

Via Electronic Mail

March 25, 2022

Ms. Mary McDaniel
Director, Southwest Region
Pipeline and Hazardous Materials Safety Administration
8701 S. Gessner Road
Suite 900
Houston, TX 77074

**RE: East Tennessee Natural Gas, LLC Response
Notice of Probable Violation and Proposed Compliance Order
CPF 4-2022-027-NOPV**

Dear Ms. McDaniel,

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.

On January 26, 2022, PHMSA issued the above referenced Notice of Probable Violation and Proposed Compliance Order alleging ETNG has committed probable violations of the Pipeline Safety Regulations, Title 49, Code of Federal Regulations (CFR). The following is a brief summary of PHMSA's concerns and ETNG's response to those concerns.

PHMSA Finding

1. § 193.2619 Control systems.

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.

ETNG Response

ETNG recognizes that three (3) relief valves were not inspected and tested once each calendar year, not to exceed 15 months. ETNG has since incorporated these relief valves into ETNG's work management system and have scheduled the valves for inspection by Q2 2022.

PHMSA Finding

2. § 193.2801 Fire protection.

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 non-process 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/m², 12.5 kW/m², and 37.5 kW/m². The Report assumes “37.5 kW/m² – 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/ft²-hr (37.5 kW/m²) 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.

ETNG Response

PHMSA contends that ETNG failed to design the 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 less than that defined in NFPA 59A-2019. This is factually not correct. The following is a summary of the facts relating to this concern.

- ETNG does not consider the mobile pumper truck as a fixed fire protection system. ETNG included the pumper truck in the Hydraulic Gradient Testing and Fire Hazard Mitigation Analysis (Report) to represent the use of the pumper truck in the four scenarios to simulate

practical responses to these various scenarios. Note that the fixed fire protection systems are permanently installed fire suppression system designed for use on the specific fire hazards they are expected to control or extinguish while the pumper truck is a single unit fire suppression vehicle equipped with a fire pump, water tank, hose and equipment designed for sustaining pumping operations during firefighting and supporting associated fire department operations. The above excerpt from the Report includes the 1,250-gpm pumper truck for evaluating how the fire response for each scenario would be addressed given the available means and account for the utilization of the pumper truck and its demand, and not to designate it as a fixed fire protection system. This provides a more conservative evaluation of the firewater system.

- ETNG believes that the exclusion of the mobile pumper truck from the evaluation referenced in the Report will demonstrate that ETNG still meets the requirement of NFPA 59A Section 9.4.2.
- ETNG respectfully disagrees with PHMSA's assertion that the Consequence Modeling analysis in the Report *underestimates impact on loss of strength of steel structures*. PHMSA improperly bases its assertion on NFPA 59A- 2019 Edition Annex A.6.6.4 which is not incorporated by reference in §193.2801. It is important to note that NFPA 59A-2001 is the appropriate edition incorporated by reference in §193.2801. ETNG maintains that the Consequence Modeling analysis meets the requirement of NFPA 59A-2001 and §193.2801.
- ETNG maintains that the estimated time of 30 minutes in the Report is the estimated time to allow for the firefighting process at the station, which includes isolating and depressurizing the facility prior to the arrival of the fire department at the facility. The arrival of the fire department is estimated to take up to 10 minutes. Note that our employees will act in an advisory role during firefighting operations.

ETNG acknowledges that the LNG Operations Manual did not provide the explanation or evaluation to support the type and adequacy of coverage for its combustible gas and ultraviolet detectors. ETNG also acknowledges that only one of the recommendations in the Report, was implemented. ETNG has since developed supporting documentation for the combustible gas and ultraviolet detectors adequacy of coverage. In addition, ETNG has developed a design in accordance with NFPA-59A-2001 Section 9.4.2 and plans to implement the remaining fire water system recommendations from Report.

While ETNG does not agree that these issues should have warranted a finding of violation, ETNG will not contest this finding. ETNG maintains that it complied with its understanding of §193.2801 requiring ETNG to provide fire protection at its LNG facility in accordance with sections 9.1 through 9.7 and section 9.9 of NFPA-59A-2001.

PHMSA Finding

3. § 193.2911 Security lighting.

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.”

ETNG Response

ETNG acknowledges that records were not available to demonstrate that the lighting intensity was not less than 2.2 lux between sunset and sunrise. ETNG has since developed the process for testing the lighting, completed the lighting study and is addressing the deficiencies to meet this requirement.

Proposed Compliance Orders

The Proposed compliance order requires ETNG to inspect and perform an evaluation in accordance with NFPA-59A-2001 Section 9.1.2 and design a firewater supply and distribution system in accordance with NFPA-59A-2001 Section 9.4.2. While ETNG believes that the fire protection meets the requirement of NFPA-59A-2001, and the exclusion of the mobile pumper truck from the evaluation will demonstrate that ETNG still meets the requirement of NFPA 59A Section 9.4.2, ETNG will not contest this requirement as required in the Proposed Compliance Order. ETNG has completed the design to address the recommendations from the Report. The design recommendation was developed for the facility in accordance with NFPA-59A-2001 Section 9.4.2 to meet 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 believes that certain requirements specified in the Proposed Compliance Order need clarification. ETNG respectfully requests that PHMSA clarify and revise certain requirements in the Proposed Compliance Order that are impractical for ETNG to meet and provides clarifications as summarized below.

- Item B requires ETNG must perform an evaluation in accordance with NFPA-59A-2001 Section 9.1.2. ETNG interprets this to require re-evaluation of the Report to exclude the pumper truck to demonstrate that ETNG meets NFPA-59A-2001 section 9.1.2. The re-evaluation will be limited to the required fixed firewater system demand plus the 1000 gpm hand hose allowance for clarity.
- Item C requires ETNG to 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 has already completed the design to address the recommendations from the Report. The design recommendation was developed for the facility in accordance with NFPA-59A-2001 Section 9.4.2 to meet 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 requests that PHMSA clarify this requirement.

Conclusion

In summary ETNG takes these issues very seriously, and has worked, and will continue to work expeditiously to resolve them. Regarding the specific issues in the NOPV and Proposed Compliance Order. ETNG is not contesting item 1, 2 and 3 of the NOPV. ETNG requests clarification to item B and C of the Proposed Compliance Order

Please call me at (713) 627-5008 if you need additional information or have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Nathaniel J. Atanu".

Nathan Atanu
Manager, Operational Compliance