Before the
U.S. Department of Transportation
Pipeline and Hazardous Materials Safety Administration
Office of Pipeline Safety

In the Matter of	)	
Lake Charles LNG Company, LLC	)	CPF No. 4-2017-3002
	)	Notice of Probable Violation
Respondent.	)	

RESPONDENT'S PRE-HEARING WRITTEN SUBMITTAL

I. Background

On September 15 and 16, 2015, representatives of the Pipeline and Hazardous Materials Safety Administration (PHMSA or the Agency) visited the Lake Charles LNG Company, LLC (Lake Charles or the Company) to inspect records and procedures. As a result of that inspection, on February 21, 2017, PHMSA issued a Notice of Probable Violation, Proposed Civil Penalty and a Proposed Compliance Order to the Company, which was followed on March 1, 2017 with a revised Notice of Probable Violation (NOPV), Proposed Civil Penalty and a Proposed Compliance Order (attached as Exhibit 1).

The NOPV alleged five violations of PHMSA regulations at 49 C.F.R. Part 193. The Agency assessed a penalty for only one of the alleged violations, proposing a $32,400 penalty for Item 1 of the NOPV. Items 4 and 5 of the NOPV were issued as Warning Items, with the Agency stating that it "decided not to conduct additional enforcement action or penalty assessment proceedings at this time," but encouraged the Company to promptly correct the alleged violations or face enforcement in the future. *NOPV, p. 7.* The Agency also proposed corrective actions for the Company to take in regard to Items 1, 2 and 3 of the NOPV under a Proposed Compliance Order.

On March 22, 2017, Lake Charles requested a Hearing on the NOPV, Proposed Civil Penalty and Proposed Compliance Order (attached as Exhibit 2). As a threshold matter, a portion of the Lake Charles LNG facility (approximately 1.5 miles of pipe in total) is subject to exemption for maritime operations as defined at 49 C.F.R. Part 193.2001(b)(3), thus the NOPV does not apply to that section. With respect to NOPV Item 1, the Company believes that the Agency did not have all relevant information when it alleged the item, because at the time of the inspection in 2015 Lake Charles was in the process of conducting a cathodic protection survey that included consideration of IR Drop (the central allegation in Item 1). The Company requests that the Agency withdraw Item 1 and the associated Proposed Civil Penalty, or alternatively, reduce the Proposed Civil Penalty.

In regard to Item 2 of the NOPV, and as described further below, the rules provide for an operator to determine which metallic components could have their integrity or reliability adversely affected by external, internal or atmospheric corrosion at Part 193.2625(a). Toward that end, the Agency's own statements when promulgating the corrosion inspection requirements for Part 193 in 1980 expressly acknowledge that corrosion does not occur at cryogenic temperatures (the insulated stainless steel piping at the Lake Charles facility operates between -260 and -50 degrees Fahrenheit). The Part 193 rules require that atmospheric corrosion be considered for those occasions when LNG pipe is not operating at cryogenic temperatures, and expressly refers to the "determination" that is made by the operator (not the Agency) of whether corrosion is a concern.

The Lake Charles facility has continued to conduct maintenance and inspections since 2012, when the pipe has not been in cryogenic operation. Those inspections, along with further confirmatory review by the Company, did not reveal any evidence of corrosion, due primarily to the use of austenitic stainless steel pipe and the characteristics associated with austenitic stainless steel (and in contrast to carbon steel, which is typically used for oil and natural gas pipelines). As a result, and combined with knowledge of the favorable environmental conditions in the facility (such as relatively low levels of chlorides, sulfides or other contaminants necessary for corrosion of austenitic stainless steel at ambient temperatures or below), the austenitic stainless steel pipe at the

Lake Charles facility is not susceptible to corrosion. For these reasons, the Company requests that the Agency withdraw Item 2 (of both the NOPV and the Proposed Compliance Order) in light of the preamble language which expressly acknowledges that the chemical reaction necessary to cause corrosion does not occur at cryogenic temperatures, and in recognition of the fact that the facility has conducted inspections when the facility has not been in operation and found no evidence of corrosion. Alternatively, the Company asks that PHMSA modify the Compliance Order for Item 2 to request submittal of a report constituting the demonstration/determination allowed by Part 193.2625(a).

Finally, in regard to Item 3, Lake Charles requests that that the NOPV Item 3 and that the associated Compliance Order Item be withdrawn, because the records addressed by the NOPV were, in fact, available at the time of inspection.

II. Argument

A. NOPV Item 1: Cathodic Protection/IR Drop

Item 1 of the NOPV alleges that the Lake Charles facility violated Part 193.2629 (and, in turn, Part 192.463, Appendix D), by failing to consider IR drop during annual inspection of the facility's cathodic protection system. As explained in the Company's response to the NOPV, Lake Charles retained the services of a pipeline cathodic protection expert to conduct its 2015 annual survey. That survey proposal expressly included consideration of IR drop, and was approved on August 25, 2015 (see attached Exhibit 3), prior to PHMSA's inspection. The 2015 annual survey was ongoing as the PHMSA inspection occurred. The annual cathodic protection report was issued to the Company on September 28, 2015 (see attached Exhibit 4), noting that the survey was in progress as the PHMSA inspection occurred.

The violation alleged in Item 1 of the NOPV was premised on the assertion that the facility had not conducted an annual cathodic protection survey that considered IR drop. Because Lake Charles did retain a cathodic protection third party expert to conduct the annual survey ***before*** the PHMSA inspection occurred, and that approved proposal expressly considered IR drop, the Agency should withdraw Item 1 of the NOPV. Similarly, the Agency should withdraw the Proposed Civil Penalty and associated Proposed Compliance Order Item 1, because there was no violation to support a proposed penalty and no actions required to demonstrate compliance.

Even though the Company believes that the entire alleged violation and Proposed Civil Penalty should be withdrawn, in the alternative, the Proposed Civil Penalty should be reduced to reflect the application of the both the mandatory and discretionary statutory and regulatory penalty factors at 49 U.S.C. 60122 and Part 190.225. Specifically, the Proposed Civil Penalty Worksheet (attached as Exhibit 5) should reflect this as an issue related to records only that had no impact of pipeline safety or integrity because the annual survey was being conducted during the inspection. As such, the factors of nature and gravity should be reduced to "records" and "records only" respectively and culpability should be reduced to reflect that ETP took significant steps to comply but did not achieve compliance. Further, PHMSA should use its discretion to adjust the Proposed Civil Penalty downward under "other matters as justice may require" to reflect that the survey was ongoing during the time of the inspection and that it did in fact account for IR drop.

B. Item 2 NOPV: Above Ground LNG Pipe Corrosion Inspection

For the reasons set forth below, Lake Charles believes that the alleged violation in Item 2 of the NOPV should be withdrawn, along with the Proposed Compliance Order for Item 2. Alternatively, the Company requests that the Proposed Compliance Order for Item 2 be modified to (1) provide the Company with an opportunity to demonstrate that the LNG components at the Lake Charles LNG facility are not susceptible to corrosion and (2) acknowledge that corrosion inspections are not required (or even possible) when the facility is operating at cryogenic temperatures, and they are not required for LNG stainless steel pipe when the facility is not in operation. If necessary, the Company can submit an expert report demonstrating that inspections are not needed on this austenitic stainless steel at the Lake Charles LNG facility even when the facility is not operating, as allowed by Part 193.2625.

Applicable Law

In 1980, PHMSA promulgated rules at 49 C.F.R. Part 193 to establish minimum safety requirements for LNG facilities. The scope of those rules includes pipelines "*subject to the pipeline safety laws [of the federal Pipeline Safety Act] and [49 C.F.R.] Part 192*." *49 C.F.R. Part 193.2001(a)*. Part 192 rules apply to the transportation of all forms of gas (natural gas, flammable gas, or gas that is corrosive or toxic). *49 C.F.R. Part 192.3*. There are some exemptions to Part 193 regulation for LNG pipe associated with gas treatment not involving storage, or related to marine transfer, etc., and a 1.5 mile portion of the facility is exempt as noted above. *49 C.F.R. Part 193.2001(b)*.

An "LNG facility" is defined at Part 193.2007 as "*…a pipeline facility that is used for liquefying…transferring, storing or vaporizing liquefied natural gas.*" Subpart G of Part 193 addresses "Maintenance [including inspections]." In Subpart G, Part 193.2625(a) states that "*[e]ach 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*" (emphasis added). The word "*determine*" is further defined at Part 193.2007 to mean "*make an appropriate investigation using scientific methods, reach a decision based on sound engineering judgment, and be able to demonstrate the basis of the determination.*"

If the determination referenced in Part 193.2625(a) is made and demonstrated ("demonstration" is not defined), then no coating or corrosion inspection is required for the relevant LNG metallic components. Consistent with this rule, PHMSA limits atmospheric corrosion control requirements to "[e]ach exposed component that is subject to atmospheric corrosive attack." *49 C.F.R. Part 193.2627*. If no such determination is made, then the operator must, pursuant to Part 193.2625(b): (1) protect the pipe from corrosion consistent with Parts 193.2627-2635 (which essentially requires 'suitable coating,' pursuant to Part 193.2627, inspection of the pipe "*at intervals not exceeding three* years" at Part 193.2635(d), and which must be included in a Written Manual of procedures, pursuant to Part 193.2605(b)); *or* (2) inspect and replace the pipe "*under a program of scheduled maintenance*" consistent with Part 193.2605.

Intent of the Regulations in Issue

When PHMSA's predecessor agency published its Final Rule establishing the Part 193 regulations applicable to LNG piping, it stated clearly that "corrosion does not occur at cryogenic temperatures or where the metal is continually in contact with liquid LNG or LNG vapors. At extremely low temperatures, the chemical reaction necessary to cause corrosion does not occur." *45 Fed. Reg. 70,390, 70,396 (Oct. 23, 1980) (emphasis added)* (agreeing with the Technical Pipeline Safety Standards Committee on this point; attached as Exhibit 6). This is consistent with industry standards and practice in use since 1980. The Agency also goes on to call its conclusion a "fact" and notes with respect to internal corrosion monitoring requirements at 49 C.F.R. Part 193.2635(e), that they do not apply to components operated at cryogenic temperatures "because corrosion control would not be required by § 193.2625." *45 Fed. Reg. at 70,396.* The same conclusion applies to atmospheric corrosion control requirements based on a determination under Part 193.2625.

Where a component is not continuously in contact with cryogenic temperatures, the applicability of Part 193 corrosion control monitoring depends on the findings of an operator's determination under Part 193.2625. The agency explained that "Parts of . . . a component that are not continually at cryogenic temperatures may, however, have to be protected against corrosion and thus monitored under § 193.2635, depending on the findings made under § 193.2625 regarding the effects of corrosion to those parts and the overall effect on the component..." *45 Fed. Reg. 70,390, 70,396 (Oct. 23, 1980).* Further, it recognized that "[s]uch components would have to be protected only if the findings under § 193.2625 indicate that adverse consequences from corrosion may occur." *Id.*

Critical Facts Relevant to the Lake Charles LNG NOPV Matter

In Item 2 of the NOPV at issue in this case, PHMSA alleges that Lake Charles LNG failed to comply with Part 193.2635(d) by not inspecting its pipelines at least once every three years for atmospheric corrosion. The Lake Charles LNG facility is designed to transport LNG at cryogenic temperatures, using austenitic stainless steel pipe. In contrast to carbon steel, austenitic stainless steel pipe is an alloy of iron and carbon and the presence of a minimum of 10.5% chromium in the stainless steel "gives it the property of corrosion resistance." *Exhibit 7, ArcelorMittal, Stainless Steel and Corrosion (Mar. 2010).* Specifically, "on contact with oxygen, a chromium oxide layer is formed on the surface of the materials. This passive layer protects it and has the particular ability to self repair." *Id.* Because the facility's above ground pipe components are used in cryogenic transport, the above ground pipe is covered with insulation wrap. The only time that pipe components are not at cryogenic temperatures is when the facility is shut down for maintenance, repair or other reasons.

The LNG pipe at the facility has been inspected when the facility has been out of cryogenic operation, most recently in 2012 and 2013. *Exhibit 8, Lake Charles LNG Stainless Steel CUI Inspection Summary (2012-2013)* (explaining that "The objective of the inspection was to take advantage of the terminal downtime to assess the overall condition of the cryogenic piping and insulation systems. The piping systems are inaccessible for inspection during normal operation."). Additional examination of inspection records and current pipe conditions again confirmed that no corrosion has been found on this austenitic stainless steel pipe. *Exhibit 8, Lake Charles LNG*

Stainless Steel CUI Inspection Summary (2012-2013) (concluding that "the stainless steel piping systems under insulation have no indications of any type of corrosion. These visual observation and wall thickness measurement results indicate that no additional review of austenitic stainless steel piping is required and that these pipes are suitable for continued operations without further inspection.").

As with other cryogenic LNG facilities, Lake Charles has operated for decades with the understanding that its pipe is exempt from PHMSA's Part 193 corrosion inspection requirements. It appears that the NOPV in this matter is the first time since 1980 that the Agency has alleged a violation of Part 193.2635 against a cryogenic LNG operator of stainless steel pipe.[1] In the NOPV, PHMSA alleges that the information provided by Lake Charles during the PHMSA inspection in issue "*…does not support the argument that corrosion of stainless steel can be predicted solely on the basis of operating temperature.*" *NOPV, Item 2, at 3 (Mar. 1, 2017).*

The NOPV also asserted that insulated pipe is subject to "corrosion under insulation" (CUI), and thus the Lake Charles LNG pipe should be inspected for atmospheric corrosion even if constructed with stainless steel and operating at cryogenic temperatures. Although not noted in the NOPV or the Pipeline Safety Violation Report (PSVR), on June 21, 2016, PHMSA issued an Advisory Bulletin on the threat of Corrosion Under Insulation (*81 Fed. Reg. 40398*) (attached as Exhibit 9). The NOPV allegations clearly track the cautions set forth in that Advisory. That Advisory, however, was issued in response to a 2015 incident on a crude oil pipeline near Santa Barbara, California, operated by Plains All American Pipeline. The Plains incident occurred on an oil pipeline constructed with carbon steel, operating at ambient temperatures. The Advisory did not address stainless steel pipe or cryogenic LNG pipe. Thus, the allegation regarding CUI is simply inapplicable to this matter, and should be disregarded.

PHMSA Should Withdraw NOPV Item 2 Regarding Corrosion Inspections on Aboveground Cryogenic LNG Pipe

When issuing the Part 193 regulation alleged to be violated in NOPV Item 2 (49 C.F.R. Part 193.2635), PHMSA's predecessor stated clearly (in 1980) that corrosion does not occur at cryogenic temperatures. The Agency has never before brought an enforcement action against an operator of cryogenic LNG pipe under this provision. The reference to the CUI threat in the NOPV is not a legal requirement and is wholly inapplicable to the Lake Charles facility. Similarly, the API Recommended Practice (RP) 571 (2003) that is referenced in the PSVR is not incorporated to the Part 193 regulations and is similarly inapplicable to the Lake Charles facility. The Advisory is only guidance and the outdated 2003 version of the referenced RP is an industry standard that generally discusses CUI but does not address CUI of stainless steel operated at cryogenic temperatures (rather it notes that corrosion is more severe at higher temperatures between 212 and 250 degrees Fahrenheit). Further, under the current version of this RP (April 2011), CUI

[1] PHMSA has issued enforcement to one LNG operator under a different rule than alleged to be violated in the Lake Charles NOPV. In that one other matter, the operator was cited for failure to provide written documentation of its determination that certain tanks (not pipe) are not susceptible to corrosion. *Amended Final Order, In re: Hopkinton LNG, CPF 1-2012-3001, p. 1 (Mar. 5, 2014)* (finding that the operator "failed . . . to provide any written documentation showing that it had conducted an evaluation or assessment and had ultimately made a determination that the three tanks are not susceptible to atmospheric corrosion."); upheld in *PHMSA Decision on Petition for Reconsideration, CPF 1-2012-3001 (Nov. 24, 2014).*

inspections would not be required given that the Lake Charles facility's operating temperature ranges from cryogenic to ambient at the highest. *See Exhibit 10, API Recommended Practice 571 (2011).* Neither of those sources support this enforcement action.

The stainless steel components of the Lake Charles LNG facility that are operated at cryogenic temperatures have been exempt by definition from application of 49 C.F.R. Part 193.2635 since that rule was promulgated in 1980. In addition, the insulation added to the pipe for temperature control should act as additional deterrent to any corrosion. The Agency's 2016 guidance on "Corrosion Under Insulation" did not address and does not apply to stainless steel pipe operated at cryogenic temperatures, and it does not apply to the Lake Charles LNG facility. The Advisory is only guidance, it is not applicable to these facts, and it does not support an alleged violation in this matter.

Even if the Hearing Officer concludes, without authority or precedent, that the Lake Charles LNG components comprised of austenitic stainless steel and operated at cryogenic temperatures are not exempt by definition from the requirements of 49 C.F.R. Part 193.2625, then the Proposed Compliance Order for Item 2 should be modified to allow the Lake Charles LNG facility to submit an expert report confirming that the operator has adequately "*determined*" through an appropriate "*demonstration*" that corrosion inspection of this pipe is not required, pursuant to Part 193.2625(a). The Proposed Compliance Order should be revised to be consistent with the regulations and acknowledge that submittal of a demonstration under 49 C.F.R. Part 193.2625 will fully resolve the issue.

C. Item 3 of the Compliance Order Should Be Revised

Item 3 of the NOPV alleges that Lake Charles failed to comply with training requirements set forth at Parts 193.2707, 193.2713 and 193.2717. Parts 193.2713 and 193.2717 address initial and refresher training for all personnel. Part 193.2707 addresses training to demonstrate the capability of operating and maintenance personnel to perform their assigned functions but has no initial or refresher training requirement, except as required by Parts 193.2713 and 2717 that are incorporated by reference. The Part 193.2707 records were complete and available for review at the time of the inspection. The Company advised the Agency both during the inspection and its Hearing Request that Lake Charles had misplaced some *initial* and refresher training records as required by Parts 193.2713 and 193.2717. All refresher training required by these two parts was current at the time of the inspection, however, and was compliant for all courses and all employees. As with many facilities, Lake Charles has lost or misplaced some historical records. The Company is in the process of reviewing and improving its training record retention requirements.

The NOPV also alleges that Lake Charles failed to require refresher training and had no records for detailed operations for supervisors and emergency response for contract security personnel. At the time of the inspection, Lake Charles training matrix did require refresher training for both of these items including appropriate supervisory personnel. As allowed by the rule, refresher training is only required for "appropriate" supervisory personnel. *49 C.F.R. Part 193.2713(a); see also Final Rule, 45 Fed. Reg. 70,390, 70,397 (Oct. 23, 1980)* (193.2713 applies to "appropriate" supervisory personnel to avoid the implication that all supervisors must be trained, not just those engaged in operations.). In addition, refresher training records for detailed operations for

supervisors and emergency response for contract security personnel were current and available for review at the time of the inspection.

Given that the records addressed by the NOPV were, in fact, available at the time of inspection, the Company believes that NOPV Item 3 should be withdrawn and that the associated Compliance Order Item be withdrawn.

III. Summary and Request for Relief

The NOPV issued to the Lake Charles LNG facility in February of 2017 (regarding a two day inspection in September of 2015), alleged 5 violations of Part 193 regulations. Items 4 and 5 were issued as Warning Items, and beyond the Agency's admonition to the Company to address those issues, no further written response is required.

Item 1 of the NOPV alleged a violation of Part 193's annual cathodic protection annual survey requirements, assessed a Proposed Civil Penalty of $32,400 and included a Proposed Compliance Order. As described above, before the 2015 PHMSA inspection, the Company had already retained a third party to conduct its 2015 annual cathodic protection survey, expressly including consideration of IR drop. That survey was ongoing during the 2015 PHMSA inspection. The report was issued after the inspection, but more than a year before the NOPV issued. The report shows that the Company had conducted an annual survey that did consider IR drop. Thus, there was no violation, and Item 1 should be withdrawn along with the associated penalty and compliance order. In the alternative, the penalty should be reduced and the compliance order withdrawn.

Item 2 of the NOPV alleged a violation of the Part 193 requirements to conduct corrosion inspection on above ground LNG pipelines every three years. The Agency's own rules, however, expressly provide for an operator to make a determination that certain metallic components are not susceptible to corrosion and the Agency has said that corrosion does not occur at cryogenic temperatures (the insulated stainless steel piping at the Lake Charles facility operates between -260 and -50 degrees Fahrenheit). Lake Charles has conducted corrosion inspections when the facility was not in continuous operation, and no evidence of corrosion has ever been found, because the pipe in question is made of austenitic stainless steel, not carbon steel. The Part 193 rules allow an operator to make its own determination in such situations as to whether inspection is required even when not operating at cryogenic temperatures. Lake Charles requests that PHMSA withdraw Item 2 and the associated Proposed Compliance Order. In the alternative, the Company requests that the Proposed Compliance Order be revised to provide for a "demonstration" that no inspection is required, as allowed by Part 193.2625(a).

Finally, Item 3 of the NOPV alleges noncompliance with both initial and refresher training requirements for LNG operators and security personnel, and the associated Compliance Order requests the facility to review and upgrade its procedures, and "develop records." The Company acknowledges that some historical training records are missing, but it cannot recreate historical records (thus it is seeking clarification that 'develop records' is not intended to mean create historical records). That said, the training records required by Part 193.2707 were made available at the time of the inspection but were not requested. The Company is in the process of reviewing

and revising its training procedures and recordkeeping requirement. As a result, the Company requests that both the NOPV Item 3 and associated Compliance Order items be withdrawn.

Respectfully submitted,

LAKE CHARLES LNG COMPANY, LLC

Mr. Jeff Brightwell
VP, LNG Operations
800 E. Sonterra Blvd.
San Antonio, TX 78258

TROUTMAN SANDERS
Catherine D. Little, Esq.
Robert E. Hogfoss, Esq.
Bank of America Plaza, Suite 4700
600 Peachtree Street, N.E.
Atlanta, GA 30308
(404) 885-3056
(404) 885-3055

List of Exhibits

1. PHMSA Notice of Probable Violation, CPF No. 4-2017-3002 (February 21, 2017) (with cover letter dated March 1, 2017).

2. ETP Request for Hearing and Written Response (March 22, 2017).

3. 2015 Annual Cathodic Protection Survey (approved August 20, 2015).

4. 2015 Annual Cathodic Protection Report (issued on September 28, 2015).

5. PHMSA Proposed Civil Penalty Worksheet, CPF No. 4-2017-3002.

6. Final Rule, 45 Fed. Reg. 70,390, 70,396 (October 23, 1980).

7. ArcelorMittal, Stainless Steel and Corrosion (March 2010).

8. Lake Charles LNG Stainless Steel CUI Inspection Summary (2012).

9. PHMSA Advisory, Pipeline Safety: Ineffective Protection, Detection, and Mitigation of Corrosion Resulting from Insulated Coatings on Buried Pipelines, 81 Fed. Reg. 40398 (June 21, 2016).

10. API Recommended Practice 571, Damage Mechanisms Affecting Fixed Equipment in the Refining Industry (April 2011)