BEFORE THE
UNITED STATES DEPARTMENT OF TRANSPORTATION
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION1
WASHINGTON, D.C.

PETITION FOR RULEMAKING TO AMEND 49 CFR PART 193

AMERICAN GAS ASSOCIATION

January 21, 2020

I. Background

The American Gas Association, founded in 1918, represents more than 200 local energy companies that deliver clean natural gas throughout the United States. There are more than 73 million residential, commercial and industrial natural gas customers in the U.S., of which 95 percent — over 69 million customers — receive their gas from AGA members. Today, natural gas meets more than one-fourth of the United States' energy needs. AGA and its members are directly affected by NFPA 59A because approximately 50 AGA members own or operate a significant portion, nearly 65 percent, of the of the U.S. LNG facilities.[1]

II. General Comments

The purpose of this Petition is to offer for PHMSA's consideration revisions to Part 193 as part if its upcoming rulemaking which seeks to update and revise the existing regulations. These recommended changes, which are intended for operators of LNG peak shaving, satellite, small scale and mobile/temporary LNG facilities seek to incorporate by reference into the agency's Part 193 regulations,[2] the latest edition of the National Fire Protection Association's (NFPA) industry standard, *NFPA-59A: Standard for the Production, Storage, and Handling of LNG,* (2019) (hereafter also referred to as "NFPA 59A (2019)"). The updated standards modernize the design, construction, maintenance and operation of LNG facilities by incorporating updated practices. The application of the updated standard will enhance safety by expanding requirements for vapor and thermal exclusion zone modeling, clarifying facility design and construction requirements, and taking a more holistic approach to cathodic protection requirements. These enhancements significantly advance the requirements for LNG facilities outlined within the NFPA 59A (2001), and the seismic design criteria for field fabricated tanks outlined in NFPA 59A (2006), which are currently incorporated by reference within Part 193.

Incorporating NFPA 59A (2019) will also remove the unnecessary challenge of finding equipment manufacturers that meet the requirements of NFPA 59A (2001), some of which have become outdated and inconsistent with current practices. Today, operators needlessly expend resources demonstrating to regulatory agencies that equipment manufactured to current, modern standards is equivalent to equipment manufactured under standards from almost two decades ago.

Additionally, NFPA 59A (2019) aligns with the Protecting our Infrastructure of Pipelines and Enhancing Safety (PIPES) Act of 2016, which directs the Secretary of Transportation to review and update the minimum safety standards for permanent, small scale liquefied natural gas pipeline facilities. It should be noted that while NFPA 59A (2019) increases the requirements for LNG facilities compared to those prescribed within NFPA 59A (2001), the cost for operators to incorporate NFPA 59A (2019) is minimal since several of the newer requirements are already required within Part 193 or within operators' internal company requirements. Similarly, impacts to the environment and relationships between regulating agencies would be minimal.

[1] Approximately 80 AGA member facilities are comprised of peak shavers, satellite, and base load (marine terminal) under PHMSA's jurisdiction.

[2] 49 C.F.R. Part 193

Appendix A sets forth AGA's specific recommended changes to the regulatory language within Part 193 that would be needed to incorporate NFPA 59A (2019) for LNG peak shaving, satellite, small scale and mobile/temporary LNG facilities. Although NFPA 59A (2019) is written to apply to all types of LNG facilities, its prescriptive requirements are better suited for peak shaving, satellite, and small scale facilities, which operate seasonally and are better equipped to meet prescriptive requirements. AGA's membership is predominantly composed of members who operate these facilities and support the applicability of NFPA 59A (2019) for peak shaving, satellite, and small scale facilities. Additional review is required to determine if this standard or alternate approaches, such as applying a risk-based approach, are better suited for facilities that do not operate under similar seasonal constraints. For these reasons, the AGA is filing this petition to apply to only LNG peak shaving, satellite, small scale and mobile/temporary LNG facilities. Appendices B and C propose changes to the existing regulatory language that are duplicative within Part 193, or are further enhanced within NFPA 59A (2019).

The NFPA 59A Technical Committee received unprecedented input from interested parties, including over 150 comments which were submitted by PHMSA, and incorporated into NFPA 59A (2019). AGA believes that the Technical Committee, through its collaborative process, was able to effectively revise NFPA 59A to capture innovation in technology and manufacturing processes, while also aligning with PHMSA and the industry's focus on enhancing safety. Additionally, AGA appreciates PHMSA's participation and collaboration with the working group.

III. Specific Comments

Enhancements to NFPA 59A(2019)

NFPA 59A (2019) mirrors and, in some cases, expands on the principles and requirements within Part 193. To avoid duplicative language, AGA recommends that redundant requirements be removed from Part 193. This aligns with the directive for federal agencies to use consensus technical standards in lieu of government-written standards whenever possible[3]. Appendix B outlines the duplicative regulatory language within Part 193 that should be removed.

The revisions to NFPA 59A also align with existing advisory bulletins, echoing security requirements[4] and emergency responder liaison requirements[5]. Additional enhancements made to the NFPA 59A standard since 2001 are outlined below:

NFPA 59A (2006):

- Updates to incorporated by reference publications chapter of new codes/standards and updated editions of previously listed publication

[3] "The National Technology Transfer and Advancement Act of 1995 (Pub. L. 104-113) directs Federal agencies to use voluntary consensus standards in lieu of government-written standards whenever possible. Voluntary consensus standards are standards developed or adopted by voluntary bodies that develop, establish, or coordinate technical standards using agreed-upon procedures. In addition, Office of Management and Budget (OMB) issued OMB Circular A-119 to implement Section 12 (d) of Pub. L. 104-113 relative to the utilization of consensus technical standards by federal agencies." (https://www.phmsa.dot.gov/standards-rulemaking/pipeline/standards-incorporated-reference)

[4] Docket No. PHMSA–04–19856

[5] Docket No. PHMSA–2012–0201

- Revisions in Chapter 7 to cover double and full containment LNG storage containers. Definitions of these types of containers were also added to the standard.
- Additional revisions to Chapter 7 enhancing seismic design of stationary field fabricated LNG containers. The 2006 revisions to seismic criteria lead to PHMSA incorporation by reference of the 2006 NFPA 59A (2006) for its specific seismic design requirements/
- Chapter 11 "Transfer of LNG and Refrigerants" was revised to add requirements for a contingency plan for potential LNG marine transfer incidents.

NFPA 59A (2009):

- Updates to incorporated by reference publications chapter of new codes/standards and updated editions of previously listed publication
- Additional vapor dispersion models were allowed where they are evaluated and approved by an independent body using the new Model Evaluation Protocol developed by the NFPA Research Foundation.
- The Design Spill table was revised to separate the design spill requirements for over-the-top fill/withdrawal containers, other containers, and process areas.
- Scope statements were added to each chapter, and the term radiant heat flux replaced thermal radiation throughout the document.

NFPA 59A (2013):

- Updates to incorporated by reference publications chapter of new codes/standards and updated editions of previously listed publication
- Annex E, Performance-Based Alternative Standard for Plant Siting, has been revised and relocated to the mandatory text as new Chapter 15, Performance (Risk Assessment) Based LNG Plant Siting. Use of the performance-based option requires approval of the authority having jurisdiction. The performance-based option requires analyzing the risks to persons and property in the area surrounding the proposed LNG plant based on risk mitigation techniques incorporated into the plant design. All the minimum requirements of earlier chapters of NFPA 59A must also be met.
- Also incorporates several revisions to promote consistency between NFPA 59A and the Code of Federal Regulations, as well as some new terminology for tank systems. In addition, Chapters 7 and 14 were reorganized for easier use.

NFPA 59A (2016):

- Updates to incorporated by reference publications chapter of new codes/standards and updated editions of previously listed publication
- Addressed requirements for membrane tank systems
- Definitions were added and revised to establish a hierarchy of components, facilities, and plants. A new definition for LNG facility has been added, and the definitions for LNG plant and component have been revised to maintain consistency. Subsequent chapters were revised to correspond to the new definitions.
- Additional changes have been made to improve the fire safe design of outer concrete containers to avoid explosive spalling during a fire event.
- Revisions have been made to requirements for inspections after repairs, detection of leaks, and post seismic events to provide greater confidence in the system's continued safety and integrity.

- The 2016 edition also incorporates several revisions to enhance the use of Annex A. NFPA documents that were listed in Annex A as informational references in prior editions have been moved into Chapter 12 as enforceable code to address the design and installation requirements for fire protection systems.
- New and revised annex material has been added for numerous sections to provide additional information, guidance, and clarification, as well as to point users to reference materials for further guidance.

NFPA 59A (2019):

- Restructured and expanded chapters for increased understanding of requirements for various systems and components, etc.
- Updates to incorporated by reference publications chapter of new codes/standards and updated editions of previously listed publication
- New chapter 17 on Small Scale LNG Facilities
- Installation of corrosion protection has been moved from Chapter 12 to Chapter 4.
- Clarification for control room attendance
- New and clarified requirements for siting related to toxic vapor concentrations, overpressure limits arising from explosions, thermal heat flux levels from pool fire, jet fires and fireballs
- Changes to the design spill criteria
- New and clarified requirements for vapor and thermal exclusion zone modeling
- New and clarified requirements for design and construction of stationary LNG tank systems
- New and clarified requirements for pipe-in-pipe systems (vacuum jacketed and secondary containment)
- New and clarified plant design/construction requirements
- New and clarified requirements for purging related to planning and implementation
- Clarification has been added for fire protection systems citing additional existing NFPA standards, and the term fire control has been replaced with fire protection.
- Clarified requirements for performing the fire protection evaluation on a reoccurring basis and for various plant modifications
- Enhanced electrical area classification awareness based on product, quantity of release, pressure, etc.
- Term use standardization
- Alignment with many Part 193 Subparts requirements

IV. Conclusion

NFPA 59A (2019) has achieved the goal of increasing safety through efforts to align with federal safety regulations in Part 193, incorporation of lessons learned from recent siting efforts and other leading practices, inclusion of enhanced hazard modeling requirements, and inclusion of references to additional consensus standards that have been developed over the past 17 years. Incorporating NFPA 59A (2019) and updating Part 193 in a rulemaking as proposed by this Petition would further enhance the continued safety and compliance of these facilities.

Appendix A: Revisions to Part 193 to Incorporate NFPA 59A (2019)

Appendix A identifies Subparts within Part 193 that should be updated to incorporate the latest edition of NFPA 59A (2019 edition) for application to peak shaving and other small-scale or temporary LNG facilities.

Subpart A – General

193.2001 Scope of part.
(a) This part prescribes safety standards for LNG facilities (peak shaving, satellite, small scale, and mobile/temporary) used in the transportation of gas by pipeline that is subject to the pipeline safety laws (49 U.S.C. 60101 et seq.) and Part 192 of this chapter.
(b) This part does not apply to:
(1) LNG marine terminals (import or export)
(2) LNG facilities used by ultimate consumers of LNG or natural gas.
(3) LNG facilities used in the course of natural gas treatment or hydrocarbon extraction which do not store LNG.
(4) In the case of a marine cargo transfer system and associated facilities, any matter other than siting pertaining to the system or facilities between the marine vessel and the last manifold (or in the absence of a manifold, the last valve) located immediately before a storage tank.
(5) Any LNG facility located in navigable waters (as defined in Section 3(8) of the Federal Power Act (16 U.S.C. 796(8)).

§193.2005 Applicability.
[…]
(b) If an existing LNG facility (or facility under construction before **[*Insert effective date of the rule*]** ~~***March 31, 2000***~~ is replaced, relocated or significantly altered after **[*Insert effective date of the rule*]** ~~***March 31, 2000***~~ , the facility must comply with the applicable requirements of this part governing, siting, design, installation, and construction, except that:

§193.2013 What documents are incorporated by reference partly or wholly in this part?
§193.2013 (g)(1) *"NFPA-59A **(2019)** ~~**(2001)**~~, "Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)," (NFPA-59A- **2019** ~~**2001**~~), IBR approved for §193.2019(a), §193.2051, §193.2057, §193.2059 introductory text and (c), §193.2101(a), §~~**193.2101(b)**~~, §193.2301, §193.2303, §**193.2321(b)**, §193.2401, §193.2521, §193.2639(a), §**193.2701**, and §193.2801."*

§193.2013(e)(1) ASME Boiler & Pressure Vessel Code, Section VIII, Division 1: "Rules for Construction of Pressure Vessels," ~~***2007***~~ ***2017*** edition, July 1, 2017, (ASME BPVC, Section VIII, Division 1), IBR approved for §193.2321(a).

193.2019 Mobile and temporary LNG facilities.

(a) Mobile and temporary LNG facilities for peak shaving 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-***2019*** ~~***2001***~~ (incorporated by reference, *see* §193.2013).

Subpart B – Siting Requirements

§193.2051 Scope.

"Each LNG facility designed, constructed, replaced, relocated or significantly altered after ***[Insert effective date of the rule]*** ~~***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-****2019*** ~~***2001***~~*, this part prevails."*

§193.2057 Thermal radiation protection.

"Each LNG container and LNG transfer system must have a thermal exclusion zone in accordance with section ***5.3.2.12*** ~~***2.2.3.2***~~ *of NFPA-59A-****2019*** ~~***2001***~~ *(incorporated by reference, see §193.2013) with the following exceptions…"*

§193.2059 Flammable vapor-gas dispersion protection.

"*Each LNG container and LNG transfer system must have a dispersion exclusion zone in accordance with sections* ***5.3.2.9*** ~~*2.2.3.3*~~ *and* ***5.3.2*** ~~*2.2.3.4*~~ *of NFPA-59A-****2019*** ~~*2001*~~ *(incorporated by reference, see §193.2013) with the following exceptions*:"

§193.2059(c) "*The design spill shall be determined in accordance with section* ***5.3.2.3*** ~~*2.2.3.5*~~ *of NFPA-59A-****2019*** ~~*2001*~~ *(incorporated by reference, see §193.2013)*."

Subpart C – Design

§193.2101 Scope.

§193.2101(a) "*Each LNG facility designed after* ***[Insert effective date of the rule]*** ~~***March 31, 2000***~~ *must comply with the requirements of this part and of NFPA-59A-****2019*** ~~***2001***~~ *(incorporated by reference, see §193.2013). If there is a conflict between this Part and NFPA-59A-****2019*** ~~***2001***~~*, the requirements in this part prevail."*

Subpart D – Construction

§193.2301 Scope.

"*Each LNG facility constructed after* ***[Insert effective date of the rule]*** ~~***March 31, 2000***~~ *must comply with requirements of this part and of NFPA-59A-****2019*** ~~***2001***~~ *(incorporated by reference see §193.2013). In the event of a conflict between this part and NFPA 59A, this part prevails*."

§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-****2019*** ~~***2001***~~ *(incorporated by reference, see §193.2013)."*

§193.2321 Nondestructive tests.

§193.2321(b)(1) Section **8.4.12.2** ~~**7.3.1.2**~~ of NFPA Std-59A-***2019*** ~~***2006***~~, (incorporated by reference, *see* §193. 2013);

Subpart E – Equipment

§193.2401 Scope.

"*After* [*Insert effective date of the rule*] ~~*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-2019* ~~*2001*~~ ***(incorporated by reference, see §193.2013)****. In the event of a conflict between this part and NFPA 59A (incorporated by reference, see §193.2013), this part prevails*."

Subpart F – Operations

§193.2501 Scope.

"This subpart prescribes requirements for the operation of LNG facilities. ***Each LNG facility must comply with the requirements of this subpart and of NFPA-59A-2019 (incorporated by reference, see §193.2013) with the following exceptions. If there is a conflict between this Subpart and NFPA-59A-2019, the requirements in this Subpart prevail****."*

§193.2521 Operating records.

"*Each operator shall maintain a record of results of each inspection, test and investigation required by this subpart. For each LNG facility that is designed and constructed after* [*Insert effective date of the rule*] ~~*March 31, 2000*~~ *the operator shall also maintain related inspection, testing, and investigation records that NFPA-59A-2019* ~~*2001*~~ *(incorporated by reference, see §193.2013) requires. Such records, whether required by this part or NFPA-59A-2019* ~~*2001*~~*, must be kept for a period of not less than five years*."

Subpart H – Personnel Qualifications and Training

§193.2701 Scope.

"This subpart prescribes requirements for personnel qualifications and training. ***Each LNG facility must comply with the requirements of this part and of NFPA-59A-2019 (incorporated by reference, see §193.2013) with the following exceptions. If there is a conflict between this Part and NFPA-59A-2019, the requirements in this part prevail.****"*

Subpart I – Fire Protection

§193.2801 Fire protection.

Each operator must provide and maintain fire protection at LNG plants according to sections ***16.1*** ~~***9.1***~~ through ***16.7*** ~~***9.7 and section 9.9***~~ of NFPA-59A-***2019*** ~~***2001***~~ (incorporated by reference, *see* §193.2013). ~~***However, LNG plants existing on March 31, 2000, need not comply with provisions on emergency shutdown systems, water delivery systems, detection systems, and personnel qualification and training until September 12, 2005.***~~

Subpart J – Security

§193.2901 Scope.

*"**Each operator must implement security requirements in accordance with NFPA 59A (incorporated by reference, see §193.2013).** ~~**This subpart prescribes requirements for security at LNG plants.**~~ However, the requirements do not apply to existing LNG plants that do not contain LNG."*

Appendix B - Revisions to Part 193 to Remove Duplicative Language

Appendix B identifies current regulatory language in Part 193 where duplicative text exists within NFPA 59A (2019 edition). AGA proposes deletion of duplicative language from Part 193 as language echoes the same or comparable language in the NFPA 59A (2019 edition).

Subpart A – General	Section in NFPA 59A (2019)
§193.2013 What documents are incorporated by reference partly or wholly in this part? **§193.2013 (c)** ~~***American Petroleum Institute (API), 1220 L Street NW., Washington, DC 20005, and phone: 202-682-8000, Web site: http://api.org/.***~~ **§193.2013 (c)(1)** ~~***API Standard 620, "Design and Construction of Large, Welded, Low-pressure Storage Tanks," 11th edition, February 2008 (including addendum 1 (March 2009), addendum 2 (August 2010), and addendum 3 (March 2012)), (API Std 620), IBR approved for §193.2101(b); §193.2321(b).***~~ **193.2013(d)** ~~***American Society of Civil Engineers (ASCE), 1801 Alexander Bell Drive, Reston, VA 20191, (800) 548-2723, 703 295-6300 (international), Web site: http://www.asce.org.***~~ ~~***(1) ASCE/SEI 7-05, "Minimum Design Loads for Buildings and Other Structures" 2005 edition (including supplement No. 1 and Errata), (ASCE/SEI 7-05), IBR approved for §193.2067(b).***~~ **193.2013(g)(1)(2)** ~~***NFPA 59A (2006), "Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG)," 2006 edition, approved August 18, 2005, (NFPA 59A 2006), IBR approved for §§193.2101(b) and 193.2321(b).***~~	*Incorporated by reference within the 2019 edition of NFPA 59A.* *Section 8.4.14*
Subpart B – Siting Requirements	
§193.2067 Wind forces. **§193.2067 (b)(1)** ~~***For shop fabricated containers of LNG or other hazardous fluids with a capacity of not more than 70,000 gallons, applicable wind load data in ASCE/SEI 7 (incorporated by reference, see §193.2013).***~~	*Section 8.3.2.1*
Subpart C – Design	
193.2101(b) ~~***Each stationary LNG storage tank must comply with Section 7.2.2 of NFPA 59A 2006 (incorporated by reference, see §193.2013) for seismic design of field fabricated tanks. All other LNG storage tanks must comply with API Std 620 (incorporated by reference, see §193.2013) for seismic design.***~~	*Section 8.4.14 and 8.5.2*

§193.2119 Records ~~*Each operator shall keep a record of all materials for components, buildings, foundations, and support systems, as necessary to verify that material properties meet the requirements of this part. These records must be maintained for the life of the item concerned.*~~	*Section 4.9*
§193.2155 Structural requirements. **§193.2155(a)(1)(i)** ~~*Full hydrostatic head of impounded LNG;*~~ **§193.2155(3)** ~~*The effect of the temperature, any thermal gradient, and any other anticipated degradation resulting from sudden or localized contact with LNG.*~~ **§193.2155(4)**-~~*Exposure to fire from impounded LNG or from sources other than impounded LNG.*~~	*13.6(1)*
§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 required to determine water removal systems capacity, 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.*~~	*13.12*

~~*§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*~~	*Sections 13.1 and 13.2*
~~*§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.*~~	*Sections 4.6.1 and 4.6.2*
§193.2321 Nondestructive Tests **§193.2321(b)(2)** ~~*Appendices C and Q of API Std 620, (incorporated by reference, see §193.2013);*~~	*8.2.1, and 8.4.12.1 through 8.4.12.3.2.2*
Subpart E – Equipment	
~~*§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.*~~	*Sections 4.7.1 and 4.7.2*

~~(e) Each control center must have a means of communicating a warning of hazardous conditions to other locations within the plant frequented by personnel.~~	
~~§193.2445 Sources of power.~~ ~~(a) Electrical control systems, means of communication, emergency lighting, and firefighting systems must have at least two sources of power which function so that failure of one source does not affect the capability of the other source.~~ ~~(b) Where auxiliary generators are used as a second source of electrical power:~~ ~~(1) They must be located apart or protected from components so that they are not unusable during a controllable emergency; and~~ ~~(2) Fuel supply must be protected from hazards.~~	*Section 4.8*
Subpart F—Operations	
~~§193.2503 Operating procedures.~~ ~~Each operator shall follow one or more manuals of written procedures to provide safety in normal operation and in responding to an abnormal operation that would affect safety. The procedures must include provisions for:~~	*Section 18.2.1.*
~~(a) Monitoring components or buildings according to the requirements of §193.2507.~~	*Sections 18.3.9 and 18.6.1*
~~(b) Startup and shutdown, including for initial startup, performance testing to demonstrate that components will operate satisfactory in service.~~	Section *18.3.4*
~~(c) Recognizing abnormal operating conditions.~~	Section 18.3.8.2
~~(d) Purging and inerting components according to the requirements of §193.2517.~~	*Section 18.3.5*
~~(e) In the case of vaporization, maintaining the vaporization rate, temperature and pressure so that the resultant gas is within limits established for the vaporizer and the downstream piping.~~	*Section 18.3.8.1*
~~(f) In the case of liquefaction, maintaining temperatures, pressures, pressure differentials and flow rates, as applicable, within their design limits for:~~ ~~(1) Boilers;~~ ~~(2) Turbines and other prime movers;~~ ~~(3) Pumps, compressors, and expanders;~~ ~~(4) Purification and regeneration equipment; and~~ ~~(5) Equipment within cold boxes.~~ ~~(g) Cooldown of components according to the requirements of §193.2505~~	Section *18.3.7*
~~(g) Cooldown of components according to the requirements of §193.2505.~~	Sections *18.3.5.1 and 18.6.3*
~~§193.2505 Cooldown.~~ ~~(a) The cooldown of each system of components that is subjected to cryogenic temperatures must be limited to a rate and distribution pattern that keeps thermal stresses within design limits during the cooldown period, paying particular attention to the performance of expansion and contraction devices.~~ ~~(b) After cooldown stabilization is reached, cryogenic piping systems must be checked for leaks in areas of flanges, valves, and seals.~~	Sections *18.3.5.1 and 18.6.3*

~~*§193.2507 Monitoring operations.*~~ ~~*Each component in operation or building in which a hazard to persons or property could exist must be monitored to detect fire or any malfunction or flammable fluid that could cause a hazardous condition. Monitoring must be accomplished by watching or listening from an attended control center for warning alarms, such as gas, temperature, pressure, vacuum, and flow alarms, or by conducting an inspection or test at intervals specified in the operating procedures.*~~	*Sections 18.3.9 and 18.6.1*
~~*§193.2509 Emergency procedures.*~~ ~~*(a) Each operator shall determine the types and places of emergencies other than fires that may reasonably be expected to occur at an LNG plant due to operating malfunctions, structural collapse, personnel error, forces of nature, and activities adjacent to the plant.*~~	*Section 18.4.2*
~~*(b) To adequately handle each type of emergency identified under paragraph (a) of this section and each fire emergency, each operator must follow one or more manuals of written procedures. The procedures must provide for the following:*~~ ~~*(1) Responding to controllable emergencies, including notifying personnel and using equipment appropriate for handling the emergency.*~~	*Section 18.4.3*
~~*(2) Recognizing an uncontrollable emergency and taking action to minimize harm to the public and personnel, including prompt notification of appropriate local officials of the emergency and possible need for evacuation of the public in the vicinity of the LNG plant.*~~	Section *18.4.4*
~~*(3) Coordinating with appropriate local officials in preparation of an emergency evacuation plan, which sets forth the steps required to protect the public in the event of an emergency, including catastrophic failure of an LNG storage tank.*~~	Section *18.4.5*
~~*(4) Cooperating with appropriate local officials in evacuations and emergencies requiring mutual assistance and keeping these officials advised of:*~~ ~~*(i) The LNG plant fire control equipment, its location, and quantity of units located throughout the plant;*~~ ~~*(ii) Potential hazards at the plant, including fires;*~~ ~~*(iii) Communication and emergency control capabilities at the LNG plant; and*~~ ~~*(iv) The status of each emergency.*~~	*Sections 18.4.5 through 18.4.5.4.*
§193.2511 Personnel safety~~*.*~~ ~~*(a) Each operator shall provide any special protective clothing and equipment necessary for the safety of personnel while they are performing emergency response duties.*~~ ~~*(b) All personnel who are normally on duty at a fixed location, such as a building or yard, where they could be harmed by thermal radiation from a burning pool of impounded liquid, must be provided a means of protection at that location from the harmful effects of thermal radiation or a means of escape.*~~*"*	Section *16.7.2* *Section 12.9, 16.8.3.1(5) and 16.8.3.1(6)*

~~§193.2513 Transfer procedures.~~ ~~(a) Each transfer of LNG or other hazardous fluid must be conducted in accordance with one or more manuals of written procedures to provide for safe transfers.~~	Sections *18.3.8(3) and 18.3.4*
~~(b) The transfer procedures must include provisions for personnel to:~~ ~~(1) Before transfer, verify that the transfer system is ready for use, with connections and controls in proper positions, including if the system could contain a combustible mixture, verifying that it has been adequately purged in accordance with a procedure which meets the requirements of "Purging Principles and Practices (incorporated by reference, see §193.2013)";~~	Section *18.8.6.5*
~~(2) Before transfer, verify that each receiving container or tank vehicle does not contain any substance that would be incompatible with the incoming fluid and that there is sufficient capacity available to receive the amount of fluid to be transferred;~~	Sections *18.8.1 and 18.8.6.4*
~~(3) Before transfer, verify the maximum filling volume of each receiving container or tank vehicle to ensure that expansion of the incoming fluid due to warming will not result in overfilling or overpressure;~~	Sections *18.8.1 and 18.8.6.4*
~~(4) When making bulk transfer of LNG into a partially filled (excluding cooldown heel) container, determine any differences in temperature or specific gravity between the LNG being transferred and the LNG already in the container and, if necessary, provide a means to prevent rollover due to stratification.~~	Section *18.8.2*
~~(5) Verify that the transfer operations are proceeding within design conditions and that overpressure or overfilling does not occur by monitoring applicable flow rates, liquid levels, and vapor returns.~~	Sections *18.8.6.4, 18.8.6.6 and 18.8.6.7*
~~(6) Manually terminate the flow before overfilling or overpressure occurs; and~~	Sections *18.3.8.3 and 18.8.6.6*
~~(7) Deactivate cargo transfer systems in a safe manner by depressurizing, venting, and disconnecting lines and conducting any other appropriate operations.~~	Section *18.3.4*
~~(c) In addition to the requirements of paragraph (b) of this section, the procedures for cargo transfer must be located at the transfer area and include provisions for personnel to:~~	Section *18.3.10*
~~(1) Be in constant attendance during all cargo transfer operations;~~	Section *18.8.4*
~~(2) Prohibit the backing of tank trucks in the transfer area, except when a person is positioned at the rear of the truck giving instructions to the driver;~~	Section 18.8.6.10
~~(3) Before transfer, verify that:~~ ~~(i) Each tank car or tank truck complies with applicable regulations governing its use;~~	Sections *15.6.1 and 15.6.2*
~~(ii) All transfer hoses have been visually inspected for damage and defects;~~	Section *15.8.6*
~~(iii) Each tank truck is properly immobilized with chock wheels, and~~ *electrically grounded;* ~~and~~	Sections *18.8.6.8.4 and 11.10.2*
~~(iv) Each tank truck engine is shut off unless it is required for transfer operations;~~	Section *18.8.6.8.3*
~~(4) Prevent a tank truck engine that is off during transfer operations from being restarted until the transfer lines have been disconnected and any released vapors have dissipated;~~	Section *18.8.6.8.5*

~~*(5) Prevent loading LNG into a tank car or tank truck that is not in exclusive LNG service or that does not contain a positive pressure if it is in exclusive LNG service, until after the oxygen content in the tank is tested and if it exceeds 2 percent by volume, purged in accordance with a procedure that meets the requirements of "Purging Principles and Practices (incorporated by reference, see §193.2013).*~~	Section *18.8.6.9*
~~*(6) Verify that all transfer lines have been disconnected and equipment cleared before the tank car or tank truck is moved from the transfer position; and*~~	Section *18.8.6.8.5*
~~*(7) Verify that transfers into a pipeline system will not exceed the pressure or temperature limits of the system.*~~	Section *18.8.6.7*
§193.2515 Investigations of failures. ~~*(a) Each operator shall investigate the cause of each explosion, fire, or LNG spill or leak which results in:*~~ ~~*(1) Death or injury requiring hospitalization; or*~~ ~~*(2) Property damage exceeding $10,000.*~~ ~~*(b) As a result of the investigation, appropriate action must be taken to minimize recurrence of the incident.*~~	Section *18.2.2.7*
~~*§193.2517 Purging*~~ ~~*When necessary for safety, components that could accumulate significant amounts of combustible mixtures must be purged in accordance with a procedure which meets the provisions of the "Purging Principles and Practices (incorporated by reference, see §193.2013)" after being taken out of service and before being returned to service.*~~	Sections *18.10.1 and 18.6.5*
Subpart G – Maintenance	
§193.2603 General. ~~**(a) Each component in service, including its support system, must be maintained in a condition that is compatible with its operational or safety purpose by repair, replacement, or other means.**~~	*Section 18.9.3*
~~**(c) Each component taken out of service must be identified in the records kept under §193.2639.**~~	*Section 18.12.1*
~~**(d) If a safety device is taken out of service for maintenance, the component being served by the device must be taken out of service unless the same safety function is provided by an alternate means.**~~	*Section 18.10.10.11*
~~**(e) If the inadvertent operation of a component taken out of service could cause a hazardous condition, that component must have a tag attached to the controls bearing the words "do not operate" or words of comparable meaning.**~~	*Section 18.10.2*

~~*§193.2605 Maintenance procedures.*~~ ~~*(a) Each operator shall determine and perform, consistent with generally accepted engineering practice, the periodic inspections or tests needed to meet the applicable requirements of this subpart and to verify that components meet the maintenance standards prescribed by this subpart.*~~ ~~*(b) Each operator shall follow one or more manuals of written procedures for the maintenance of each component, including any required corrosion control. The procedures must include:*~~ ~~*(1) The details of the inspections or tests determined under paragraph (a) of this section and their frequency of performance; and*~~ ~~*(2) A description of other actions necessary to maintain the LNG plant according to the requirements of this subpart.*~~	*Section 18.9,18.10.13.1.3.(2), 18.10.13.6 and 18.10.13.7*
~~*(c) Each operator shall include in the manual required by paragraph (b) of this section instructions enabling personnel who perform operation and maintenance activities to recognize conditions that potentially may be safety related conditions that are subject to the reporting requirements of §191.23 of this subchapter.*~~	*§191.23.* *Section 18.3.8.2 and 18.4.2.*
~~*§193.2607 Foreign material.*~~ ~~*(a) The presence of foreign material, contaminants, or ice shall be avoided or controlled to maintain the operational safety of each component.*~~ ~~*(b) LNG plant grounds must be free from rubbish, debris, and other material which present a fire hazard. Grass areas on the LNG plant grounds must be maintained in a manner that does not present a fire hazard.*~~	Section *18.10.9*
~~*§193.2609 Support systems.*~~ ~~*Each support system or foundation of each component must be inspected for any detrimental change that could impair support.*~~	Section *18.10.3*
193.2611 Fire Protection ~~*(b) Access routes for movement of fire control equipment within each LNG plant must be maintained to reasonably provide for use in all weather conditions.*~~	*Section 18.10.9(4)*
§193.2613 Auxiliary power sources ~~*Each auxiliary power source must be tested monthly to check its operational capability and tested annually for capacity. The capacity test must take into account the power needed to start up and simultaneously operate equipment that would have to be served by that power source in an emergency.*~~	Section *18.10.4*
§193.2615 Isolating and purging (a) Before personnel begin maintenance activities on components handling flammable fluids ***the components/systems*** ~~*which are isolated for maintenance, the component*~~ must be ***isolated and*** purged in accordance with ***NFPA 59A (incorporated by reference, see 193.2013) and*** a procedure which meets the requirements of "Purging Principles and Practices (incorporated by reference, *see* §193.2013)"; unless the maintenance procedures under §193.2605 provide that the activity can be safely performed without purging.	Section *18.6.5*

(b) If the component or maintenance activity provides an ignition source, a technique in addition to isolation valves (such as removing spool pieces or valves and blank flanging the piping, or double block and bleed valving) must be used to ensure that the work area is free of flammable fluids.	
~~**§193.2617 Repairs.**~~ ~~*(a) Repair work on components must be performed and tested in a manner which:*~~ ~~*(1) As far as practicable, complies with the applicable requirements of Subpart D of this part; and*~~ ~~*(2) Assures the integrity and operational safety of the component being repaired.*~~ ~~*(b) For repairs made while a component is operating, each operator shall include in the maintenance procedures under §193.2605 appropriate precautions to maintain the safety of personnel and property during repair activities.*~~	Section *18.10.8*
~~*§193.2621 Testing transfer hoses.*~~ ~~*Hoses used in LNG or flammable refrigerant transfer systems must be:*~~ ~~*(a) Tested once each calendar year, but with intervals not exceeding 15 months, to the maximum pump pressure or relief valve setting; and*~~ ~~*(b) Visually inspected for damage or defects before each use.*~~	*Section 15.8.6*
~~*§193.2623 Inspecting LNG storage tanks.*~~ ~~*Each LNG storage tank must be inspected or tested to verify that each of the following conditions does not impair the structural integrity or safety of the tank:*~~ ~~*(a) Foundation and tank movement during normal operation and after a major meteorological or geophysical disturbance.*~~ ~~*(b) Inner tank leakage.*~~ ~~*(c) Effectiveness of insulation.*~~ ~~*(d) Frost heave.*~~	Sections *18.10.11 and 18.10.12*
§193.2625 Corrosion protection *Each operator shall implement corrosion protection, corrosion control systems, monitoring and remedial measures requirement in accordance with NFPA 59A (incorporated by reference, see §193.2013)* ~~*(a) Each operator shall determine which metallic components could, unless corrosion is controlled, have their integrity or reliability adversely affected by external, internal, or atmospheric corrosion during their intended service life.*~~ ~~*(b) Components whose integrity or reliability could be adversely affected by corrosion must be either —*~~ ~~*(1) Protected from corrosion in accordance with §193.2627 through §193.2635, as applicable; or*~~ ~~*(2) Inspected and replaced under a program of scheduled maintenance in accordance with procedures established under §193.2605.*~~	*Section 8.10.13.1.1, and18.10.13*
~~*§193.2627 Atmospheric corrosion control.*~~	Section *18.10.13.2*

~~*Each exposed component that is subject to atmospheric corrosive attack must be protected from atmospheric corrosion by—*~~ ~~*(a) Material that has been designed and selected to resist the corrosive atmosphere involved; or*~~ ~~*(b) Suitable coating or jacketing.*~~	
~~*§193.2629 External corrosion control: buried or submerged components.*~~ ~~*(a) Each buried or submerged component that is subject to external corrosive attack must be protected from external corrosion by—*~~ ~~*(1) Material that has been designed and selected to resist the corrosive environment involved; or*~~ ~~*(2) The following means:*~~ ~~*(i) An external protective coating designed and installed to prevent corrosion attack and to meet the requirements of §192.461 of this chapter; and*~~ ~~*(ii) A cathodic protection system designed to protect components in their entirety in accordance with the requirements of §192.463 of this chapter and placed in operation before October 23, 1981, or within 1 year after the component is constructed or installed, whichever is later.*~~ ~~*(b) Where cathodic protection is applied, components that are electrically interconnected must be protected as a unit.*~~	Section *18.10.13.3.1 and 18.10.13.3.2*
~~*§193.2631 Internal corrosion control.*~~ ~~*Each component that is subject to internal corrosive attack must be protected from internal corrosion by—*~~ ~~*(a) Material that has been designed and selected to resist the corrosive fluid involved; or*~~ ~~*(b) Suitable coating, inhibitor, or other means.*~~	Section *18.10.13.4*
~~*§193.2633 Interference currents.*~~ ~~*(a) Each component that is subject to electrical current interference must be protected by a continuing program to minimize the detrimental effects of currents.*~~ ~~*(b) Each cathodic protection system must be designed and installed so as to minimize any adverse effects it might cause to adjacent metal components.*~~ ~~*(c) Each impressed current power source must be installed and maintained to prevent adverse interference with communications and control systems.*~~	Section *18.10.13.5*
~~*§193.2635 Monitoring corrosion*~~ ~~*Corrosion protection provided as required by this subpart must be periodically monitored to give early recognition of ineffective corrosion protection, including the following, as applicable:*~~ ~~*(a) Each buried or submerged component under cathodic protection must be tested at least once each calendar year, but with intervals not exceeding 15 months, to determine whether the cathodic protection meets the requirements of §192.463 of this chapter.*~~ ~~*(b) Each cathodic protection rectifier or other impressed current power source must be inspected at least 6 times each calendar year, but with intervals not exceeding 21/2 months, to ensure that it is operating properly.*~~ ~~*(c) Each reverse current switch, each diode, and each interference bond whose failure would jeopardize component protection must be electrically*~~	Section *18.10.13.6.1* Section *18.10.13.6.2* *Section 18.10.13.6.3*

~~checked for proper performance at least 6 times each calendar year, but with intervals not exceeding 21/2 months. Each other interference bond must be checked at least once each calendar year, but with intervals not exceeding 15 months.~~ ~~(d) Each component that is protected from atmospheric corrosion must be inspected at intervals not exceeding 3 years.~~ ~~(e) If a component is protected from internal corrosion, monitoring devices designed to detect internal corrosion, such as coupons or probes, must be located where corrosion is most likely to occur. However, monitoring is not required for corrosion resistant materials if the operator can demonstrate that the component will not be adversely affected by internal corrosion during its service life. Internal corrosion control monitoring devices must be checked at least two times each calendar year, but with intervals not exceeding 71/2 months.~~	
~~§193.2637 Remedial measures.~~ ~~Prompt corrective or remedial action must be taken whenever an operator learns by inspection or otherwise that atmospheric, external, or internal corrosion is not controlled as required by this subpart.~~	*Section 18.10.13.7*
§193.2639 Maintenance records. **(a) Each operator shall keep a record at each LNG plant of the date and type of each maintenance activity performed on each component and corrosion control systems in accordance with NFPA 59A (incorporated by reference, see §193.2013)** ~~to meet the requirements of this part. For each LNG facility that is designed and constructed after March 31, 2000 the operator shall also maintain related periodic inspection and testing records that NFPA 59A 2019 2001 (incorporated by reference, see §193.2013) requires. Maintenance records, whether required by this part or NFPA 59A 2019 2001, must be kept for a period of not less than five years.~~ ~~(b) Each operator shall maintain records or maps to show the location of cathodically protected components, neighboring structures bonded to the cathodic protection system, and corrosion protection equipment.~~ ~~(c) Each of the following records must be retained for as long as the LNG facility remains in service:~~ ~~(1) Each record or map required by paragraph (b) of this section.~~ ~~(2) Records of each test, survey, or inspection required by this subpart in sufficient detail to demonstrate the adequacy of corrosion control measures.~~	*Section 18.12.1* *Section 18.12.3*
~~*Subpart H—Personnel Qualifications and Training*~~	
~~§193.2703 Design and fabrication.~~ ~~For the design and fabrication of components, each operator shall use—~~ ~~(a) With respect to design, persons who have demonstrated competence by training or experience in the design of comparable components.~~ ~~(b) With respect to fabrication, persons who have demonstrated competence by training or experience in the fabrication of comparable components~~	Section *4.2.2*

~~*§193.2705 Construction, installation, inspection, and testing.*~~ ~~*(a) Supervisors and other personnel utilized for construction, installation, inspection, or testing must have demonstrated their capability to perform satisfactorily the assigned function by appropriate training in the methods and equipment to be used or related experience and accomplishments.*~~ ~~*(b) Each operator must periodically determine whether inspectors performing construction, installation, and testing duties required by this part are satisfactorily performing their assigned functions.*~~	Sections *4.2.2 and 4.2.2.1*
~~*§193.2707 Operations and maintenance.*~~ ~~*(a) Each operator shall utilize for operation or maintenance of components only those personnel who have demonstrated their capability to perform their assigned functions by—*~~ ~~*(1) Successful completion of the training required by §193.2713 and §193.2717; and*~~ ~~*(2) Experience related to the assigned operation or maintenance function; and*~~ ~~*(3) Acceptable performance on a proficiency test relevant to the assigned function.*~~ ~~*(b) A person who does not meet the requirements of paragraph (a) of this section may operate or maintain a component when accompanied and directed by an individual who meets the requirements.*~~ ~~*(c) Corrosion control procedures under §193.2605(b), including those for the design, installation, operation, and maintenance of cathodic protection systems, must be carried out by, or under the direction of, a person qualified by experience and training in corrosion control technology.*~~	Sections *18.11.3 and 18.11.4* Sections *4.2.2, and 4.6.1(5)* Sections *18.11.2(3) and 18.11.4 for operation and maintenance*
~~*§193.2709 Security.*~~ ~~*Personnel having security duties must be qualified to perform their assigned duties by successful completion of the training required under §193.2715.*~~	Section *18.11.2.3*
~~*§193.2713 Training: operations and maintenance.*~~ ~~*(a) Each operator shall provide and implement a written plan of initial training to instruct—*~~ ~~*1) All permanent maintenance, operating, and supervisory personnel—*~~ ~~*(i) About the characteristics and hazards of LNG and other flammable fluids used or handled at the facility, including, with regard to LNG, low temperatures, flammability of mixtures with air, odorless vapor, boiloff characteristics, and reaction to water and water spray;*~~ ~~*(ii) About the potential hazards involved in operating and maintenance activities; and*~~ ~~*(iii) To carry out aspects of the operating and maintenance procedures under §193.2503 and §193.2605 that relate to their assigned functions; and*~~ ~~*(2) All personnel—*~~ ~~*(i) To carry out the emergency procedures under §193.2509 that relate to their assigned functions; and*~~ ~~*(ii) To give first aid; and*~~	Section *18.11.1* Section *18.11.2* Section *18.11.2(4)*

~~*(3) All operating and appropriate supervisory personnel—*~~ ~~*(i) To understand detailed instructions on the facility operations, including controls, functions, and operating procedures; and*~~ ~~*(ii) To understand the LNG transfer procedures provided under §193.2513.*~~	Section *18.11.2.1*
~~*(b) A written plan of continuing instruction must be conducted at intervals of not more than two years to keep all personnel current on the knowledge and skills they gained in the program of initial instruction.*~~	Section *18.11.6*
~~*§193.2715 Training: security.*~~ ~~*(a) Personnel responsible for security at an LNG plant must be trained in accordance with a written plan of initial instruction to:*~~ ~~*(1) Recognize breaches of security;*~~ ~~*(2) Carry out the security procedures under §193.2903 that relate to their assigned duties;*~~ ~~*(3) Be familiar with basic plant operations and emergency procedures, as necessary to effectively perform their assigned duties; and*~~ ~~*(4) Recognize conditions where security assistance is needed.*~~ ~~*(b) A written plan of continuing instruction must be conducted at intervals of not more than two years to keep all personnel having security duties current on the knowledge and skills they gained in the program of initial instruction.*~~	Section *18.11.2.3* Section *18.11.6*
~~*§193.2717 Training: fire protection.*~~ ~~*(a) All personnel involved in maintenance and operations of an LNG plant, including their immediate supervisors, must be trained according to a written plan of initial instruction, including plant fire drills, to:*~~ ~~*(1) Know the potential causes and areas of fire;*~~ ~~*(2) Know the types, sizes, and predictable consequences of fire; and*~~ ~~*(3) Know and be able to perform their assigned fire control duties according to the procedures established under §193.2509 and by proper use of equipment provided under §193.2801.*~~ ~~*(b) A written plan of continuing instruction, including plant fire drills, must be conducted at intervals of not more than two years to keep personnel current on the knowledge and skills they gained in the instruction under paragraph (a) of the section.*~~ ~~*(c) Plant fire drills must provide personnel hands-on experience in carrying out their duties under the fire emergency procedures required by §193.2509.*~~	*Section 18.11.2.2* *Section 18.11.6* *Section 18.11.2.2.4*
~~*§193.2719 Training: records.*~~ ~~*(a) Each operator shall maintain a system of records which—*~~ ~~*(1) Provide evidence that the training programs required by this subpart have been implemented; and*~~ ~~*(2) Provide evidence that personnel have undergone and satisfactorily completed the required training programs.*~~ ~~*(b) Records must be maintained for one year after personnel are no longer assigned duties at the LNG plant.*~~	*Section 18.12.4*

~~§193.2903 Security procedures.~~ ~~Each operator shall prepare and follow one or more manuals of written procedures to provide security for each LNG plant. The procedures must be available at the plant in accordance with §193.2017 and include at least:~~ ~~(a) A description and schedule of security inspections and patrols performed in accordance with §193.2913;~~ ~~(b) A list of security personnel positions or responsibilities utilized at the LNG plant;~~ ~~(c) A brief description of the duties associated with each security personnel position or responsibility;~~ ~~(d) Instructions for actions to be taken, including notification of other appropriate plant personnel and law enforcement officials, when there is any indication of an actual or attempted breach of security;~~ ~~(e) Methods for determining which persons are allowed access to the LNG plant;~~ ~~(f) Positive identification of all persons entering the plant and on the plant, including methods at least as effective as picture badges; and~~ ~~(g) Liaison with local law enforcement officials to keep them informed about current security procedures under this section.~~	*Sections 18.5 and 18.5.1*
~~§193.2905 Protective enclosures.~~ ~~(a) The following facilities must be surrounded by a protective enclosure:~~ ~~(1) Storage tanks;~~ ~~(2) Impounding systems;~~ ~~(3) Vapor barriers;~~ ~~(4) Cargo transfer systems;~~ ~~(5) Process, liquefaction, and vaporization equipment;~~ ~~(6) Control rooms and stations;~~ ~~(7) Control systems;~~ ~~(8) Fire control equipment;~~ ~~(9) Security communications systems; and~~ ~~(10) Alternative power sources.~~ ~~The protective enclosure may be one or more separate enclosures surrounding a single facility or multiple facilities.~~ ~~(b) Ground elevations outside a protective enclosure must be graded in a manner that does not impair the effectiveness of the enclosure.~~ ~~(c) Protective enclosures may not be located near features outside of the facility, such as trees, poles, or buildings, which could be used to breach the security.~~ ~~(d) At least two accesses must be provided in each protective enclosure and be located to minimize the escape distance in the event of emergency.~~ ~~(e) Each access must be locked unless it is continuously guarded. During normal operations, an access may be unlocked only by persons designated in writing by the operator. During an emergency, a means must be readily available to all facility personnel within the protective enclosure to open each access.~~	*Sections 16.8.3 and 16.8.3.1*

~~§193.2907 Protective enclosure construction.~~ ~~(a) Each protective enclosure must have sufficient strength and configuration to obstruct unauthorized access to the facilities enclosed.~~ ~~(b) Openings in or under protective enclosures must be secured by grates, doors or covers of construction and fastening of sufficient strength such that the integrity of the protective enclosure is not reduced by any opening.~~	*Section 16.8.3.1*
§193.2909 Security communications. ~~A means must be provided for:~~ ~~(a) Prompt communications between personnel having supervisory security duties and law enforcement officials; and~~ ~~(b) Direct communications between all on-duty personnel having security duties and all control rooms and control stations~~	*Section 16.8.4*
~~§193.2911 Security lighting.~~ ~~Where security warning systems are not provided for security monitoring under §193.2913, the area around the facilities listed under §193.2905(a) and each protective enclosure must be illuminated with a minimum in service lighting intensity of not less than 2.2 lux (0.2 ftc) between sunset and sunrise.~~	*Section 16.8.7*
~~§193.2913 Security monitoring.~~ ~~Each protective enclosure and the area around each facility listed in §193.2905(a) must be monitored for the presence of unauthorized persons. Monitoring must be by visual observation in accordance with the schedule in the security procedures under §193.2903(a) or by security warning systems that continuously transmit data to an attended location. At an LNG plant with less than 40,000 m3 (250,000 bbl) of storage capacity, only the protective enclosure must be monitored.~~	*Section 16.8.5*
~~§193.2915 Alternative power sources.~~ ~~An alternative source of power that meets the requirements of §193.2445 must be provided for security lighting and security monitoring and warning systems required under §193.2911 and §193.2913.~~	*Section 4.8.1*
~~§193.2917 Warning signs.~~ ~~(a) Warning signs must be conspicuously placed along each protective enclosure at intervals so that at least one sign is recognizable at night from a distance of 30m (100 ft.) from any way that could reasonably be used to approach the enclosure.~~ ~~(b) Signs must be marked with at least the following on a background of sharply contrasting color:~~ ~~The words "NO TRESPASSING," or words of comparable meaning.~~	*Section 16.8.6*

Other Revisions

AGA has also identified other revisions within Part 193 that are duplicative or conflicting with regulations under the jurisdiction of OSHA or HIPAA.

§193.2511(c) "~~***Each LNG plant must be equipped with suitable first-aid material, the location of which is clearly marked and readily available to personnel.***~~"

AGA suggests deletion of 193.2511(c) as this is clearly under OSHA's jurisdiction and addressed in 29 CFR Part 1910.151 titled Medical Services and First Aid and includes Appendix A of 1910.151.

§193.2711 "*Each operator shall* ~~***follow a written plan to***~~ *verify that personnel assigned operating, maintenance, security, or fire protection duties at the LNG plant* ~~***do not have any physical condition that would impair***~~ ***can perform*** ~~***performance of***~~ *their assigned duties.* ~~***The plan must be designed to detect both readily observable disorders, such as physical handicaps or injury, and conditions requiring professional examination for discovery.***~~"

The edits above are intended to retain the intent of original text while not infringing on the Health Insurance Portability Accountability Act of 1996 (HIPAA) and other privacy related information restrictions.

Additionally, AGA recommends PHMSA consider deleting §193.2011 as it is duplicative of the requirements within Part 191.

~~***§193.2011 Reporting.***~~

~~***Incidents, safety related conditions, and annual pipeline summary data for LNG plants or facilities must be reported in accordance with the requirements of Part 191 of this subchapter.***~~

Appendix C - Revisions to Part 193 Related to Relief Valves

In 2018, AGA and INGAA submitted a petition with PHMSA to modify the inspection interval for pressure relief devices at LNG facilities, and incorporate the inspection time frames within NFPA-59A (2001). AGA recommends that PHMSA incorporate NFPA 59A (2019), as well as modifying the inspection interval, within Part 193.

§193.2619 Control systems, *Inspection and Testing.*

Rationale for edit –The equivalent header text of §193.2619 is located at 18.10.10 in the 2019 edition of NFPA 59A.

~~***(a) Each control system must be properly adjusted to operate within design limits.***~~

Rationale for deletion –Requirements specific to §193.2619(a) are located at 18.3.6 in the 2019 edition of NFPA 59A.

~~***(b) If a control system is out of service for 30 days or more, it must be inspected and tested for operational capability before returning it to service.***~~

Rationale for deletion –Requirements specific to §193.2619(b) are located at 18.10.10.1 in the 2019 edition of NFPA 59A.

(a) Control systems inspection and testing including pressure relief valves shall be in accordance with NFPA 59A (incorporated by reference, see §193.2013), with the following exceptions:

(b) ~~*(c)*~~ *Control systems in service, but not normally in operation, such as* ~~***relief valves and***~~ *automatic shutdown devices, and control systems for internal shutoff valves for bottom penetration tanks must be inspected and tested once each calendar year, not exceeding 15 months*~~***, with the following exceptions:***~~

Rationale for deletion –Requirements specific to relief valve testing frequency is pending decision by PHMSA on AGA/INGAA petition filed April 2018 §193.2619(c) and are addressed at 18.10.10.3, 18.10.10.7.1, and 18.10.10.7.2 in the 2019 edition of NFPA 59A.

~~***(1) Control systems used seasonally, such as for liquefaction or vaporization, must be inspected and tested before use each season.***~~

Rationale for deletion –Requirements specific to §193.2619(c)(1) are located at 18.10.10.3 in the 2019 edition of NFPA 59A.

~~***(2) Control systems that are intended for fire protection must be inspected and tested at regular intervals not to exceed 6 months.***~~

Rationale for deletion –Requirements specific to §193.2619(c)(2) are located at 18.10.10.4 in the 2019 edition of NFPA 59A, with intervals based upon requirements in fire protection system-specific NFPA standards, including NFPA 72. Fire protection inspection and testing requirements should be based on fire protection system technical standards, instead of PHMSA's arbitrary 6-month frequency. Each of the system-specific NFPA standards has inspection/testing intervals established by the relevant NFPA

Technical Committee. The subject matter experts on these committees are more informed on the technical aspects of particular fire protection system requirements than PHMSA.

~~***(d) Control systems that are normally in operation, such as required by a base load system, must be inspected and tested once each calendar year but with intervals not exceeding 15 months.***~~

(c) Control systems that are normally in operation, such as required by a base load system must be inspected and tested by one of the following:

- ***Once each calendar year but with intervals not exceeding 15 months, or;***
- ***An approved written risk-based maintenance and inspection program based on API 580 Risk - based Inspection Recommended Practice industry consensus standard.***

~~***(c)***~~ ***(d)Relief valves must be inspected and tested for verification of the valve seat lifting pressure and reseating.***

Rationale for deletion and Edit–Requirements specific to current 193.2619(d) proposed for deletion are located at 18.10.10.5 in the 2019 edition of NFPA 59A. The new proposed 192.2619(c) expands upon the current 192.2619(d) to allow as an alternate method to prescriptive maintenance and/or inspection requirements found in NFPA 59A a risk-based maintenance/inspection program.