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for the purpose of ascertaining before the blanking device is opened that no fuel oil is present. Provision must be made to ensure that no spillage of fuel oil through the control cock involves an ignition hazard.

(d) On each vessel constructed on or after June 9, 1995, other oil-level gauges may be used instead of sounding pipes if all the following requirements are met:

(1) In a passenger vessel, no such gauge may require penetration below the top of the tank, and neither the failure of a gauge nor an overfilling of the tank may permit release of fuel into the space.

(2) In a cargo vessel, neither the failure of such a gauge nor an overfilling of the tank may permit release of fuel into the space. The use of cylindrical gauge-glasses is prohibited. The use of oil-level gauges with flat glasses and self-closing valves between the gauges and fuel tanks is acceptable.

(e) The upper ends of sounding pipes terminating at the weather deck shall be closed by a screw cap or plug. Great Lakes dry cargo carriers may have the sounding pipes which service ballast water tanks terminate at least 4 inches above the deck if closure is provided by a tight fitting hinged cover making metal-to-metal contact with the hinge on the forward side. Positive means to secure these caps in the closed position shall be provided. Provision shall be made to prevent damage to the vessels' plating by the striking of the sounding rod.

(f) On mobile offshore drilling units where installation of sounding pipes may not be practicable for some tanks, alternate means of determining liquid level may be used if approved by the Commandant.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGD 73-251, 43 FR 56800, Dec. 4, 1978; CGD 83-043, 60 FR 24774, May 10, 1995; CGD 95-028, 62 FR 51201, Sept. 30, 1997]

§ 56.50-95 Overboard discharges and shell connections.

(a)(1) All inlets and discharges led through the vessel's side shall be fitted with efficient and accessible means, located as close to the hull penetrations as is practicable, for preventing the accidental admission of water into the

vessel either through such pipes or in the event of fracture of such pipes.

(2) The number of scuppers, sanitary discharges, tank overflows, and other similar openings in the vessel's side shall be reduced to a minimum, either by making each discharge serve for as many as possible of the sanitary and other pipes, or in any other satisfactory manner.

(3) In general, when the bulkhead deck is above the freeboard deck, the requirements of this section apply relative to the bulkhead deck. For vessels not assigned load lines, such as certain inland vessels and barges, the weather deck shall be taken as the freeboard deck.

(b)(1) Scuppers and discharge pipes originating at any level and penetrating the shell either more than 17½ inches (450mm) below the freeboard deck or less than 23½ inches (600mm) above the summer load waterline must be provided with an automatic non-return valve at the shell. This valve, unless required by paragraph (b)(2) of this section, may be omitted if the piping is not less than Schedule 80 in wall thickness for nominal pipe sizes through 8 inches, Schedule 60 for nominal pipe sizes above 8 inches and below 16 inches, and Schedule 40 for nominal pipe sizes 16 inches and above.

(2) Discharges led through the shell originating either from spaces below the freeboard deck or from within enclosed superstructures and equivalent deckhouses on the freeboard deck as defined in § 42.13-15(i) of subchapter E (Load Lines) of this chapter, shall be fitted with efficient and accessible means for preventing water from passing inboard. Normally each separate discharge shall have one automatic nonreturn valve with a positive means of closing it from a position above the freeboard deck. Where, however, the vertical upward distance from the summer load line to the inboard end of the discharge pipe through which flooding can take place exceed 0.01L, the discharge may have two automatic non-return valves without positive means of closing, provided that the inboard valve is always accessible for examination under service conditions. Where that vertical distance exceeds 0.02L a

single automatic nonreturn valve without positive means of closing is acceptable. In an installation where the two automatic nonreturn valves are used, the inboard valve must be above the tropical load line. The means for operating the positive action valve shall be readily accessible and provided with an indicator showing whether the valve is open or closed. A suitable arrangement shall be made to insure the valve is not closed by unauthorized persons, and a notice shall be posted in a conspicuous place at the operating station to the effect that the valve shall not be closed except as required in an emergency.

(3) Where scuppers and drains are installed in superstructures or deck-houses not enclosed as defined in §42.13-15(j) of subchapter E (Load Lines) of this chapter, they shall be led overboard. Refer to paragraph (b)(1) of this section for any nonreturn valve requirement.

(4) Sanitary pump discharges leading directly overboard or via a holding tank must meet the standards prescribed by this paragraph. The location of the sanitary system openings within the vessel determines whether the requirements of paragraph (b)(2) or (3) of this section are applicable.

(c) Overflow pipes which discharge through the vessel's side must be located as far above the deepest load line as practicable and fitted with valves as required by paragraph (b) of this section. Two automatic nonreturn valves must be used unless it is impracticable to locate the inboard valve in an accessible position, in which case a nonreturn valve with a positive means of closure from a position above the freeboard deck will be acceptable. Overflows which extend at least 30 inches above the freeboard deck before discharging overboard may be fitted with a single automatic nonreturn valve at the vessel's side. Overflow pipes which serve as tank vents must not be fitted with positive means of closure without the specific approval of the Marine Safety Center. Overflow pipes may be vented to the weather.

(d)(1) Sea inlets and discharges, such as used in closed systems required for the operation of main and auxiliary machinery, as in pump connections or scoop injection heat exchanger connec-

tions, need not meet the requirements of paragraphs (b) (1) and (2) of this section but instead shall be fitted with a shutoff valve located as near the shell plating as practicable, and may be locally controlled if the valve is located in a manned machinery space. These controls shall be readily accessible above the floor plates and shall be provided with indication showing whether the valve is opened or closed. Manned machinery spaces include the main machinery space and are either attended by the crew or are automated in accordance with part 62 of this subchapter to be comparable to an attended space.

(2) In unmanned machinery spaces, all machinery inlets and discharges as described in paragraph (d)(1) of this section shall be remotely operable from a position above the freeboard deck unless otherwise approved and shall meet the access and marking requirements of paragraph (b)(2) of this section.

(e)(1) Pipes terminating at the shell plating shall be fitted with bends or elbows between the outboard openings and the first rigid connection inboard. In no case shall such pipes be fitted in a direct line between the shell opening and the first inboard connection.

(2) Seachests and other hull fittings shall be of substantial construction and as short as possible. They shall be located as to minimize the possibility of being blocked or obstructed.

(3) The thickness of inlet and discharge connections outboard of the shutoff valves, and exclusive of seachests, must be not less than that of Schedule 80 for nominal pipe sizes through 8 inches, Schedule 60 for nominal pipe sizes above 8 inches and below 16 inches, and Schedule 40 for nominal pipe sizes 16 inches and above.

(f) Valves required by this section and piping system components outboard of such required valves on new vessel installations or replacements in vessels of 150 gross tons and over shall be of a steel, bronze, or ductile cast iron specification listed in Table 56.60-1(a). Lead or other heat sensitive materials having a melting point of 1,700 °F. or less shall not be used in such service, or in any other application where the deterioration of the piping system

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in the event of fire would give rise to danger of flooding. Brittle materials such as cast iron shall not be used in such service. Where nonmetallic materials are used in a piping system, and shell closures are required by this section, a positive closure metallic valve is required (see also § 56.60-25).

(g) The inboard openings of ash and rubbish-chute discharges shall be fitted with efficient covers. If the inboard opening is located below the freeboard deck, the cover shall be watertight, and in addition, an automatic non-return valve shall be fitted in the chute in any easily accessible position above the deepest load line. Means shall be provided for securing both the cover and the valve when the chute is not in use. When ash-ejectors or similar expelling devices located in the boiler-room have the inboard openings below the deepest load line, they shall be fitted with efficient means for preventing the accidental admission of water. The thickness of pipe for ash ejector discharge shall be not less than Schedule 80.

(h) Where deck drains, soil lines, and sanitary drains discharge through the shell in way of cargo tanks on tank vessels, the valves required by this section shall be located outside the cargo tanks. These valves shall meet the material requirements of paragraph (f) of this section. The piping led through such tanks shall be fitted with expansion bends where required, and shall be of steel pipe having a wall thickness of not less than five-eighths inch, except that the use of suitable corrosion-resistant material of lesser thickness will be given special consideration by the Commandant. All pipe joints within the tanks shall be welded. Soil lines and sanitary drains which pass through cargo tanks shall be provided with non-return valves with positive means of closing or other suitable means for preventing the entrance of gases into living quarters.

(i) Except as provided for in § 58.20-20(c) of this chapter, sea valves must not be held open with locks. Where it is necessary to hold a discharge or intake closed with a lock, either a locking valve may be located inboard of the sea valve, or the design must be such that there is sufficient freedom of motion to

fully close the locked sea valve after an event, such as fire damage to the seat, causes significant leakage through the valve. Valves which must be opened in an emergency, such as bilge discharges or fire pump suction, must not be locked closed, whether they are sea valves or not.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 69-127, 35 FR 9979, June 17, 1970; CGFR 72-59R, 37 FR 6189, Mar. 25, 1972; CGD 81-030, 53 FR 17837, May 18, 1988; CGD 77-140, 54 FR 40610, Oct. 2, 1989]

§ 56.50-96 Keel cooler installations.

(a) Keel cooler installations shall meet the requirements of § 56.50-95(d)(1) and (2), and (e)(3), and (f) except that shutoff or isolation valves will not be required for the inlet and discharge connections if:

(1) The installation is forward of the collision bulkhead; or,

(2) The installation is integral with the ship's hull such that the cooler tubes are welded directly to the hull of the vessel with the hull forming part of the tube and satisfies all of the following:

(i) The cooler structure is fabricated from material of the same thickness and quality as the hull plating to which it is attached except that in the case of half round pipe lesser thickness may be used if specifically approved by the Commandant. In any case the structure, with the exception of the hull proper, need not exceed three-eighths inch in thickness.

(ii) The flexible connections and all openings internal to the vessel, such as expansion tank vents and fills, in the installation are above the deepest load line and all piping components are Schedule 80 or thicker below the deepest load line.

(iii) Full penetration welds are employed in the fabrication of the structure and its attachment to the hull.

(iv) The forward end of the structure must be faired to the hull such that the horizontal length of the fairing is no less than four times the height of the structure, or be in a protected location such as inside a bow thruster trunk.

[CGFR 68-82, 33 FR 18843, Dec. 18, 1968, as amended by CGFR 72-59R, 37 FR 6189, Mar. 25, 1972; CGD 77-140, 54 FR 40611, Oct. 2, 1989]