(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 valves 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.

[CGFR 65–50, 30 FR 17022, Dec. 30, 1965, as amended by CGFR 70–10, 35 FR 3712, Feb. 25, 1970]

§ 98.25–55 Cargo piping.

(a) Piping shall be of seamless steel meeting the requirements of §56.60–1 of subchapter F (Marine Engineering) of this chapter. The piping shall be of not less than Schedule 40 thickness. 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.

[CGFR 65–50, 30 FR 17022, Dec. 30, 1965, as amended by CGFR 68–82, 33 FR 18902, Dec. 18, 1968]

§ 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) Safety relief valves shall be attached to the tank near the highest point of the vapor space. Shutoff 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 three-way valves so arranged at all times as to permit at any position of the three-way valve, an unrestricted flow of vapors through at least one port. When two