

(b) Cargo hose subject to tank pressure shall be designed for a bursting pressure of not less than five times the maximum safety relief valve setting of the tanks.

(c) Before being placed in service, each new cargo hose, with all necessary fittings attached, shall be hydrostatically tested by the manufacturer to a pressure of not less than twice the maximum pressure to which it may be subjected in service. The hose shall be marked with the maximum pressure guaranteed by the manufacturer.

§ 98.20-70 Special operating requirements.

(a)(1) Repairs involving welding or burning shall not be undertaken on the

cargo tanks or piping while chlorine in either the liquid or vapor state is present in the system.

(2) Other repairs involving welding or burning equipment may be undertaken on the chlorine barge provided a positive pressure is maintained on the tanks by the vapors remaining after the cargo has been discharged.

(b) During the time chlorine is laden in the tanks the barge shall be under constant surveillance. A towing vessel engaged in towing such barges shall not leave the barge unattended except when the barge is moored at a pier, wharf, dock, or other terminal, and then only if such facility is provided with watchman or guard service. When the barge is at the consignor's or consignee's terminal, watchman or guard service shall be provided by said consignor or consignee.

(c) The Interstate Commerce Commission's standard "Dangerous" placard shall be displayed in four locations on the barge when chlorine is laden in the tanks. A placard shall be posted approximately amidships on each side and facing outboard. A placard shall also be posted on each end of the barge at about the ends of the tanks facing outboard. Racks for mounting such placards shall be so arranged as to provide clear visibility and be protected from becoming readily damaged or obscured. After unloading and before a tank or tanks are gas-freed, the placard shall be reversed to show the "Dangerous—Empty" legend.

(d) At least two units of self-contained oxygen breathing apparatus shall be carried on board the barge at all times. One unit shall be stowed forward of the cargo tanks and one unit aft of the cargo tanks.

(e) Unless authorized by the Commandant (OPL), no other kind of cargo except liquid caustic soda shall be on board a barge at the same time that chlorine in liquid or vapor state is present in a cargo tank. Chlorine tanks shall not be installed within caustic soda tanks.

(f) Authorization from the Commandant (OPL) shall be obtained to transport lading other than chlorine in tanks of this service.

(g) While fast to a dock, a vessel during transfer of bulk cargo shall display a red flag by day or a red light by night, which signal shall be so placed that it will be visible on all sides. When at anchor, a vessel during transfer of bulk cargo shall display a red flag by day, which signal shall be so placed that it will be visible on all sides.

[CGFR 58–9, 23 F.R. 4829, June 28, 1958, as amended by CGFR 60–36, 25 F.R. 10634, Nov. 5, 1958]

§ 98.20–75 Tests and inspections.

(a) Each cargo tank shall be subjected to an internal and external examination biennially.

(b) Each cargo tank shall be subjected to hydrostatic test biennially of one and one-half times the maximum allowable pressure as determined by the safety relief valve setting.

(c) When periodic inspection indicates that a cargo tank has deteriorated in service, the maximum allowable pressure shall be recalculated, using the minimum thickness found by actual measurement. The recalculated maximum allowable pressure shall be not less than 275 pounds per square inch; otherwise, the cargo tanks shall be withdrawn from service.

(d) The safety relief valves shall be popped in the presence of an inspector by use of water, compressed air, or inert compressed gas at the time of the biennial inspection, or at such time as may be required by the inspector to determine the accuracy of adjustment; and, if necessary, such valves shall be repaired and reset.

§ 98.20–80 Stores on board.

(a) The following substances shall not be used as stores on board barges transporting chlorine in bulk: Hydrogen, methane, liquefied petroleum gases, coal gas, acetylene, ammonia, turpentine, compounds containing metallic powders, finely divided metals or finely divided organic materials.

Subpart 98.25—Anhydrous Ammonia in Bulk

§ 98.25–1 General.

(a) Anhydrous ammonia may be carried in bulk in cargo barges, tank barges, or cargo vessels in accordance with the provisions of this subpart.

(b) Any vessel carrying anhydrous ammonia in bulk shall be inspected and certificated in accordance with the provisions of this subchapter or Subchapter D (Tank Vessels) of this chapter as applicable.

§ 98.25–5 How anhydrous ammonia may he carricd.

(a) Anhydrous ammonia shall be carried in unfired pressure vessel type tanks independent of the structure as detailed in this part, except as otherwise provided in paragraph (b) of this section.

(b) When anhydrous ammonia is to be transported at its boiling temperature at or near atmospheric pressure, the Commandant may permit the use of alternate methods of storage if it is shown to his satisfaction that a degree of safety is obtained consistent with the minimum requirements of this subpart.

[CGFR 61–15, 26 F.R. 9293, Sept. 30, 1961]

§ 98.25–10 Design and construction of cargo tanks.

(a) The cargo tanks shall meet the requirements for Class I or Class II arc-welded unfired pressure vessels and shall be fabricated, inspected and tested in accordance with the applicable requirements of Subchapter F (Marine Engineering) of this chapter.

(b) Unlagged cargo tanks subject to atmospheric temperatures shall be designed for a pressure of not less than 250 pounds per square inch gage.

(c) Where unrefrigerated cargo tanks are lagged as required by §§ 98.25–30 and 98.25–60, the tanks shall be designed for a pressure of not less than 215 pounds per square inch gage.

(d) Refrigerated cargo tanks, in which the temperature of the liquid ammonia is maintained below the normal atmospheric temperatures, shall be designed for a pressure of not less than the vapor pressure corresponding to the temperature of the liquid at which the system is to be maintained, plus 25 pounds per square inch gage.

(e) Each tank shall be provided with not less than a 15" x 18" diameter manhole, fitted with a cover located above the maximum liquid level and as close as possible to the top of the tank. Where access trunks are fitted to tanks, the diameter of the trunks shall be not less than 30 inches.

(R.S. 4417, as amended, 4418, as amended, 4426, as amended, 4453, as amended, 4488, as amended, secs. 1, 2, 49 Stat. 1544, as amended; 46 U.S.C. 391, 392, 404, 435, 481, 367) [CGFR 58–9, 23 F.R. 4829, June 28, 1958, as amended by CGFR 61–15, 26 F.R. 9293, Sept. 30, 1961]

§ 98.25–15 Markings.

(a) Upon satisfactory completion of tests and inspection, the following marking, at least ⅜ inch high, shall be stamped into a noncorrodible nameplate permanently attached to the tank by means of welding.

(Name and address of fabricator)

---------- p. s. i. ---------- p. s. i.
(Design pressure) (Shop test pressure)

(Manufacturer's serial number)

---------- U. S. gallons
(Water capacity)

(Date of manufacture)

(b) In addition to the markings required to be stamped on the tank, the legend, "Anhydrous Ammonia" shall be conspicuously and legibly marked upon the dome or upper portion of the tank in letters at least 4 inches high.

(c) All tank inlet and outlet connections, except safety relief valves, liquid level gaging devices, and pressure gages shall be labeled to designate whether they terminate in the vapor or liquid space. Labels of noncorrosive material may be attached to valves.

(d) All tank markings shall be permanently and legibly stamped in a readily visible position. If the tanks are lagged, the markings attached to the tank proper shall be duplicated on a corrosion resistant plate secured to the outside jacket of the lagging.

§ 98.25–20 Installation of cargo tanks.

(a) Independent tanks shall be arranged in the barge or vessel so as to provide a minimum clearance of not less than 24 inches from the vessel's side and not less than 15 inches from the vessel's bottom. Where more than one tank is installed in a vessel, the distance between such tanks shall be not less than 15 inches, unless otherwise approved by the Commandant. Alternate provisions may be made for moving such tanks to provide for adequate inspection and maintenance of the vessel's structure and the tanks.

(b) The design shall show the manner in which the tanks are to be installed, supported, and secured in the barge or vessel and shall be approved prior to installation. Tanks shall be supported in steel saddles and securely anchored in place. If the tanks are required to be stress-relieved no appendages shall be welded to the tanks after they have been stress-relieved unless authorized by the Commandant.

(c) Tanks may be located in dry cargo holds or in liquid cargo tanks or may be installed "on deck" or "under deck" with the tank protruding above deck. On installations where a portion of the tank extends above the weather deck, provision shall be made to maintain the weathertightness of the deck, except that vessels operating on protected inland waters may have tanks located in the holds of hopper type barges without the watertightness of the deck being maintained. All tanks shall be installed with the manhole opening and fittings located above the weather deck.

(d) The anhydrous ammonia tanks may be installed in the bulk liquid cargo tanks provided the liquid surrounding the enclosed anhydrous ammonia tanks complies with the following chemical and physical properties:

(1) Boiling point above 125° F. at atmospheric pressure.

(2) Inert to ammonia at 100° F. at atmospheric pressure.

(3) Noncorrosive in the liquid and vapor phase to the ammonia tanks and piping.

§ 98.25-25 Cargo tank barges.

(a) Tanks having a cargo capacity of not more than 60,000 gallons may form part of the structure of a barge where adequate provision is made to prevent damage to tanks in the event of collision or grounding.

(b) Sides of tank barges shall be fitted with suitable guards as an added precaution against the cargo tanks being damaged as a result of collision.

§ 98.25-30 Lagging.

(a) Lagged tanks shall be covered with an incombustible insulation material of a thickness to provide a thermal conductance of not more than 0.075 B.t.u. per square foot per degree F. differential in temperature per hour. The insulating material shall be of an approved type complying with the requirements of Subpart 164.009 of Subchapter Q (Specifications) of this chapter, and shall be given a vapor proof coating with fire retardant material acceptable to the Commandant. Tanks exposed to the weather shall have the insulation and vapor proof coating covered with a removable sheet metal jacket of not less than 0.083 inch thickness and flashed around all openings so as to be weather tight. Materials other than sheet metal may be used to cover the insulation and vapor proof coating when specifically authorized by the Commandant.

(b) Where unlagged tanks are installed in insulated holds or insulated 'tween deck spaces, such tanks shall be considered lagged provided the thermal conductance of the insulation is not less than that required by paragraph (a) of this section.

§ 98.25-35 Refrigerated systems.

(a) Where refrigerated systems are installed to maintain the temperature of the liquid below atmospheric, at least two complete refrigeration plants automatically regulated by pressure variations within the tanks shall be provided, each to be complete with the necessary auxiliaries for proper operation. The capacity of each refrigeration compressor shall be sufficient to maintain the vapor pressure in the tanks during the peak atmospheric temperature conditions below the pressure for which the tanks are designed.

(b) An alternate arrangement may consist of three compressors, any two of which shall be capable of maintaining the vapor pressure in the tanks during peak atmospheric temperature conditions below the pressure for which the tanks are designed, the third compressor acting as a stand-by unit.

(c) Refrigerated tanks shall be insulated in conformance with the requirements of § 98.25-30.

§ 98.25-40 Valves, fittings, and accessories.

(a) All valves, flanges, fittings, and accessory equipment shall be of a type suitable for use with anhydrous ammonia and shall be made of steel, Grade A malleable iron or nodular iron conforming to the requirements of Part 51 of Subchapter F (Marine Engineering) of this chapter. Valves shall be fitted with non-corrosive material suitable for ammonia service. Valves, flanges and pipe fittings shall be of the square or round tongue and groove type or raised-face, American Standard Association 300-pound standard minimum, fitted with suitable soft gasket material. Welded fittings shall be used wherever possible and the number of pipe joints shall be held to a minimum. Screwed joints are not permitted for pipe diameters exceeding two inches. Nonferrous materials, such as copper, copper alloys and aluminum alloys shall not be used

in the construction of valves, fittings or accessory equipment. Brazed joints are prohibited.

(b) Each tank shall be provided with the necessary fill and discharge liquid and vapor shut-off valves, safety relief valves, liquid level gaging devices, thermometer well and pressure gage, and shall be provided with suitable access for convenient operation. Connections to tanks installed below the weather deck shall be made to a trunk or dome extending above the weather deck. have all pipe connections attached to Tanks installed on hopper barges shall the top of the tanks. Connections to the tanks shall be protected against mechanical damage and tampering. Other openings in the tanks, except as specifically permitted by this part, are prohibited.

(c) All connections to the tanks, except safety devices and liquid level gaging devices, shall have manually operated shut-off valves located as close to the tank as possible.

(d) Excess flow valves where required by this section shall close automatically at the rated flow of vapor or liquid as specified by the manufacturer. The piping, including valves, fittings and appurtenances, protected by an excess flow valve, shall have a greater capacity than the rated flow of the excess flow valve.

(e) Liquid level gaging devices which are so constructed that cutward flow of tank contents shall not exceed that passed by a No. 54 drill size opening, need not be equipped with excess flow valves.

(f) Pressure gage connections need not be equipped with excess flow valves if the openings are not larger than No. 54 drill size.

(g) Excess flow valves may be designed with a bypass, not to exceed a No. 60 drill size opening, to allow equalization of pressure.

(h) Prior to disconnecting shore lines, the pressure in the liquid and vapor lines shall be relieved through suitable valves installed at the loading header.

(i) Relief valves shall be fitted in liquid lines which may be subject to excessive pressure caused by liquid full condition, and the escape from the relief valves shall be piped to the venting system.

(j) The pressure gage shall be located at the highest practical point. The thermometer well shall terminate in the liquid space and be attached to the shell by welding with the end of the fitting being provided with a gas-tight screwed plug or bolted cover.

[CGFR 58-9, 23 F.R. 4829, June 28, 1958, as amended by CGFR 60-36, 25 F.R. 10635, Nov. 5, 1950]

§ 98.25-45 Liquid level gaging device.

(a) Each tank shall be fitted with a liquid level gaging device of suitable design to indicate the maximum level to which the tank may be filled with liquid at temperatures between 20° F. and 130° F.

(b) Liquid level gaging devices shall be of the following types: magnetic, rotary tube, slip tube, fixed tube, automatic float, or other types acceptable to the Commandant.

(c) Gaging devices that require bleeding of the product to the atmosphere, such as rotary tube, fixed tube, and slip tube, shall be so designed that the bleed valve maximum opening is not larger than a No. 54 drill size, unless provided with an excess flow valve.

(d) Gaging devices shall have a design pressure of at least 250 pounds per square inch.

(e) Gage glasses of the columnar type are prohibited.

§ 98.25-50 Filling and discharge pipes.

(a) Filling connections shall be provided with one of the following:

(1) Combination back pressure check valve and excess flow valve;

(2) One double or two single back pressure check valves; or

(3) A positive shut-off valve in conjunction with either an internal back pressure check valve or an internal excess flow valve.

(b) All other liquid and vapor connections to tanks, except filling connections, safety relief valves, and liquid level gaging devices and pressure gages described in § 98.25-40 (e) and (f) shall be equipped with automatic excess flow valves; or in lieu thereof, may be fitted with quick closing internal stop valves, which, except during filling and discharge operations, shall remain closed. The control mechanism for such vaives shall be provided with a secondary remote control of a type acceptable to the Commandant.

(c) The excess flow, internal stop or back pressure check valves shall be located on the inside of the tank or outside where the piping enters the tank. In the latter case, installation shall be made in

such a manner that any undue strain will not cause breakage between the tank and the excess flow or internal stop valve.

(d) Where the filling and discharge are made through a common nozzle at the tank, and the connection is fitted with a quick-closing internal stop valve as permitted in paragraph (b) of this section, the back pressure check valve or excess flow valve is not required, provided, however, a positive shut-off valve is installed in conjunction with the internal stop valve.

(e) On tanks installed in barges operating on protected inland waters the suction may be taken from the bottom of the tank provided requirements as follows are met:

(1) A manually operated shut-off valve is attached to the outlet nozzle and a remotely operated internal stop valve is fitted inside the tank.

(2) The remotely controlled valve shall be operable from control stations located at each end of the barge so that the remotely controlled valve on any tank can be closed from either station.

§ 98.25–55 Cargo piping.

(a) Piping shall be of seamless drawn black steel of thickness not less than Schedule 40. In case of piping on the discharge side of the liquid pumps or vapor compressors, the design shall be for a pressure of not less than the pump or compressor relief valve setting; or if the piping is not fitted with relief valves, the design pressure shall not be less than the total discharge head of the pump or compressor.

(b) Where necessary, provision shall be made for expansion and contraction of piping by means of seamless steel pipe expansion bends. Special consideration will be given for packless type expansion joints. Slip type expansion joints are prohibited. Piping shall be provided with adequate support to take the weight of the piping off the valves and fittings.

§ 98.25–60 Safety relief valves.

(a) Each tank shall be fitted with two or more approved safety relief valves, designed, constructed and flow-tested for capacity in conformance with Subpart 162.018 of Subchapter Q (Specifications) of this chapter.

(b) Each safety relief valve shall start to discharge at a pressure not in excess of the design pressure of the tank.

(c) The safety relief valves shall have a combined relieving capacity sufficient to prevent a rise of pressure in the tank of more than 20 percent above the maximum allowable pressure when all the safety relief valves are blowing.

(d) (1) The minimum rates of discharge of safety relief valves for uninsulated tanks shall be not less than that determined by the following formula:

$$Q=21.633A^{0.82} \qquad (1)$$

where:

Q = minimum required rate of discharge, in cubic feet per minute of standard air at 120 percent of the maximum set pressure of the safety relief valve. Discharge measured at 60° F. and atmospheric pressure (14.7 p.s.i.a.).

A = total external surface area of the tank, in square feet.

$=\pi(D\times U)$ for cylindrical tanks with hemispherical heads.

$=\pi D(U+0.3D)$ for cylindrical tanks with spherically dished or semi-ellipsoidal heads.

$U=\pi D^2$ for spherical tanks.

D = outside diameter of the tanks, in feet.

U = external overall length of the tank, in feet.

(2) The minimum rate of discharge of safety relief valves for lagged tanks insulated in conformance with § 98.25–30 need only be 50 percent of the capacity required for uninsulated tanks.

(e) Safety relief valves shall be attached to the tank near the highest point of the vapor space. Shut-off valves shall not be installed between the tanks and the safety relief valves, except manifolds for mounting multiple safety relief valves may be fitted with acceptable interlocking 3-way valves so arranged at all times as to permit at any position of the 3-way valve, an unrestricted flow of vapors through at least one port. When two safety relief valves are mounted in parallel on both the upper outlets of the 3-way valve, the arrangement shall be such as to permit at least one safety relief valve to be operative at all times.

(f) Each safety valve shall be tested in the presence of an inspector at the site of installation before or after mounting prior to being placed in service. The tests shall prove that the safety relief valve will start to discharge at a pressure not in excess of the maximum allowable pressure of the tank.

§ 98.25–65 Filling density.

(a) The filling density, or the percent ratio of the liquefied gas that may be loaded in the tank to the weight of the water the tank will hold at 60° F., shall

not exceed 56 percent for unlagged tanks and 58 percent for lagged or refrigerated tanks.

§ 98.25-70 Venting.

(a) Except as provided in paragraph (b) of this section, each safety valve installed on a cargo tank shall be connected to a branch vent of a venting system which shall be constructed so that the discharge of gas will be directed vertically upward to a point at least 10 feet above the weather deck or the top of any tank or house located above the weather deck.

(b) Safety valves on cargo tanks in barges may be connected to individual or common risers which shall extend to a reasonable height above the deck. Where the escape of vapors from the venting system may interfere with towing operations, the installation shall be acceptable to the Commandant and the arrangement shall be such as to minimize the hazard of escaping vapors. Arrangements specially provided for venting cargo tanks forming part of the hull on unmanned barges will be given special consideration by the Commandant.

(c) The capacity of branch vents or vent headers shall depend upon the number of cargo tanks connected to such branch or header as provided in Table 98.25-70 (c).

TABLE 98.25-70 (c)—CAPACITY OF BRANCH VENTS OR VENT HEADERS

Number of cargo tanks:	*Percent of total valve discharge*
1 or 2	100
3	90
4	80
5	70
6 or more	60

(d) In addition to the requirement specified in paragraph (c) of this section, the size of the branch vents or vent headers shall be such that the back pressure in relief valve discharge lines shall not be more than 10 percent of the safety relief valve setting.

(e) Return bends and restrictive pipe fittings are prohibited. Vents and headers shall be so installed as to prevent stresses on safety relief valve mountings.

(f) When vent discharge risers are installed, they shall be so located as to provide protection against physical damage and be fitted with loose raincaps.

(g) No shut-off valve shall be fitted in the venting system between the safety relief valve and the vent outlets. Suitable provision shall be made for draining the venting system if liquid can collect therein.

§ 98.25-75 Ventilation.

(a) All enclosed spaces containing cargo tanks fitted with bottom outlet connections shall be provided with mechanical ventilation of sufficient capacity to assure a change of air every 3 minutes. Where cargo tanks are fitted with top outlet connections, the enclosed spaces containing such tanks shall be fitted with efficient natural or mechanical ventilation.

(b) Enclosed compartments in which machinery such as cargo pumps or vapor compressors are located shall be adequately ventilated.

§ 98.25-80 Cargo hose.

(a) Cargo hose fabricated of seamless steel pipe with swivel joints, wire braided armored rubber or other hose material acceptable to the Commandant, shall be fitted to the liquid or vapor lines during filling and discharging of the cargo tanks.

(b) Hose subject to tank pressure shall be designed for a bursting pressure of not less than five times the maximum safety relief valve setting of the tank.

(c) Hose subject to discharge pressure of pumps or vapor compressors shall be designed for a bursting pressure of not less than five times the pressure setting of the pump or compressor relief valve.

(d) Before being placed in service, each new cargo hose, with all necessary fittings attached, shall be hydrostatically tested by the manufacturer to a pressure of not less than twice the maximum pressure to which it may be subjected in service. The hose shall be marked with the maximum pressure guaranteed by the manufacturer.

§ 98.25-85 Electrical bonding.

(a) Each cargo tank shall be electrically grounded to the hull. The cargo barge or vessel shall be electrically connected to the shore piping prior to connecting the cargo hose. This electrical connection shall be maintained until after the cargo hose has been disconnected and any spillage has been removed.

§ 98.25-90 Special operating requirements.

(a)(1) Repairs involving welding or burning shall not be undertaken on the

cargo tanks or piping while anhydrous ammonia in either the liquid or vapor state is present in the system.

(2) Other repairs involving the use of welding or burning equipment may be undertaken on the anhydrous ammonia barge provided a positive pressure is maintained on the tanks by the vapors remaining after the cargo has been discharged.

(b) During the time anhydrous ammonia is laden in the tanks the barge or vessel shall be under constant surveillance. A vessel engaged in towing such barges shall not leave the barge unattended except when the barge is moored at a pier, wharf, dock, or other terminal and then only if such facility is provided with watchman or guard service. When the barge is at the consignor's or consignee's terminal, watchman, or guard service shall be provided by said consignor or consignee.

(c) The Interstate Commerce Commission's standard "Dangerous" placard shall be displayed in four locations on the barge when anhydrous ammonia is laden in the tanks. A placard shall be posted approximately amidships on each side and facing outboard. A placard shall be posted at each end of the barge at about the ends of the tanks facing outboard. Racks for mounting such placards shall be so arranged as to provide clear visibility and be protected from becoming readily damaged or obscured. After unloading and before the tank or tanks are gas-freed, the placard shall be reversed to show the "Dangerous—Empty" legend.

(d) Authorization from the Commandant (OPL) shall be obtained to transport lading other than anhydrous ammonia in the cargo tanks.

(e) Sufficient hose stations shall be installed with adequate water supply so that if leakage of anhydrous ammonia occurs the vapors may be removed by use of a stream of water.

(f) At least two ammonia gas masks, one stowed forward of the cargo tanks and one stowed aft of the cargo tanks shall be carried on board the vessel at all times.

(g) While fast to a dock, a vessel during transfer of bulk cargo shall display a red flag by day or a red light by night, which signal shall be so placed that it will be visible on all sides. When at anchor, a vessel during transfer of bulk cargo shall display a red flag by day, which signal shall be so placed that it will be visible on all sides.

[CGFR 58-9, 23 F.R. 4829, June 28, 1958, as amended by CGFR 60-36, 25 F.R. 10635, Nov. 5, 1960]

§ 98.25-95 Tests and inspections.

(a) Each cargo tank shall be subjected to an internal examination at least once in each 8 calendar years. Each lagged tank shall be subjected to an external inspection at least once in each 8 calendar years by having the jacket and lagging removed. An external examination of unlagged tanks and the visible parts of lagged tanks shall be made at each biennial inspection.

(b) A hydrostatic test of 1½ times the allowable pressure as determined by the safety relief valve setting shall be made at any time that the inspector considers such hydrostatic test necessary to determine the condition of the tank. If the jacket and lagging are not removed during the hydrostatic tests prescribed in this paragraph, the tank shall hoid the hydrostatic test pressure for at least 20 minutes without a pressure drop.

(c) The safety relief valves shall be popped in the presence of a marine inspector by either liquid, gas or vapor pressure at least once every four years to determine the accuracy of adjustment and, if necessary, shall be reset.

Subpart 98.30—Nuclear Energy

§ 98.30-1 Vessels handling radioactive materials.

(a) All vessels handling or processing radioactive materials in substantial amounts other than as cargo shall comply with the applicable requirements in Subpart 57.30 of Subchapter F (Marine Engineering) of this chapter. The regulations covering the transportation and handling of radioactive materials as cargo are contained in Part 146 of Subchapter N (Explosives or Other Dangerous Articles or Substances and Combustible Liquids on Board Vessels) of this chapter.

(Sec. 2, 23 Stat. 118, as amended, secs. 2, 633, 63 Stat. 496, 545; 46 U.S.C. 2, 14 U.S.C. 2, 633. Interpret or apply R.S. 4417a, as amended, sec. 14, 29 Stat. 690, as amended, sec. 3, 54 Stat. 347, as amended, sec. 3, 70 Stat. 152; 46 U.S.C. 391a, 366, 367, 1333, 390b.) [CGFR 60-65, 25 F.R. 10135, Oct. 25, 1960]