

§ 193.2015

(e) The materials listed below are available for purchase from the Gas Technology Institute (formerly Gas Research Institute (GRI)), 1700 S. Mount Prospect Road, Des Plaines, IL 60018:

- (1) GRI-89/0176 “LNGFIRE: A Thermal radiation Model for LNG Fires” (June 29, 1990), incorporation by reference approved for § 193.2057.
- (2) GRI-89/0242 “LNG Vapor Dispersion Prediction with the DEGADIS Dense Gas Dispersion Model” (April 1988–July 1990), incorporation by reference approved for § 193.2059.
- (3) GRI-96/0396.5 “Evaluation of Mitigation Methods for Accidental LNG Releases, Volume 5: Using FEM3A for LNG Accident Consequence Analyses” (April 1997), incorporation by reference approved for § 193.2059.

(f) The material listed below is available for purchase from the National Fire Protection Association (NFPA), 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101:

- (1) NFPA 59A “Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)” (2001 edition), incorporation by reference approved for §§ 193.2019, 193.2051, 193.2057, 193.2059, 193.2101, 193.2301, 193.2303, 193.2401, 193.2521, 193.2639, and 193.2801.

[Amdt. 193-18, 69 FR 11336, Mar. 10, 2004]

§ 193.2015 [Reserved]

§ 193.2017 Plans and procedures.

(a) Each operator shall maintain at each LNG plant the plans and procedures required for that plant by this part. The plans and procedures must be available upon request for review and inspection by the Administrator or any State Agency that has submitted a current certification or agreement with respect to the plant under the pipeline safety laws (49 U.S.C. 60101 *et seq.*). In addition, each change to the plans or procedures must be available at the LNG plant for review and inspection within 20 days after the change is made.

(b) The Administrator or the State Agency that has submitted a current certification under section 5(a) of the Natural Gas Pipeline Safety Act with respect to the pipeline facility governed by an operator’s plans and proce-

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dures may, after notice and opportunity for hearing as provided in 49 CFR 190.237 or the relevant State procedures, require the operator to amend its plans and procedures as necessary to provide a reasonable level of safety.

(c) Each operator must review and update the plans and procedures required by this part—

(1) When a component is changed significantly or a new component is installed; and

(2) At intervals not exceeding 27 months, but at least once every 2 calendar years.

[Amdt. 193-2, 45 FR 70404, Oct. 23, 1980, as amended by Amdt. 193-7, 56 FR 31090, July 9, 1991; Amdt. 193-10, 61 FR 18517, Apr. 26, 1996; Amdt. 193-18, 69 FR 11336, Mar. 10, 2004]

§ 193.2019 Mobile and temporary LNG facilities.

(a) Mobile and temporary LNG facilities for peakshaving application, for service maintenance during gas pipeline systems repair/alteration, or for other short term applications need not meet the requirements of this part if the facilities are in compliance with applicable sections of NFPA 59A (incorporated by reference, *see* § 193.2013).

(b) The State agency having jurisdiction over pipeline safety in the State in which the portable LNG equipment is to be located must be provided with a location description for the installation at least 2 weeks in advance, including to the extent practical, the details of siting, leakage containment or control, fire fighting equipment, and methods employed to restrict public access, except that in the case of emergency where such notice is not possible, as much advance notice as possible must be provided.

[Amdt. 193-14, 62 FR 41311, Aug. 1, 1997, as amended by Amdt. 193-18, 11336, Mar. 10, 2004]

Subpart B—Siting Requirements

§ 193.2051 Scope.

Each LNG facility designed, constructed, replaced, relocated or significantly altered after March 31, 2000 must be provided with siting requirements in accordance with the requirements of this part and of NFPA 59A (incorporated by reference, *see*

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

[Amdt. 193-17, 65 FR 10958, Mar. 1, 2000, as amended by Amdt. 193-18, 69 FR 11336, Mar. 10, 2004]

§ 193.2055 [Reserved]

§ 193.2057 Thermal radiation protection.

Each LNG container and LNG transfer system must have a thermal exclusion zone in accordance with section 2.2.3.2 of NFPA 59A (incorporated by reference, *see* § 193.2013) with the following exceptions:

(a) The thermal radiation distances shall be calculated using Gas Research Institute's (GRI) report GRI-89/0176 (incorporated by reference, *see* § 193.2013), which is also available as the "LNGFIRE III" computer model produced by GRI. The use of other alternate models which take into account the same physical factors and have been validated by experimental test data shall be permitted subject to the Administrator's approval.

(b) In calculating exclusion distances, the wind speed producing the maximum exclusion distances shall be used except for wind speeds that occur less than 5 percent of the time based on recorded data for the area.

(c) In calculating exclusion distances, the ambient temperature and relative humidity that produce the maximum exclusion distances shall be used except for values that occur less than five percent of the time based on recorded data for the area.

[Amdt. 193-17, 65 FR 10958, Mar. 1, 2000, as amended by Amdt. 193-18, 69 FR 11336, Mar. 10, 2004]

§ 193.2059 Flammable vapor-gas dispersion protection.

Each LNG container and LNG transfer system must have a dispersion exclusion zone in accordance with sections 2.2.3.3 and 2.2.3.4 of NFPA 59A (incorporated by reference, *see* § 193.2013) with the following exceptions:

(a) Flammable vapor-gas dispersion distances must be determined in accordance with the model described in the Gas Research Institute report GRI-89/0242 (incorporated by reference, *see*

§ 193.2013), "LNG Vapor Dispersion Prediction with the DEGADIS Dense Gas Dispersion Model." Alternatively, in order to account for additional cloud dilution which may be caused by the complex flow patterns induced by tank and dike structure, dispersion distances may be calculated in accordance with the model described in the Gas Research Institute report GRI-96/0396.5 (incorporated by reference, *see* § 193.2013), "Evaluation of Mitigation Methods for Accidental LNG Releases. Volume 5: Using FEM3A for LNG Accident Consequence Analyses". The use of alternate models which take into account the same physical factors and have been validated by experimental test data shall be permitted, subject to the Administrator's approval.

(b) The following dispersion parameters must be used in computing dispersion distances:

(1) Average gas concentration in air = 2.5 percent.

(2) Dispersion conditions are a combination of those which result in longer predicted downwind dispersion distances than other weather conditions at the site at least 90 percent of the time, based on figures maintained by National Weather Service of the U.S. Department of Commerce, or as an alternative where the model used gives longer distances at lower wind speeds, Atmospheric Stability (Pasquill Class) F, wind speed = 4.5 miles per hour (2.01 meters/sec) at reference height of 10 meters, relative humidity = 50.0 percent, and atmospheric temperature = average in the region.

(3) The elevation for contour (receptor) output $H = 0.5$ meters.

(4) A surface roughness factor of 0.03 meters shall be used. Higher values for the roughness factor may be used if it can be shown that the terrain both upwind and downwind of the vapor cloud has dense vegetation and that the vapor cloud height is more than ten times the height of the obstacles encountered by the vapor cloud.

(c) The design spill shall be determined in accordance with section 2.2.3.5 of NFPA 59A (incorporated by reference, *see* § 193.2013).

[Amdt. 193-17, 65 FR 10959, Mar. 1, 2000, as amended by Amdt. 193-18, 69 FR 11336, Mar. 10, 2004]