



U.S. Department of Transportation  
**Pipeline and Hazardous Materials  
Safety Administration**

8701 S. Gessner, Suite 630  
Houston TX 77074

**NOTICE OF PROBABLE VIOLATION  
and  
PROPOSED COMPLIANCE ORDER**

**ELECTRONIC MAIL - RETURN RECEIPT REQUESTED**

January 26, 2022

Michele Harradence  
Senior Vice President and Chief Operating Officer  
East Tennessee Natural Gas, LLC  
5400 Westheimer Court  
Houston, Texas 77056

**CPF 4-2022-026-NOPV**

Dear Ms. Harradence:

From July 12, 2021 through August 17, 2021, a representative of the Pipeline and Hazardous Materials Safety Administration (PHMSA) pursuant to Chapter 601 of 49 United States Code, inspected East Tennessee Natural Gas, LLC's (ETNG) Peak Shaving Liquefied Natural Gas (LNG) facility located in Sullivan County, Tennessee.

Based on the inspection, it is alleged that ETNG has committed probable violations of the Pipeline Safety Regulations, Title 49, Code of Federal Regulations (CFR). The items inspected and the probable violations are:

**1. § 193.2619 Control systems.**

**(a) . . .**

**(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:**

**(1) . . .**

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

ETNG failed to inspect and test relief valves on the LNG tank once each calendar year, not to exceed 15 months, for verification of the valve seat lifting pressure and reseating.

During the inspection, PHMSA confirmed that the LNG tank at the facility has a total three relief valves, SV-T1D, SV-T1E, and SV-T1G. Two of the three relief valves (SV-T1D & SV-T1E) serve as dual functioning valves which protect the tank from overpressure and vacuum, and the third relief valve (SV-T1G) serves as a vacuum relief valve.

ETNG provided inspection and test results of all relief valves at its facility for calendar years 2010 through 2020. While the inspection records list the three valves on the tank, the test results are recorded as N/A. The records do not indicate any testing was performed on the LNG tank relief valves in accordance with § 193.2619. Additionally, ETNG personnel acknowledged during the inspection that the LNG tank relief valves had never been tested.

## **2. § 193.2801 Fire protection.**

**Each operator must provide and maintain fire protection at LNG plants according to sections 9.1 through 9.7 and section 9.9 of NFPA-59A-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.**

### **NFPA-59A-2001, Section 9.1**

**9.1.2 Fire protection shall be provided for all LNG facilities. The extent of such protection shall be determined by an evaluation based on sound fire protection engineering principles, analysis of local conditions, hazards within the facility, and exposure to or from other property. The evaluation shall determine the following, as a minimum:**

- (1) The type, quantity, and location of equipment necessary for the detection and control of fires, leaks, and spills of LNG, flammable refrigerants, or flammable gases**
- (2) The type, quantity, and location of equipment necessary for the detection and control of potential nonprocess and electrical fires**

### **NFPA-59A-2001, Section 9.4**

**9.4.2 The design of fire water supply and distribution systems, if provided, shall provide for the simultaneous supply of those fixed fire protection systems, including monitor nozzles, at their design flow and pressure, involved in the maximum single incident expected in the plant plus an allowance of 1000 gpm (63 L/sec) for hand hose streams for not less than 2 hours.**

ETNG failed to provide and maintain fire protection at its Peak Shaving LNG facility in accordance with sections 9.1 through 9.7 and section 9.9 of NFPA-59A-2001 in two instances. First, ETNG failed to include an evaluation to determine the type, quantity, and location of equipment necessary for the detection and control of fires, leaks, and spills of LNG, flammable refrigerants, or flammable gases, and potential nonprocess and electrical fires as required in section 9.1.2. Second, ETNG failed to design an adequate fire water supply and distribution system in accordance with NFPA 59A Section 9.4.2.

ETNG provided figures 5, 6, 7, and 8 of its *LNG Operations Manual, Emergency, Tab A* (Date: 8/8/2018). These figures only provide the location of combustible gas detectors and ultraviolet detectors, and fails to provide the explanation or evaluation to support the type and adequacy of coverage for its combustible gas and ultraviolet detectors.

During the inspection, PHMSA's inspector reviewed ETNG's fire protection evaluation as required by NFPA 59A-2001 Section 9.1.2. ETNG's *Hydraulic Gradient Testing and Fire Hazard Mitigation Analysis* (Report) was performed by a third-party, which was finalized on December 2, 2020. Per NFPA 59A-2001 Section 9.4.2, design of fire water supply and distribution systems shall provide for the simultaneous supply of fixed fire protection systems, including monitor nozzles, at their design flow and pressure, involved in the maximum single incident expected in plant plus 1000 gallons per minute (gpm) for hand hose streams for not less than 2 hours.

The Report included four scenarios evaluated to simulate the requirement of firewater demands. The Report included maximum fire water demands according to the worst case scenarios, including "Propane Bullet Tank Jet Fire" that incorporates 1,000 gpm allowance is 3,750 gpm. ETNG's total available fire water pumping capacity is 2,000 gpm. The Report incorrectly calculates the required firewater delivery by including 1,250 gpm capacity from a "mobile response with pumper trucks on site," which is not considered a fixed fire protection system.

The Consequence Modeling analysis in the Report considered three thresholds of interest, 6.3 kW/m<sup>2</sup>, 12.5 kW/m<sup>2</sup>, and 37.5 kW/m<sup>2</sup>. The Report assumes "37.5 kW/m<sup>2</sup> – threshold at which unprotected structural steel starts to fail within 15 minutes; also, the threshold at which heat-actuated fire protection systems are assumed to operate," which underestimates impact on loss of strength of steel structures. NFPA 59A-2019 Edition Annex A.6.6.4 states: "Sandia (2004) indicates exposures to 10,000 Btu/ft<sup>2</sup>-hr (37.5 kW/m<sup>2</sup>) for 10 minutes would cause temperatures to rise to 980°F and result in 25-40 percent loss in steel strength and damage to the LNG marine carrier and other nearby steel structures." The Report also indicated that from the initial ignition of flammable release to starting the firefighting process is estimated to take about 30 minutes.

The Report recommended firewater system improvements, such as upgrading the existing system to higher flow rates and adding new monitors, installation of additional city water supply line to firewater tank for adequate firewater supply for 2 hours, rebuilding the existing firewater distribution system to larger diameter with improved C-factor material (such as HDPE), upgrade the diesel firewater pump to 2,500 gpm and 150 psi pressure, add another fire water pump rated at minimum 2,500 gpm and 150 psi, and develop fire pre-plans for various fire scenarios to share during drills. ETNG implemented only one of the recommendations identified which included the rebuild of the existing firewater distribution from cast iron to HDPE.

ETNG failed to design an adequate fire water supply and distribution system in accordance with NFPA 59A Section 9.4.2. by incorrectly including “mobile response with pumper trucks on site,” in fixed fire protection system supply capacity; and performing Consequence Modeling analysis in the Report with assumptions without justification that were lax than that defined in NFPA 59A-2019.

### 3. § 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.**

ETNG failed to provide adequate security lighting at its Peak Shaving LNG facility as required by § 193.2911.

ETNG could not provide records to demonstrate the lighting intensity was not less than 2.2 lux between sunset and sunrise. ETNG did, however, in a written response state that “A process for testing the lighting will be established, conducted and documented, and any deficiencies identified will be addressed to meet the requirement.”

#### Proposed Compliance Order

Under 49 U.S.C. § 60122 and 49 CFR § 190.223, East Tennessee Natural Gas, LLC is subject to a civil penalty not to exceed \$225,134 per violation per day the violation persists, up to a maximum of \$2,251,334 for a related series of violations. For violations occurring on or after January 11, 2021, and before May 3, 2021, the maximum penalty may not exceed \$222,504 per violation per day the violation persists, up to a maximum of \$2,225,034 for a related series of violations. For violations occurring on or after July 31, 2019, and before January 11, 2021, the maximum penalty may not exceed \$218,647 per violation per day the violation persists, up to a maximum of \$2,186,465 for a related series of violations. For violations occurring on or after November 27, 2018, and before July 31, 2019, the maximum penalty may not exceed \$213,268 per violation per day, with a maximum penalty not to exceed \$2,132,679. For violations occurring on or after November 2, 2015, and before November 27, 2018, the maximum penalty may not exceed \$209,002 per violation per day, with a maximum penalty not to exceed \$2,090,022. Also, for each violation involving LNG facilities, and additional penalty of not more than \$82,245 occurring on or after May 3, 2021 may be imposed. For each violation involving LNG facilities, an additional penalty of not more than \$81,284 occurring on or after January 11, 2021 and before May 3, 2021 may be imposed. For each violation involving LNG facilities, an additional penalty of not more than \$79,875 occurring on or after July 31, 2019 and before January 11, 2021 may be imposed.

For each violation involving LNG facilities, an additional penalty of not more than \$77,910 occurring on or after November 27, 2018 and before July 31, 2019 may be imposed. For each violation involving LNG facilities occurring on or after November 2, 2015 and before November 27, 2018, an additional penalty of not more than \$76,352 may be imposed.

We have reviewed the circumstances and supporting documents involved in this case, and have decided not to propose a civil penalty assessment at this time.

With respect to Items 1, 2, and 3, pursuant to 49 U.S.C. § 60118, the Pipeline and Hazardous Materials Safety Administration proposes to issue a Compliance Order to East Tennessee Natural Gas, LLC. Please refer to the *Proposed Compliance Order*, which is enclosed and made a part of this Notice.

Response to this Notice

Enclosed as part of this Notice is a document entitled *Response Options for Pipeline Operators in Enforcement Proceedings*. Please refer to this document and note the response options. Be advised that all material you submit in response to this enforcement action is subject to being made publicly available. If you believe that any portion of your responsive material qualifies for confidential treatment under 5 U.S.C. 552(b), along with the complete original document, you must provide a second copy of the document with the portions you believe qualify for confidential treatment redacted and an explanation of why you believe the redacted information qualifies for confidential treatment under 5 U.S.C. 552(b).

Following the receipt of this Notice, you have 30 days to submit written comments, or request a hearing under 49 CFR § 190.211. If you do not respond within 30 days of receipt of this Notice, this constitutes a waiver of your right to contest the allegations in this Notice and authorizes the Associate Administrator for Pipeline Safety to find facts as alleged in this Notice without further notice to you and to issue a Final Order. If you are responding to this Notice, we propose that you submit your correspondence to my office within 30 days from receipt of this Notice. This period may be extended by written request for good cause.

In your correspondence on this matter, please refer to **CPF 4-2022-026-NOPV** and, for each document you submit, please provide a copy in electronic format whenever possible.

Sincerely,

Mary L. McDaniel, P.E.  
Director, Southwest Region  
Pipeline and Hazardous Materials Safety Administration

Enclosures: *Proposed Compliance Order*  
*Response Options for Pipeline Operators in Enforcement Proceedings*

cc: Harold North, Senior Engineer of Operational Compliance, Enbridge,  
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## PROPOSED COMPLIANCE ORDER

Pursuant to 49 U.S.C. § 60118, the Pipeline and Hazardous Materials Safety Administration (PHMSA) proposes to issue to East Tennessee Natural Gas, LLC (ETNG) a Compliance Order incorporating the following remedial requirements to ensure the compliance with the pipeline safety regulations:

- A. In regards to Item 1 of the Notice pertaining to ETNG's failure to inspect and test relief valves on LNG tanks, ETNG must inspect and test relief valves on LNG tanks for verification of the valve seat lifting pressure and reseating. ETNG must develop procedures for LNG Tank relief valves inspection and testing. ETNG must complete this item and provide documentation of such within **30 days** after receipt of a Final Order.
- B. In regards to Item 2 of the Notice pertaining to ETNG's failure to evaluate type, quantity, and location of necessary equipment required for the detection and control of fires, leaks and spills, ETNG must perform an evaluation in accordance with NFPA-59A-2001 Section 9.1.2. ETNG must complete this item and provide documentation of such within **30 days** after receipt of a Final Order
- C. In regards to Item 2 of the Notice pertaining to ETNG's failure to design an adequate firewater supply and distribution system, ETNG must design a firewater supply and distribution system in accordance with NFPA-59A-2001 Section 9.4.2. The design shall provide simultaneous supply of fixed fire protection systems at their design flow and pressure, involved in the maximum single incident expected in the plant plus an allowance of 1,000 gpm (63 L/sec) for hand hose streams for not less than 2 hours. ETNG must complete design criteria of this item and provide documentation of such within **30 days** after receipt of a Final Order.
- D. In regards to Item 3 of the Notice pertaining to ETNG's failure to demonstrate that adequate security lighting is provided at its LNG facility, ETNG must provide minimum in-service lighting intensity of 2.2 lux between sunset and sunrise to areas around facilities listed under § 193.2905(a), and each protective enclosure where security warning systems are not provided for security monitoring under § 193.2913. ETNG must complete this item within **30 days** after receipt of a Final Order.
- E. In regard to Items B, C, and D of this Order, ETNG must complete all improvements resulting from design or evaluations within **90 days and provide documentation** after receipt of a Final Order.

It is requested (not mandated) that ETNG maintain documentation of the safety improvement costs associated with fulfilling this Compliance Order and submit the total to Mary L McDaniel,

Director, Southwest Region, Pipeline and Hazardous Materials Safety Administration. It is requested that these costs be reported in two categories: 1) total cost associated with preparation/revision of plans, procedures, studies and analyses, and 2) total cost associated with replacements, additions and other changes to pipeline infrastructure.