WARNING LETTER

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

March 22, 2018

Mr. Mark Mallett
Vice President
Freeport LNG Development, L.P
333 Clay Street, Suite 5050
Houston, TX 77002

CPF 4-2018-1004W

Dear Mr. Mallett:

On February 13-15, 2018, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA) pursuant to Chapter 601 of 49 United States Code were onsite and inspected Freeport LNG Development (FLNG) Liquefaction Facility's 26-inch Vacuum Insulated Pipe (VIP) in Freeport Texas.

As a result of the inspection, it appears that you have committed a probable violation of the Pipeline Safety Regulations, Title 49, Code of Federal Regulations. The item inspected and the probable violation is:

1. **§193.2301 Scope.**
   Each LNG facility constructed after March 31, 2000 must comply with requirements of this part and of NFPA 59A-2001 (incorporated by reference, see § 193.2013). In the event of a conflict between this part and NFPA-59A, this part prevails.

   NFPA 59A Standard for the Production, Storage, and Handling of Liquefied Natural Gas (LNG) 2001 Edition
   6.6 Inspection and Testing of Piping.

6.6.1 Pressure Testing. Pressure tests shall be conducted in accordance with ASME B 31.3, Process Piping, Section 345.

ASME B31.3 Process Piping, 1996 Edition

345 TESTING

345.1 Required Leak Test

(c) Where the owner considers both hydrostatic and pneumatic leak testing impracticable, the alternative specified in para. 345.9 may be used if both of the following conditions apply:

(1) a hydrostatic test would damage linings or internal insulation, or contaminate a process which would be hazardous, corrosive, or inoperative in the presence of moisture, or would present the danger of brittle fracture due to low metal temperature during the test; and

(2) a pneumatic test would present an undue hazard of possible release of energy stored in the system, or would present the danger of brittle fracture due to low metal temperature during the test.

345.9 Alternative Leak Test

The following procedures and leak test method may be used only under the conditions stated in para. 345.1(c).

345.9.1 Examination of Welds. Welds, including those used in the manufacture of welded pipe and fittings, which have not been subjected to hydrostatic or pneumatic leak tests in accordance with this Code, shall be examined as follows.

(a) Circumferential, longitudinal, and spiral groove welds shall be 100% radiographed in accordance with para. 344.5.

(b) All welds, including structural attachment welds, not covered in (a) above, shall be examined using the liquid penetrant method (para. 344.4) or, for magnetic materials, the magnetic particle method (para. 344.3).

345.9.2 Flexibility Analysis. A flexibility analysis of the piping system shall be made in accordance with para. 319.4.2(c) and (d).

345.9.3 Test Methods. The system shall be subjected to a sensitive leak test in accordance with para. 345.8.

FLNG failed to show that both hydrostatic and pneumatic leak testing were impracticable before specifying an Alternative Leak Test (per ASME B31.3 para. 345.9). The ASME B31.3 standard is a requirement of NFPA 59A, which is incorporated by reference in Part 193. ASME B31.3 para. 345.1 requires that at least one condition pertaining to the hydrostatic test, plus at least one condition pertaining to the pneumatic test must be met for the leak test to be deemed impracticable. For hydrostatic testing, the conditions include potential damages to linings or internal insulation, process contaminations by moisture, or brittle facture due to low metal temperature. For pneumatic testing, the conditions include undue hazard of possible release of energy stored in the system, or

brittle fracture failure due to low metal temperature. FLNG's documentation titled "Outgoing Technical Query" (Doc No 1008-CZJV-FPT-RFI-00087.0001 Rev. 1, dated November 15 2017) and the supporting material (Doc No 1008-CZJV-FPT-RFI-00087.0005 Rev. 0, dated November 15 2017) did not adequately address any of the above-mentioned conditions.

Specifically, the supporting material (Doc No 1008-CZJV-FPT-RFI-00087.0005 Rev. 0, dated November 15 2017) implied that pneumatically testing the entire Vacuum Insulated Pipe (VIP) system at once might be impracticable due to the excessively large exclusion zone imposed by high stored energy. The same documentation, however, did not adequately show that pneumatically testing the VIP in smaller segments, which contain less stored energy and therefore require a smaller exclusion zone, would be impracticable.

Under 49 United States Code, § 60122, you are subject to a civil penalty not to exceed $200,000 per violation per day the violation persists up to a maximum of $2,000,000 for a related series of violations. For violations occurring prior to January 4, 2012, the maximum penalty may not exceed $100,000 per violation per day, with a maximum penalty not to exceed $1,000,000 for a related series of violations. We have reviewed the circumstances and supporting documents involved in this case, and have decided not to conduct additional enforcement action or penalty assessment proceedings at this time. We advise you to correct the item identified in this letter. Failure to do so will result in FLNG being subject to additional enforcement action.

No reply to this letter is required. If you choose to reply, in your correspondence please refer to **CPF 4-2018-1004W.** 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).

Sincerely,

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