



## EXCERPTS FROM FEDERAL REGISTER

PART 11 - Dept. of Transportation - Coast Guard - June 21,1990

46CFR Part 39 Vapor Control Systems  
Subpart 39.20 Design and Equipment  
§ 39.20-7 Tankship liquid overfill protection -T/ALL

**The following section, reprinted here for your convenience, contains the USCG rules and regulations regarding overfill protection.**

### 39.20-7 Tankship liquid overfill protection-T/ALL

(a) Each cargo tank of a tankship must be equipped with an intrinsically safe high level alarm and a tank overfill alarm.

(b) The high level alarm and tank overfill alarm required by paragraph (a) of this section, if installed after July 23, 1990 must:

- (1) Be independent of each other;
- (2) Alarm in the event of loss of power to the alarm system or failure of electrical circuitry to the tank level sensor; and
- (3) Be able to be checked at the tank for proper operation prior to each transfer or contain an electronic self- testing feature which monitors the condition of the alarm circuitry and sensor.

(c) The high level alarm required by paragraph (a) of this section must:

- (1) Alarm before the tank overfill alarm, but no lower than 95 percent of tank capacity;
- (2) Be identified with the legend "High Level Alarm" in black letters at least 50 millimeters (2 inches) high on a white background; and
- (3) Have audible and visible alarm indications that can be seen and heard on the vessel where cargo transfer is controlled.

(d) The tank overfill alarm required by paragraph (a) of this section must:

- (1) Be independent of the cargo gauging system;
- (2) Have audible and visible alarm indications that can be seen and heard on the vessel where cargo transfer is controlled and in the cargo deck area;



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### OVERFILL PROTECTION (*continued*)

- (3) Be identified with the legend "TANK OVERFILL ALARM" in black letters at least 50 millimeters (2 inches) high on a white background; and
- (4) Alarm early enough to allow the person in charge of transfer operations to stop the transfer operation before the cargo tank overflows.
- (e) If a spill valve is installed on a cargo tank fitted with a vapor collection system, it must meet the requirements of Sec. 39.20-9(c) of this part.
- (f) If a rupture disk is installed on a cargo tank fitted with a vapor collection system, it must meet the requirements of Sec.

39.20-9 (d) of this part. 39.20-9 Tank barge liquid overfill protection-B/ALL

Each cargo tank of a tank barge must have one the following liquid overfill protection arrangements.

- (a) A system meeting the requirements of 39.20-7 of this part which:
  - (1) Includes a self-contained power supply; "The APM-2 Annunciator Panel connected to ERL Liquid Level Sensors satisfy this requirement."
  - (2) Is powered by generators installed on the barge; or
  - (3) Receives power from a facility and is fitted with a shore tie cable and a 120 volt 20 amp explosion proof plug which meets:
    - (i) ANSI/NEMA WD6;
    - (ii) NFPA 70, Articles 410-57 and 501-12; and
    - (iii) 111.105-9 of this chapter.
- (b) An intrinsically safe overfill control system which: "ERL Liquid Level Sensors satisfy this requirement."
  - (1) Is independent of the cargo gauging device required, by 39.20-3(a) of this part;
  - (2) Actuates an alarm and automatic shutdown system at the facility overfill control panel, or on the vessel to be lightered if a lightering operation, 60 seconds before the tank becomes 100 % liquid full;
  - (3) Is able to be checked at the tank for proper operation prior to each loading;



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### OVERFILL PROTECTION (*continued*)

- (4) Consists of components which, individually or in series, will not generate or store a total of more than 1.2 V, 0.1 A, 25 mW, or 20 microjoules;
  - (5) Has at least one tank overfill sensor switch with normally closed contacts per cargo tank;
  - (6) Has all tank overfill sensor switches connected in series;
  - (7) Has interconnecting cabling that meets 111.105-15(b) of this chapter; and
  - (8) Has a male plug with a 5 wire, 16 amp connector body meeting IEC 309-1/309-2 which is:
    - (i) Configured with pins S2(L2) and RI(LI) for the tank overfill sensor circuit, pin G connected to the cabling shield, and pins N and T3(L3) reserved for an optional high level alarm circuit meeting the requirements of this paragraph; and
    - (ii) Labeled "Connector for Barge Overflow Control System" and with the total inductance and capacitance of the connected switches and cabling. "API Recommended Practice 1125 also applies to the wiring of Liquid Level Sensors."
- (c) A spill valve which:
- (1) Meets ASTM F1271;
  - (2) Relieves at a pressure higher than the pressure at which the pressure relief valves meeting the requirements of 39.20-11 operate;
  - (3) Limits the maximum pressure at the cargo tank top during liquid overfill, at the maximum loading rate for the tank, to not more than the maximum design working pressure for the tank; and
  - (4) If the vessel is in ocean or coastwise service, has provisions to prevent opening due to cargo sloshing.
- (d) A rupture disk arrangement which meets paragraphs (c) (2), (c) (3) and (c) (4) of this section and is approved by the Commandant (G-MSO).