



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

8701 S. Gessner, Suite 630  
Houston, TX 77074

**VIA E-MAIL TO: MSmith@freeportlng.com**

June 30, 2022

Michael Smith  
Chairman and Chief Executive Officer  
Freeport LNG Development, LP  
333 Clay Street, Suite 5050  
Houston, Texas 77002

**CPF 4-2022-051-NOPSO**

Dear Mr. Smith:

Enclosed is a Notice of Proposed Safety Order (Notice) issued by the Pipeline and Hazardous Materials Safety Administration (PHMSA) in the above-referenced case. The Notice proposes that Freeport LNG Development, LP take certain measures with respect to its liquefied natural facility located on Quintana Island, Texas. The options for responding are set forth in the Notice. Service of this Notice by electronic mail is deemed effective upon the date of transmission, or as otherwise provided under 49 C.F.R. § 190.5.

We look forward to a successful resolution to ensure pipeline safety. Please direct any questions on this matter to me at 713-272-2847.

Sincerely,

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

Enclosures: *Notice of Proposed Safety Order*  
*Copy of 49 C.F.R. § 190.239*

cc: Ms. Linda Daugherty, Deputy Associate Administrator for Field Operations, PHMSA  
Mr. Sigmund Cornelius, President & Chief Operating Officer, Freeport LNG  
Development LP, [SCornelius@freeportlng.com](mailto:SCornelius@freeportlng.com)  
Mr. Michael Stephenson, Regulatory Compliance Manager, Freeport LNG Development,  
LP, [MStephenson@freeportlng.com](mailto:MStephenson@freeportlng.com)

**U.S. DEPARTMENT OF TRANSPORTATION  
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION  
OFFICE OF PIPELINE SAFETY  
SOUTHWEST REGION  
HOUSTON, TX 77074**

In the Matter of	)	
	)	
Freeport LNG Development, LP	)	CPF No. 4-2022-051-NOPSO
	)	
Respondent.	)	
	)	

**NOTICE OF PROPOSED SAFETY ORDER**

**Background and Purpose:**

Pursuant to Chapter 601 of Title 49, United States Code, the Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety (OPS), initiated an investigation of the safety of Freeport LNG Development’s (Freeport) liquefied natural gas (LNG) export facility located Quintana Island, Texas following an incident that occurred on June 8, 2022.

At approximately 11:40 a.m. Central Daylight Time (CDT), an explosion and associated fire occurred in a pipe rack located near the LNG storage tanks at the Freeport’s LNG export facility. It was reported, an estimated .12 million cubic feet of LNG released. There were no injuries or fatalities, nor were there any direct physical impacts offsite. PHMSA was notified by the National Response Center (NRC) via NRC Report 1338144 at 12:36 p.m. CST of the reportable incident,<sup>1</sup> and PHMSA subsequently deployed personnel to Freeport’s LNG export facility to gain additional situational awareness and initiate its investigation. The cause of the explosion and subsequent fire is currently under investigation.

As a result of the preliminary investigation, it appears conditions exist at Freeport’s LNG export facility that pose an integrity risk to public safety, property, or the environment. Accordingly, pursuant to 49 U.S.C. § 60117, PHMSA OPS issues this Notice of Proposed Safety Order (Notice), notifying you of the preliminary findings of the investigation, and proposing that you take certain measures to ensure that the public, property, and the environment are protected from this integrity risk.

**Preliminary Findings:**

The preliminary findings of PHMSA’s ongoing investigation are as follows:

---

<sup>1</sup> See Incident as defined in 49 CFR §191.3.

- Freeport’s LNG export facility is located on Quintana Island, Texas and includes three LNG storage tanks (Tanks 1, 2, and 3) and three parallel liquefaction trains (Trains 1, 2, and 3). Each train is capable of producing approximately 4.4 million metric tons per annum of LNG for export, which equates to a total liquefaction capacity of approximately 2.2 billion cubic feet per day of natural gas.
- On June 8, 2022, at 11:40 a.m. CDT, an explosion and associated fire occurred in a pipe rack near the LNG storage tanks at Freeport’s LNG export facility. An estimated .12 million cubic feet of LNG was reported to be released within the facility. There were no injuries or fatalities, nor were there any direct physical impacts offsite.
- Although the root cause of the failure has yet to be confirmed, preliminary evidence suggests that an isolated pressure safety valve created an overpressure situation in 300 feet of vacuum insulated piping. The 300 feet of pipe was subjected to an overpressure situation which burst the pipe and allowed LNG and methane to be released into the facility. The sudden release of LNG and methane from the piping caused a subsequent explosion and fire that damaged piping and components in the plant. At PHMSA’s direction, Freeport engaged a third-party consultant, IFO Group, to conduct a root cause failure analysis (RCFA) of the explosion and subsequent fire and release of LNG.
- The failure occurred in an 18-inch vacuum insulated pipe that is part of the LNG transfer system and was used to transfer LNG throughout the LNG storage tank area. The affected vacuum insulated piping is a part of Loop 2 located on an aboveground pipe rack within the LNG storage area of the facility. Specifically, the affected vacuum insulated piping is located in a structural steel pipe rack supporting transfer piping, power cables, utility piping, and instrument cable trays. The affected piping is located 30 feet above ground level and is in the main artery pipe rack where transfer of material occurs between Tank 3 and ship loading areas. The pipe racks consist of a series of transverse beams that run along the length of the pipe system, spaced at uniform intervals.
- The 18-inch vacuum insulated pipe consists of an inner and an outer stainless-steel pipe with covering shroud. The inner pipe carries the cryogenic liquid. It is wrapped with multiple layers of super insulation made of alternating layers of a heat barrier and a non-conductive spacer. This creates a space between the two pipes that is “pumped down” using a vacuum pump to create a static vacuum shield. The vacuum shield protects cryogenic liquid from heat loss due to conduction, convection, and radiation.
- In addition to the 18-inch vacuum insulated pipe being damaged by the explosion and associated fire, much of the other piping in the area was also damaged and will require repairs or replacement before LNG transfer operations can recommence.
- Freeport’s LNG export facility is located within an ecologically sensitive area and is also near recreational areas that include beaches and waterways used by the public. Additionally, the facility is located on the Gulf Coast Intercoastal Water Way (GIWW). The GIWW stretches from St. Marks, Florida to Brownsville, Texas, and is the nation’s

third busiest waterway with the Texas portion handling over 58 percent of its traffic.<sup>2</sup>

- The 2020 U.S. Census Bureau estimates Quintana Island, Texas had a population of 25 residents. Freeport, Texas, which is just across the GIWW from Quintana, has a population of approximately 10,000 residents. Being on the Gulf of Mexico, the area also attracts recreational visitors and is close to Surfside Beach and Bryan Beach State Park.
- On June 8, 2022, the U.S. Coast Guard (USCG) issued to Freeport a Captain of the Port Order after the incident occurred. The order restricts all marine cargo operations until Freeport conducts a risk analysis on marine transfers, which must be approved by USCG before cargo operations can recommence.

### **Proposed Issuance of Safety Order:**

Section 60117(1) of Title 49, United States Code, provides for the issuance of a Safety Order (Order), after reasonable notice and the opportunity for a hearing, requiring corrective action, which may include physical inspection, testing, repair, replacement, or other action, as appropriate. The basis for making the determination that a pipeline facility has a condition or conditions that pose a pipeline integrity risk to public safety, property, or the environment is set forth both in the above-referenced statute and 49 C.F.R. § 190.239, a copy of which is enclosed.

After evaluating the foregoing preliminary findings of fact and considering the hazardous nature of the product, the temperature and pressure conditions required by the process, the characteristics of the geographical area where the LNG export facility is located including its proximity to an ecologically sensitive area, the circumstances that resulted in the explosion and associated fire, and the likelihood that the issues could affect the safety of other areas of the LNG facility, it appears that continued operation of Freeport's LNG export facility without corrective measures may pose an integrity risk to public safety, property, or the environment.

Accordingly, PHMSA issues this Notice to notify Freeport of the proposed issuance of an Order and to propose that Freeport take measures specified herein to address the potential risks identified in the Preliminary Findings and other risks that may be determined as a result of the proposed corrective measures.

### **Proposed Corrective Actions:**

Pursuant to 49 U.S.C. § 60117(1) and 49 C.F.R. § 190.239, PHMSA proposes to issue to Freeport LNG a Safety Order incorporating the following remedial requirements with respect to its LNG export facility located on Quintana Island, Texas:

---

<sup>2</sup> Texas Department of Transportation, Gulf Intracoastal Waterway, available at <https://www.txdot.gov/inside-txdot/division/transportation-planning/waterway.html#:~:text=The%20Gulf%20Intracoastal%20Waterway%20is,percent%20of%20the%20Waterway's%20traffic>; and Texas Department of Transportation, Gulf Intracoastal Waterway, Legislative Report – 83<sup>rd</sup> Legislature, available at <https://static.tti.tamu.edu/tti.tamu.edu/documents/TTI-2013-12.pdf>.

*Note:* For the purposes of this Notice, "Director" means the Director, Southwest Region, Pipeline and Hazardous Materials Safety Administration (PHMSA), Office of Pipeline Safety, 8701 S. Gessner, Suite 630, Houston, Texas, 77074.

1. ***Return to Normal Operations.*** Freeport may not return its LNG export facility located on Quintana Island, Texas to normal operations until it receives written approval from the Director. Until it receives the Director's approval to return to normal operations, Freeport must provide weekly updates to the Director on the temperature and density of the LNG stored in the three LNG storage tanks. If Freeport must transfer LNG from one storage tank to another or recirculate LNG to the loading dock, Freeport must notify the Director within 24 hours after completion of the operation.
2. ***Qualified Independent Third-Party.*** Within 30 days of the issuance of the Order, Freeport must select an independent third-party or -parties to perform the evaluations and assessments described in Corrective Actions Nos. 5, 6, and 7, and submit its selection along with their associated qualifications to the Director for approval.
3. ***Root Cause Failure Analysis.*** Within 60 days of issuance of the Order, Freeport must have its previously selected third-party consultant complete a RCFA and submit its RCFA report to the Director. The RCFA must be provided to Freeport and the Director concurrently. The RCFA must document the decision-making process used in the analysis and all factors contributing to the explosion and fire. The final report must include findings, any lessons learned, and whether the findings and any lessons learned are applicable to the entirety of Freeport's operations.
4. ***Assessment and Inspection.*** Within 60 days of issuance of the Order, Freeport must submit to the Director a complete plan and schedule of inspection to determine the full extent of damage caused by the explosion and associated fire. The plan must be submitted to the Director for written approval prior to initiation. The plan, at a minimum, must include an assessment of all piping, pipe supports, steel pipe racks, cables and cable tray, valves, instruments, fire and gas detection, fire suppression systems, and LNG impoundment to detect any defects that would affect the integrity of the components resulting from the explosion and fire. Freeport must implement the plan according to the schedule following the Director's approval and provide weekly written reports of findings to the Director until a final report is prepared and submitted.
5. ***Operating Procedures.*** Within 30 days of the Director's approval of an independent third party pursuant to Corrective Action No. 2, Freeport must submit to the Director for review and written approval an evaluation of the LNG storage tanks operating modes including transfer to the loading docks, recirculating LNG throughout the transfer area, and loading tanks from the liquefaction trains. The evaluation must be performed by the approved independent third party.
6. ***Control System Procedures.*** Within 30 days of the Director's approval of an independent third party pursuant to Corrective Action No. 2, Freeport must submit to the Director for review and written approval an evaluation of inspection and testing procedures for all

control systems. The evaluation must be performed by the approved independent third party. The evaluation will include a review of what standards Freeport follows for inspection and testing, how Freeport's procedures compare to the requirements in these standards, and the methods of returning a control system to service after inspection and testing is completed.

7. ***Assessment of Personnel Qualifications and Training.*** Within 60 days of the Director's approval of an independent third party pursuant to Corrective Action No. 2, Freeport must submit to the Director for review and written approval an assessment of the qualifications and training of operations, maintenance, and supervisory personnel. The assessment must be performed by the approved independent third party. The assessment must include a review of: (1) Freeport's training program for all operations, maintenance, and supervisory personnel and whether these personnel are capable of performing their assigned functions through Freeport's training program; (2) any experience of the personnel related to their assigned operation or maintenance function; and (3) records to ascertain whether there is acceptable performance on a proficiency test relevant to the assigned function. In addition, the assessment must determine whether all supervisory personnel have a thorough knowledge of the instructions for facility operations, including controls, functions, and operating procedures including LNG transfer procedures.
  
8. ***Remedial Work Plan.*** Within 30 days following the completion of Corrective Actions Nos. 7, Freeport must submit a Remedial Work Plan (RWP) to the Director for review and approval. The Director may approve the RWP incrementally without approving the entire RWP. FLNG must incorporate information obtained and recommendations from the RCFA, the evaluation of operating procedures, the evaluation of the testing and inspecting procedures of control system, an assessment and inspection of affected components, and the assessment of personnel qualifications and training results into the RWP. Freeport may revise the RWP as necessary to incorporate new information obtained during remedial activities as long as the revisions are first approved by the Director. Freeport must implement the RWP as approved by the Director, including any revisions to the plan. The RWP must include:
  - a. A procedure or process to determine if conditions similar to those contributing to the explosion are likely to exist elsewhere in the facility.
  - b. Develop a plan to test and inspect all pressure safety valves prior to returning to normal operations pursuant to Correction Action No. 1.
  - c. Define and implement long-term periodic verification measures to ensure effectiveness of testing and inspecting the control systems program and training for individuals who conduct those activities.
  - d. Include a proposed schedule to complete all repairs, inspections, and tests in order to resume normal operations.
  - e. All inspection, test, and repair records that demonstrate the RWP was executed as approved by the Director.
  
9. ***Monthly Reports.*** Freeport must submit monthly reports to the Director that: (1) include analysis of all available data and results of the testing and evaluations required by the Order; (2) describe the progress of actions being undertaken; and (3) document all

mandated actions and management of change plans to ensure that all procedural modifications are incorporated into Freeport procedures. The first report will be due 30 days from issuance of the Order. The Director may extend the interval between reports if warranted.

The actions proposed by this Notice are in addition to, and do not waive, any requirements that apply to Freeport's LNG export facility under 49 C.F.R. Parts 190 through 199, under any other order issued to Freeport under the authority of 49 U.S.C. § 60101 *et seq.*, or under any other provision of federal or state law.

After receiving and analyzing additional data in the course of this proceeding, PHMSA may identify other corrective measures that the Freeport must perform. In that event, Freeport will be notified of any additional measures required and any amendments to the final Safety Order. To the extent consistent with safety, Freeport will be afforded notice and an opportunity for a hearing prior to the imposition of any additional corrective measures.

### **Response to this Notice:**

In accordance with § 190.239, you have 30 days following receipt of this Notice to submit a written response to the Director. If you do not respond within 30 days, this constitutes a waiver of your rights to contest 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 Safety Order. In your response, you may indicate that you intend to comply with the terms of the Notice as proposed, or you may request that an informal consultation be scheduled (you will also have the opportunity to request an administrative hearing before a final Safety Order is issued). Informal consultation provides you with an opportunity to explain the circumstances associated with the risk conditions alleged in the Notice and, as appropriate, to present a proposal for a work plan or other remedial measures without prejudice to your position in any subsequent hearing.

If you and PHMSA agree within 30 days of the informal consultation on a plan and schedule for you to address each identified risk condition, the parties may enter into a written consent agreement, in which case PHMSA would then issue an administrative Consent Order incorporating the terms of the agreement. If a consent agreement is not reached, or if you have elected not to request informal consultation, you may request an administrative hearing in writing within 30 days following receipt of the Notice or within 10 days following the conclusion of an informal consultation that did not result in a consent agreement, as applicable. Following a hearing, if the Associate Administrator finds the facility to have a condition that poses a pipeline integrity risk to the public, property, or the environment in accordance with § 190.239, the Associate Administrator may issue a final Safety Order.

Be advised that all material submitted in response to this enforcement action is subject to public availability. 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).

In your correspondence on this matter, please refer to **CPF 4-2022-051-NOPSO**, and for each document you submit, please provide a copy in electronic format whenever possible.

---

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

---

Date issued