pumps in separate watertight compartments is not possible, the Commandant will consider alternate arrangements of the bilge pumps.

(3) The emergency bilge pumps shall not be installed in a passenger ship forward of the collision bulkhead.

(4) Each hull of a vessel with more than one hull must have at least two means for pumping the bilges in each hull. No multi-hulled vessel may operate unless one of these means is available to pump each bilge.

(f) *Other pumps.* Sanitary, ballast, and general service pumps having the required capacity may be accepted as independent power bilge pumps if fitted with the necessary connections to the bilge pumping system.

[CGFR 68–82, 33 FR 18843, Dec. 18, 1968, as amended by CGD 79–023, 48 FR 51007, Nov. 4, 1983; CGD 77–140, 54 FR 40608, Oct. 2, 1989; 55 FR 39968, Oct. 1, 1990; CGD 83–043, 60 FR 24773, May 10, 1995; USCG–2004–18884, 69 FR 58346, Sept. 30, 2004]

§56.50–57 Bilge piping and pumps, alternative requirements.

(a) If a passenger vessel complies with §§171.075 and 171.082 of this chapter, its bilge pumping and piping systems must meet §§56.50–50 and 56.50–55, except as follows:

(1) Each bilge pumping system must comply with—

(i) Regulation 19(b) of the Annex to IMCO Resolution A.265 (VIII) in place of §§56.50–55(a)(1), 56.50–55(a)(3), and 56.50–55(f);

(ii) Regulation 19(d) of the Annex to IMCO Resolution A.265 (VIII) in place of §56.50–55(a)(2).

(2) Each bilge main must comply with Regulation 19(i) of the Annex to IMCO Resolution A.265 (VIII) in place of §56.50–50(d) except—

(i) The nearest commercial pipe size may be used if it is not more than one-fourth inch under the required diameter; and

(ii) Each branch pipe must comply with §56.50–50(d)(2).

(b) The standards referred to in this section, which are contained in the Inter-governmental Maritime Consultative Organization (IMCO) Resolution A.265 (VIII), dated December 10, 1973, are incorporated by reference. This document is available from the National Technical Information Service, Springfield, Virginia, 22151, under the title ''Regulations on Subdivision and Stability of Passenger Ships as Equivalent to part B of chapter II of the International Convention for the Safety of Life at Sea, 1960'' (Volume IV of the U.S. Coast Guard's ''Commandant's International Technical Series'', USCG CITS–74–1–1.)

[CGD 76–053, 47 FR 37553, Aug. 26, 1982, as amended by CGD 79–023, 48 FR 51007, Nov. 4, 1983]

§56.50–60 Systems containing oil.

(a)(1) Oil-piping systems for the transfer or discharge of cargo or fuel oil must be separate from other piping systems as far as practicable, and positive means shall be provided to prevent interconnection in service.

(2) Fuel oil and cargo oil systems may be combined if the cargo oil systems contain only Grade E oils and have no connection to cargo systems containing grades of oil with lower flash points or hazardous substances.

(3) Pumps used to transfer oil must have no discharge connections to fire mains, boiler feed systems, or condensers unless approved positive means are provided to prevent oil from being accidentally discharged into any of the aforementioned systems.

(b) When oil needs to be heated to lower its viscosity, heating coils must be properly installed in each tank.

(1) Each drain from a heating coil as well as each drain from an oil heater must run to an open inspection tank or other suitable oil detector before returning to the feed system.

(2) As far as practicable, no part of the fuel-oil system containing heated oil under pressure exceeding 180 KPa (26 psi) may be placed in a concealed position so that defects and leakage cannot be readily observed. Each machinery space containing a part of the system must be adequately illuminated.

(c) Filling pipes may be led directly from the deck into the tanks or to a manifold in an accessible location permanently marked to indicate the tanks to which they are connected. A shutoff valve must be fitted at each filling end. Oil piping must not be led through accommodation spaces, except that low

pressure fill piping not normally used at sea may pass through accommodation spaces if it is of steel construction, all welded, and not concealed.

(d) Piping subject to internal head pressure from oil in the tank must be fitted with positive shutoff valves located at the tank.

(1) Valves installed on the outside of the oil tanks must be made of steel, ductile cast iron ASTM A 395 (incorporated by reference; see 46 CFR 56.01–2), or a ductile nonferrous alloy having a melting point above 1,700 °F and must be arranged with a means of manual control locally at the valve and remotely from a readily accessible and safe location outside of the compartment in which the valves are located.

(i) In the special case of a deep tank in any shaft tunnel, piping tunnel, or similar space, one or more valves must be fitted on the tank, but control in the event of fire may be effected by means of an additional valve on the piping outside the tunnel or similar space. Any such additional valve installed inside a machinery space must be capable of being operated from outside this space.

(ii) [Reserved]

(2) If valves are installed on the inside of the tank, they may be made of cast iron and arranged for remote control only. Additional valves for local control must be located in the space where the system exits from the tank or adjacent tanks. Valves for local control outside the tanks must be made of steel, ductile cast iron ASTM A 395 , or a ductile nonferrous alloy having a melting point above 1,700 °F.

(3) Power operated valves installed to comply with the requirements of this section must meet the following requirements:

(i) Valve actuators must be capable of closing the valves under all conditions, except during physical interruption of the power system (e.g., cable breakage or tube rupture). Fluid power actuated valves, other than those opened against spring pressure, must be provided with an energy storage system which is protected, as far as practicable, from fire and collision. The storage system must be used for no other purpose and must have sufficient capacity to cycle all connected valves from the initial valve position to the opposite position and return. The cross connection of this system to an alternate power supply will be given special consideration by the Marine Safety Center.

(ii) The valve shall have a local power actuator to both open and close the valve unless local manual opening operation will not prevent remote closing of the valve.

(iii) The positioning of the valve by either the local or remote actuators shall not void the ability of the other actuator to close the valve.

(iv) The valve shall be provided with a means of emergency manual operation to both open and close the valve regardless of the status of the power operating system. Such manual operation may interfere with the power operation, and if so, shall be protected from causal use by means of covers, locking devices, or other suitable means. Instructions and warnings regarding the emergency system shall be conspicuously posted at the valve.

(4) Remote operation for shutoff valves on small independent oil tanks will be specially considered in each case where the size of tanks and their location may warrant the omission of remote operating rods.

(e) Fuel oil tanks overhanging boilers are prohibited.

(f) Valves for drawing fuel or draining water from fuel are not permitted in fuel oil systems except that a single valve may be permitted in the case of diesel driven machinery if suitably located within the machinery space away from any potential source of ignition. Such a valve shall be fitted with a cap or a plug to prevent leakage.

(g) Test cocks must not be fitted to fuel oil or cargo oil tanks.

(h) Oil piping must not run through feed or potable water tanks. Feed or potable water piping must not pass through oil tanks.

(i) Where flooding equalizing cross-connections between fuel or cargo tanks are required for stability considerations, the arrangement must be approved by the Marine Safety Center.

(j) Piping conveying oil must be run well away from hot surfaces wherever possible. Where such leads are unavoidable, only welded joints are to be used,

or alternatively, suitable shields are to be fitted in the way of flanged or mechanical pipe joints when welded joints are not practicable. Piping that conveys fuel oil or lubricating oil to equipment and is in the proximity of equipment or lines having an open flame or having parts operating above 500°F must be of seamless steel. (See §56.50–65 of this part.)

(k) Oil piping drains, strainers and other equipment subject to normal oil leakage must be fitted with drip pans or other means to prevent oil draining into the bilge.

(l) Where oil piping passes through a non-oil tank without stop valves complying with paragraph (d) of this section installed at all tank penetrations, the piping must comply with §56.50–50(k).

(m) Each arrangement for the storage, distribution, and use of oil in a pressure-lubrication system must—

(1) As well as comply with §56.50–80, be such as to ensure the safety of the vessel and all persons aboard; and

(2) In a machinery space, meet the applicable requirements of §§56.50–60 (b)(2) and (d), 56.50–85(a)(11), 56.50–90 (c) and (d), and 58.01–55(f) of this subchapter. No arrangement need comply with §56.50–90 (c)(1) and (c)(3) of this subchapter if the sounding pipe is fitted with an effective means of closure, such as a threaded cap or plug or other means acceptable to the Officer in Charge, Marine Inspection. The use of flexible piping or hose is permitted in accordance with the applicable requirements of §§56.35–10, 56.35–15, and 56.60–25(c).

(n) Each arrangement for the storage, distribution, and use of any other flammable oil employed under pressure in a power transmission-system, control and activating system, or heating system must be such as to ensure the safety of the vessel and all persons aboard by—

(1) Complying with Subpart 58.30 of this subchapter; and,

(2) Where means of ignition are present, meeting the applicable requirements of §§56.50–85(a)(11), 56.50–90 (c) and (d), and 58.01–55(f) of this subchapter. Each pipe and its valves and fittings must be of steel or other approved material, except that the use of flexible piping or hose is permitted in accordance with the applicable requirements of §§56.35–10, 56.35–15, and 56.60–25(c).

[CGFR 68–82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 69–127, 35 FR 9979, June 17, 1970; CGD 73–254, 40 FR 40165, Sept. 2, 1975; CGD 77–140, 54 FR 40609, Oct. 2, 1989; 55 FR 39968, Oct. 1, 1990; CGD 83–043, 60 FR 24774, May 10, 1995; USCG–2000–7790, 65 FR 58460, Sept. 29, 2000; USCG–2004–18884, 69 FR 58346, Sept. 30, 2004; USCG–2003–16630, 73 FR 65178, Oct. 31, 2008]

§56.50–65 Burner fuel-oil service systems.

(a) All discharge piping from the fuel oil service pumps to burners must be seamless steel with a thickness of at least Schedule 80. If required by §56.07–10(e) of this part or paragraph 104.1.2 of ASME B31.1 (incorporated by reference; see 46 CFR 56.01–2), the thickness must be greater than Schedule 80. Short lengths of steel, or annealed copper nickel, nickel copper, or copper pipe and tubing may be used between the fuel oil burner front header manifold and the atomizer head to provide flexibility. All material used must meet the requirements of subpart 56.60 of this part. The use of non-metallic materials is prohibited. The thickness of the short lengths must not be less than the larger of 0.9 mm (0.35 inch) or that required by §56.07–10(e) of this part. Flexible metallic tubing for this application may be used when approved by the Marine Safety Center. Tubing fittings must be of the flared type except that flareless fittings of the nonbite type may be used when the tubing is steel, nickel copper or copper nickel.

(b)(1) All vessels having oil fired boilers must have at least two fuel service pumps, each of sufficient capacity to supply all the boilers at full power, and arranged so that one may be overhauled while the other is in service. At least two fuel oil heaters of approximately equal capacity must be installed and so arranged that any heater may be overhauled while the other(s) is (are) in service. Suction and discharge strainers must be of the duplex or other type capable of being cleaned without interrupting the oil supply.

(2) All auxiliary boilers, except those furnishing steam for vital equipment and fire extinguishing purposes other