§ 154.1340 Temperature measuring devices.

(a) Each cargo tank must have devices that measure the temperature:

(1) At the bottom of the tank; and

(2) Near the top of the tank and below the maximum liquid level allowed under §154.1844.

(b) Each device required by paragraph (a) must have a readout at the cargo control station.

(c) Except for independent tanks type C, each cargo containment system for a design temperature colder than −55 °C (−67 °F) must have temperature measuring devices that meet the following:

(i) Has remote readouts at the cargo control station.

(ii) Actuates before the pressure in any cargo tank exceeds the maximum pressure specially approved by the Commandant (CG–OES); and

(iii) Has remote readouts at the cargo control station.

(2) If vacuum protection is required under §154.804, a vacuum gauge meeting paragraphs (a)(1)(i), (a)(1)(ii), and (a)(1)(iii) of this section.

(b) The vessel must have at least one high pressure alarm that:

(1) Actuates before the pressure in any cargo tank exceeds the maximum pressure specially approved by the Commandant (CG–OES); and

(2) Actuates an audible and visual alarm at the cargo control station, and a remote group alarm in the wheelhouse.

(c) If vacuum protection is required under §154.804, the vessel must have at least one low pressure alarm that:

(1) Actuates before the pressure in any cargo tank falls below the minimum pressure specially approved by the Commandant (CG–522); and

(2) Actuates an audible and visual alarm at the cargo control station, and a remote group alarm in the wheelhouse.

(d) At least one pressure gauge must be fitted on each:

(1) Enclosed hold;

(2) Enclosed interbarrier space;

(3) Cargo pump discharge line;

(4) Liquid cargo manifold; and

(5) Vapor cargo manifold.

(e) There must be a local manifold pressure gauge between each manifold stop valve and each hose connection to the shore.

§ 154.1345 Gas detection.

(a) Each vessel carrying a cargo that is designated with an “I” or “I and T” in Table 4 must have:

(1) A fixed flammable gas detection system that meets §154.1350; and

(2) Two portable gas detectors that can each measure 0 to 100% of the lower flammable limit of the cargo carried.

(b) Each vessel carrying a cargo that is designated with a “T” or “I and T” in Table 4 must have:

(1) Two portable gas detectors that show if the concentration of cargo is above or below the threshold limit value listed in 29 CFR 1910.1000 for that cargo; and

(2) Fixed gas sampling tubes in each hold space and interbarrier space with:

(i) The number of tubes specially approved by the Commandant (CG–OES); and

(ii) Each tube valved and capped above the main deck unless it is connected to a fixed toxic gas detector;

(iii) If the vessel carries cargo that is heavier than the atmosphere of the space, each tube's open end in the lower part of the space;

(iv) If the vessel carries cargo that is lighter than the atmosphere of the