

(ii) If the LNG facility adjoins the right-of-way of any highway or railroad, collision by or explosion of a train, tank car, or tank truck that could reasonably be expected to cause the most severe loading.

(b) An LNG storage tank must not be located within a horizontal distance of one mile (1.6 km) from the ends, or ¼ mile (0.4 km) from the nearest point of a runway, whichever is longer. The height of LNG structures in the vicinity of an airport must also comply with Federal Aviation Administration requirements in 14 CFR Section 1.1.

[45 FR 9203, Feb. 11, 1980, as amended by Amdt. 193-17, 65 FR 10959, Mar. 1, 2000]

§ § 193.2157-193.2159 [Reserved]

§ 193.2161 **Dikes, general.**

An outer wall of a component served by an impounding system may not be used as a dike unless the outer wall is constructed of concrete.

[Amdt. 193-17, 65 FR 10959, Mar. 1, 2000]

§ § 193.2163-193.2165 [Reserved]

§ 193.2167 **Covered systems.**

A covered impounding system is prohibited except for concrete wall designed tanks where the concrete wall is an outer wall serving as a dike.

[Amdt. 193-17, 65 FR 10959, Mar. 1, 2000]

§ § 193.2169-193.2171 [Reserved]

§ 193.2173 **Water removal.**

(a) Impoundment areas must be constructed such that all areas drain completely to prevent water collection. Drainage pumps and piping must be provided to remove water from collecting in the impoundment area. Alternative means of draining may be acceptable subject to the Administrator's approval.

(b) The water removal system must have adequate capacity to remove water at a rate equal to 25% of the maximum predictable collection rate from a storm of 10-year frequency and 1-hour duration, and other natural causes. For rainfall amounts, operators must use the "Rainfall Frequency Atlas of the United States" published by the

National Weather Service of the U.S. Department of Commerce.

(c) Sump pumps for water removal must—

(1) Be operated as necessary to keep the impounding space as dry as practical; and

(2) If sump pumps are designed for automatic operation, have redundant automatic shutdown controls to prevent operation when LNG is present.

[45 FR 9203, Feb. 11, 1980, as amended by Amdt. 193-17, 65 FR 10959, Mar. 1, 2000]

§ § 193.2175-193.2179 [Reserved]

§ 193.2181 **Impoundment capacity: LNG storage tanks.**

Each impounding system serving an LNG storage tank must have a minimum volumetric liquid impoundment capacity of:

(a) 110 percent of the LNG tank's maximum liquid capacity for an impoundment serving a single tank;

(b) 100 percent of all tanks or 110 percent of the largest tank's maximum liquid capacity, whichever is greater, for the impoundment serving more than one tank; or

(c) If the dike is designed to account for a surge in the event of catastrophic failure, then the impoundment capacity may be reduced to 100 percent in lieu of 110 percent.

[Amdt. 193-17, 65 FR 10960, Mar. 1, 2000]

§ § 193.2183-193.2185 [Reserved]

LNG STORAGE TANKS

§ 193.2187 **Nonmetallic membrane liner.**

A flammable nonmetallic membrane liner may not be used as an inner container in a storage tank.

[Amdt. 193-17, 65 FR 10960, Mar. 1, 2000]

§ § 193.2189-193.2233 [Reserved]

**Subpart D—Construction**

§ 193.2301 **Scope.**

Each LNG facility constructed after March 31, 2000 must comply with requirements of this part and of NFPA 59A (incorporated by reference see

## § 193.2303

§ 193.2013). In the event of a conflict between this part and NFPA 59A, this part prevails.

[Amdt. 193-17, 65 FR 10960, Mar. 1, 2000, as amended by Amdt. 193-18, 69 FR 11336, Mar. 10, 2004]

### § 193.2303 Construction acceptance.

No person may place in service any component until it passes all applicable inspections and tests prescribed by this subpart and NFPA 59A (incorporated by reference, *see* § 193.2013).

[45 FR 9203, Feb. 11, 1980, as amended by Amdt. 193-17, 65 FR 10960, Mar. 1, 2000; Amdt. 193-18, 69 FR 11337, Mar. 10, 2004]

### § 193.2304 Corrosion control overview.

(a) Subject to paragraph (b) of this section, components may not be constructed, repaired, replaced, or significantly altered until a person qualified under § 193.2707(c) reviews the applicable design drawings and materials specifications from a corrosion control viewpoint and determines that the materials involved will not impair the safety or reliability of the component or any associated components.

(b) The repair, replacement, or significant alteration of components must be reviewed only if the action to be taken—

(1) Involves a change in the original materials specified;

(2) Is due to a failure caused by corrosion; or

(3) Is occasioned by inspection revealing a significant deterioration of the component due to corrosion.

[Amdt. 193-2, 45 FR 70404, Oct. 23, 1980]

## §§ 193.2305–193.2319 [Reserved]

### § 193.2321 Nondestructive tests.

The butt welds in metal shells of storage tanks with internal design pressure above 15 psig must be radiographically tested in accordance with the ASME Boiler and Pressure Vessel Code (Section VIII Division 1), except that hydraulic load bearing shells with curved surfaces that are subject to cryogenic temperatures, 100 percent of both longitudinal (or meridional) and circumferential (or latitudinal) welds must be radiographically tested.

[Amdt. 193-17, 65 FR 10960, Mar. 1, 2000]

## 49 CFR Ch. I (10-1-04 Edition)

## §§ 193.2323–193.2329 [Reserved]

### Subpart E—Equipment

#### § 193.2401 Scope.

After March 31, 2000, each new, replaced, relocated or significantly altered vaporization equipment, liquefaction equipment, and control systems must be designed, fabricated, and installed in accordance with requirements of this part and of NFPA 59A. In the event of a conflict between this part and NFPA 59A (incorporated by reference, *see* § 193.2013), this part prevails.

[Amdt. 193-17, 65 FR 10960, Mar. 1, 2000, as amended by Amdt. 193-18, 69 FR 11337, Mar. 10, 2004]

#### VAPORIZATION EQUIPMENT

## § § 193.2403–193.2439 [Reserved]

### § 193.2441 Control center.

Each LNG plant must have a control center from which operations and warning devices are monitored as required by this part. A control center must have the following capabilities and characteristics:

(a) It must be located apart or protected from other LNG facilities so that it is operational during a controllable emergency.

(b) Each remotely actuated control system and each automatic shutdown control system required by this part must be operable from the control center.

(c) Each control center must have personnel in continuous attendance while any of the components under its control are in operation, unless the control is being performed from another control center which has personnel in continuous attendance.

(d) If more than one control center is located at an LNG Plant, each control center must have more than one means of communication with each other center.

(e) Each control center must have a means of communicating a warning of hazardous conditions to other locations within the plant frequented by personnel.