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VIA E-MAIL AND OVERNIGHT COURIER

May 30, 2012

Mr. Byron E. Coy, P.E.
Director, Eastern Region
Pipeline and Hazardous Materials Safety Administration
Mountain View Office Park
820 Bear Tavern Road, Suite 306
West Trenton, NJ08628

RE: Response to Notice of Probable Violation, Proposed Civil Penalty and Proposed Compliance Order
CPF No. 1-2012-3001

Dear Mr. Coy:

On behalf of the Hopkinton LNG Corp. ("Hopco"), I would like to thank PHMSA for providing the agency's case file and the additional time to respond to the Notice of Probable Violation, Proposed Civil Penalty and Proposed Compliance Order ("Notice") in this matter. Hopco respectfully submits the enclosed response to the Notice.

Please do not hesitate to contact Mark E. Gunsalus, Director of Gas Service and Supply, at (508) 305-6986 if you have any questions about Hopco's response or our facilities.

Respectfully submitted,

Paul J. Zohorsky
Acting Vice President, Gas Operations
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Hopkinton LNG Corp.
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cc: Kristin Baldwin, Esq., Counsel for Eastern Region, PHMSA
Robert Smallcomb, P.E., Inspector, PHMSA
Benjamin Fred, Esq., Designated Presiding Official, PHMSA

Enclosure: Response of Hopkinton LNG Corp. to Notice of Probable Violation, Proposed Civil Penalty and Proposed Compliance Order, with Attachments

U.S. DEPARTMENT OF TRANSPORTATION
PIPELINE AND HAZARDOUS MATERIALS SAFETY ADMINISTRATION
OFFICE OF PIPELINE SAFETY
WASHINGTON, D.C.

In the Matter of	)	
Hopkinton LNG Corp.,	)	**CPF No. 1-2012-3001**
Respondent.	)	

RESPONSE OF HOPKINTON LNG CORP. TO NOTICE OF PROBABLE VIOLATION, PROPOSED CIVIL PENALTY AND PROPOSED COMPLIANCE ORDER

To: Byron E. Coy, P.E.
Director, Eastern Region

A. Introduction

Pursuant to 49 C.F.R. § 190.209(a)(2) and (b)(2), Hopkinton LNG Corp. ("Hopco" or the "Company") submits this written response to the Notice of Probable Violation, Proposed Civil Penalties and Proposed Compliance Order ("Notice") in the above-referenced matter. The Notice arose from PHMSA inspections in June 2009 and October 2010 of Hopco's Hopkinton, Massachusetts LNG facility ("LNG facility"). The LNG facility was constructed beginning in 1967 and consists of three 290,000 barrel tanks used to store LNG, as well as associated liquefaction and vaporization facilities and piping. The LNG facility receives gas from interstate pipelines, liquefies and stores the gas, and then vaporizes the LNG for use in the interstate pipelines and in the distribution system of Hopco's affiliate, NSTAR Gas Company, during periods of high demand.

Hopco is committed to the safety of its LNG facility. In over 40 years of operation, there have been no employee lost time injuries at the LNG facility. Hopco recognizes, however, that there are always opportunities for improvement in its safety programs and procedures. Hopco appreciates the input provided by PHMSA inspectors regarding the LNG facility, and the Company has undertaken many improvements to its procedures and facilities as a result of feedback from PHMSA and from the Federal Energy Regulatory Commission ("FERC") over the years. Hopco believes its reputation for investing in plant safety and reliability projects is proven and we will continue to operate responsibly, with pride, and with a high priority on safety.

While Hopco fully recognizes the need for continual improvement of its LNG safety programs, it believes that many of the allegations of violation in the Notice are not supported by the regulations or the evidence. This response demonstrates that Hopco's LNG facility was compliant with the regulations, and, more importantly, was safe at the time of the 2009 and 2010 PHMSA inspections and is safe today.

B. Hearing Request

On April 24, 2012, Hopco requested a hearing and PHMSA's case file in this matter and sought additional time to submit its response. PHMSA provided the case file on April 27, 2012, and granted Hopco's request for additional time, setting May 30, 2012, as the deadline for Hopco's response. Hopco appreciates the opportunity and time to review PHMSA's case file in this matter. The explanations in the PHMSA Violation Report and the attached materials better enabled Hopco to understand and respond to PHMSA's concerns. Should PHMSA regional staff seek to add any additional materials to the record for this case, Hopco respectfully requests that it be provided with those materials and the opportunity to respond to them.

Hopco no longer seeks a hearing in this matter and respectfully requests that PHMSA proceed with a decision in this matter on the basis of the written record, including this filing.

Please note that Hopco has marked all or portions of certain attachments to this response as subject to protection from public release because they contain material subject to protection under Freedom of Information Act Exemption 7(F), 5 U.S.C. § 552(b)(7)(F) and are also subject to protection under the Federal Energy Regulatory Commission's ("FERC") regulations as Critical Energy Infrastructure Information ("CEII"), 33 C.F.R. § 388.13. For convenience, Hopco has provided both complete and redacted copies of the attachments along with this response. Hopco respectfully requests that PHMSA refrain from publishing the protected portions of the attachments to its public website and notify the Company of any public requests for this information.

C. Allegations of Violation

In the following sections, Hopco provides its response to each allegation of violation in the Notice, and the associated proposed civil penalties and proposed compliance order terms.

Item 1

The Notice alleges that Hopco violated 49 C.F.R. § 193.2609 by failing "to inspect some of its support systems and foundations for detrimental changes that could impair support." Specifically, it alleges that Hopco failed to perform inspections of certain support systems and foundations during the Company's 2009 and 2010 reviews of the support systems and foundations at its LNG facility. Hopco contests this allegation and respectfully requests that the allegation, and related proposed civil penalty and proposed compliance order be withdrawn.

The evidence demonstrates that Hopco made all required foundation and support system inspections in both 2009 and 2010. Hopco's 2009 and 2010 reviews of the LNG facility support systems and foundations are documented in two Structural Foundation Inspection ("SFI") check lists and are attached as exhibits A-2 and A-3 to PHMSA's Violation Report. The Violation Report also includes photographs of support systems and foundations in Exhibits A-7, photographs 1-7, and A-8, photographs 1-6. This evidence does not support an allegation of violation of § 193.2609.

The SFI check lists and the photographs show that, while there were cosmetic issues with some support systems and foundations, all of these areas were safe and none posed a threat to the support of the facility. In addition, the movement of saddles and supports in some photographs is due to the expansion and contraction of cryogenic piping. These cryogenic facility supports are designed and intended to move, and this movement did not pose a threat to the support of the facility.

Importantly, the Notice does not assert that any of Hopco's support systems and foundations were unsafe. The Notice states only that PHMSA believes that there was deterioration that was more severe than documented on the SFI check lists. It appears from the Notice that PHMSA did not agree with the ratings that Hopco assigned to particular support systems and foundations at the Hopkinton facility. Hopco does not agree that its staff stated that "some of the records did not adequately represent the state of some of the structures" as indicated on page 3 of the Violation Report. Rather, the comments of Hopco staff simply recognized that different individuals may have different opinions during an inspection. A difference of opinion about the condition of a support system or foundation does not constitute a violation of § 193.2609.

Section 193.2609 requires that operators "inspect for detrimental changes that could impair support." Hopco complied with the regulation by performing inspections of its support systems and foundations, in good faith, and grading the condition of each location according to an A through D scale. Although there may have been room to disagree about the precise rating of any given component, from the perspective of facility safety and component support, none of the foundations or support systems listed in Violation Report Exhibits A-7 and A-8 had conditions that "could impair support." On the contrary, each of these areas reflected only cosmetic, if any, issues, and were graded accordingly on the 2009 and 2010 SFI checklists.

Although it was not raised in the NOPV, the standard for whether the condition of a component or its support system warrants intervention is set out in § 193.2603, which provides that "[e]ach component in service, including its support system, must be maintained in a condition that is compatible with its operational or safety purpose by repair, replacement or other means." Each

of the support systems and foundations listed in Exhibits A-7, photographs 1-7, and A-8, photographs 1-6, was safe and compatible with its operational and safety purpose.

Hopco has prepared a document that reviews each of the foundations and support systems noted in the Violation Report Exhibits, and demonstrates why each provided safe, adequate support at the time of the PHMSA inspections. See **Attachment 1**. This document also demonstrates that the PHMSA photographs of these locations tend to overstate the severity of the conditions. When viewed with the proper scale, perspective and background information, it is clear that there were no support issues and that the conditions observed were cosmetic. This document also includes up-to-date photographs of locations where Hopco has addressed any cosmetic issues since the PHMSA inspections. Again, although the Notice does not allege that any of the foundations or support systems at the Hopkinton LNG facility required repair, replacement or other intervention, Hopco wishes to stress that these facilities were safe at the time of the inspections and remain safe today.

For several years, Hopco has had a program in place to refurbish the foundations and support systems across its LNG facility. Although not referenced in the Notice or Violation Report, Hopco has provided PHMSA with information about its ongoing efforts regarding its foundations and support systems. In October 2010 and January 2011, Hopco provided PHMSA with information about the foundations and support systems which it had refurbished in the previous few years, and plans for future work. See **Attachment 2**. In addition, since 2009, Hopco has spent nearly $2.5 million to rebuild the foundations under the compressor engines at the LNG facility. All foundations are complete and the final engine is currently being reassembled and is expected to be completed in August 2012. Descriptive photographs of this work are shown in **Attachment 3**. Hopco has compiled spreadsheets of the costs associated with the engine foundation work, as well as an updated diagram of the LNG facility upper plant area, and a listing and schedule of foundation work. See **Attachment 4**. Hopco offers this evidence to demonstrate that the Company has been focused on its foundations and support systems for many years, and has made a good faith effort to correct any issues, cosmetic or otherwise.

PHMSA proposed a civil penalty of $32,500 and a compliance order related to this allegation. As no violation occurred, no civil penalty or compliance order is appropriate. However, should PHMSA proceed with a finding of violation on Item 1, Hopco believes, in light of its good faith efforts and the materials and evidence contained in this filing, that no penalty is warranted under the assessment criteria set out in 49 C.F.R. § 190.225. With respect to these criteria, this response and the materials in the record show that no part of the LNG facility was in danger of failing due to lack of support, and Hopco has no culpability because it complied with the regulations.

Similarly, as no violation occurred, no compliance order is appropriate. Hopco has continued its program of foundation and support system refurbishment and has completed numerous facility improvements since the 2010 PHMSA inspection. **See Attachments 1 - 4**. Hopco believes that the foundations and support systems at the LNG facility are safe.

Item 2

The Notice alleges that Hopco violated 49 C.F.R. § 193.2625(a) by failing to "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." Specifically, it alleges that Hopco "has never determined whether the carbon steel bottoms of each of the 3 LNG [facility] tanks are adversely affected by external corrosion." The Notice also asserts that Hopco admitted that "no study had been performed since the tanks had been constructed in the 1970's nor since Part 193 had been implemented in 1980." PHMSA's Violation Report includes a similar statement that Hopco employees "admitted that Hopkinton LNG has not performed a study to determine the susceptibility of the tank bottoms to corrosion." Violation Report at 8. Hopco contests this allegation and respectfully requests that the allegation and related proposed compliance order be withdrawn.

The regulation does not require an outside, third-party study; it requires only that the operator make some determination about whether its metallic components could be adversely affected by external corrosion. Contrary to the statement in the Violation Report, Hopco personnel did not

admit that no determination of tank bottom external corrosion susceptibility had been performed. During the inspection, Hopco personnel indicated only that an outside, third party study had not been performed on tank bottom external corrosion susceptibility. Hopco did, in fact, make the determination required by the regulations.

The LNG facility tanks are a double-walled design. The outer tank, which does not contain LNG, is constructed of fully sealed, welded ASTM A131 Grade B mild steel. The inner tank is 9% nickel steel and the annular space between the shells of the inner and outer tanks is filled with perlite and a resilient fiberglass blanket. Between the inner and outer tank bottoms are a 20-inch layer of load bearing foamglass insulation, 4-inches of concrete and 1-inch of clean dry sand. The inner and outer tanks rest on a reinforced concrete ringwall foundation. Beneath the outer tank bottom lies a 15-inch deep layer of sand. The sand pad is heated by 60 electric heating coils and the temperature is monitored by five independent thermocouples. An original tank design drawing from 1970 is included as **Attachment 5**.

The design of this tank was intended to protect the outer tank bottom from external corrosion. This protection is achieved by placing the tank bottom on a bed of heated sand, thereby preventing water from contacting the bottom of the tank. Such a design results in the tank bottom not being susceptible to external corrosion. A determination of the tank bottom's susceptibility to external corrosion was, therefore, made through the exercise of the professional engineering judgment of the design engineers at the time of design and construction in the late 1960's and early 1970's.

In 2009, in consultation with Hopco and outside engineers, Hopco re-confirmed the longstanding determination that the original LNG tank design fully protects the carbon steel bottoms from external corrosion. The basis for the re-confirmation was that the heated sand bed beneath the outer surface of the tank bottom prevented external corrosion on that surface. Affidavits from an NSTAR employee and a contractor involved in the 2009 re-confirmation process are included as **Attachment 6**. The original design determination and the 2009 re-confirmation process demonstrate that Hopco fully complied with the requirements of 49 C.F.R. § 193.2625(a).

Although Hopco's past determination regarding the LNG tank bottoms demonstrate that the company has fully complied with § 193.2625(a), the company has opted, as a matter of good practice, to commission R.A. Hoffmann Engineering, an engineering contractor with LNG expertise, to perform a current-day assessment of the external corrosion susceptibility of the LNG tank bottoms.

PHMSA proposes a compliance order related to Item 2. As no violation occurred, no compliance order is appropriate. The record demonstrates that Hopco considered the external corrosion susceptibility of the LNG tank bottoms and determined that external corrosion was not a threat.

Item 3

Hopco does not contest this allegation. Hopco has already amended section 3.6C of its corrosion control procedures to include timeframes for remedial action. The company submitted these amended procedures to PHMSA in an April 24, 2012 letter responding to a request for information related to a 2011 Notice of Amendment ("NOA"), CPF No. 1-2011-3003M. PHMSA accepted these amended procedures and closed the NOA in a May 15, 2012 letter. See **Attachment 7**. In addition, Hopco is investigating industry best practices related to crevice corrosion and remediation timelines. Upon completion of this inquiry, Hopco will further amend Section 3.6C of its corrosion control procedures, as appropriate, to address its findings related to this corrosion mechanism. Hopco expects to complete amendments to Section 3.6C within 90 days of receipt of the final order. Hopco will then perform a re-evaluation of its pipes on supports or trestles.

Item 4

The Notice alleges that Hopco violated 49 C.F.R. § 193.2639(a) by "failing to keep a record of the atmospheric corrosion observations at the pipe/soil interface." Specifically, it states that Hopco's Section 3.6C procedures require the Company to document the condition at each pipe/soil interface. The Notice suggests that the presence of atmospheric corrosion noted in

2010 is evidence that Hopco failed to document this corrosion in its 2005 and 2008 inspection reports. These reports are included in PHMSA's Violation Report as Exhibits A-4 and A-6. Hopco contests this allegation of violation and respectfully requests that the allegation and associated proposed compliance order be withdrawn.

Neither the regulation nor the Company's procedures require it to specifically list all pipe/soil interfaces. Hopco followed the regulation and its procedure by performing a thorough atmospheric corrosion inspection of its facilities in 2005 and 2008, including pipe/soil interface areas. The 2005 and 2008 inspection reports create a detailed record of the atmospheric corrosion inspection and detail the condition of many specific components of the facility, noting problem areas and making recommendations for remediation. The 2005 and 2008 Hopco inspections did not note pipe/soil interfaces because there was no visible corrosion at the time of those inspections.

PHMSA's observation of surface corrosion in 2010 does not constitute evidence that corrosion was present in 2005 or 2008, and it does not demonstrate that Hopco failed to note corrosion at those times. Operators are required to perform atmospheric corrosion inspections on a three year cycle, which Hopco did, and corrosion may develop in the years between three year inspections. Indeed, PHMSA's 2010 inspection occurred nearly 20 months after Hopco's last atmospheric corrosion survey, providing time for corrosion to develop before Hopco's next required inspection.

PHMSA proposed a compliance order related to Item 4. As no violation occurred, no compliance order is appropriate. In addition, during the 2010 PHMSA inspection, Hopco began remediation of the pipe/soil interface areas of concern to PHMSA. These interfaces were exposed, inspected and recoated within days of the inspection. Hopco has included photographs of these areas as **Attachment 8**. Although no violation occurred, Hopco will, as a matter of good practice, further amend Section 3.6 of its corrosion control procedures to provide more detail regarding the process for inspecting pipe/soil interfaces. Hopco will make these amendments available to PHMSA.

Item 5

PHMSA alleges that Hopco violated 49 C.F.R. § 193.2605(b) by failing "to follow a manual of written procedures to ensure that thermally insulated piping is inspected and replaced under a program of scheduled maintenance..." Specifically, it alleges that Hopco's Section 3.6C procedures require the company to remove all thermal insulation every three years to inspect for atmospheric corrosion, and that Hopco failed to comply with these procedures. Hopco contests this allegation and respectfully requests that the allegation, and related proposed civil penalty and proposed compliance order be withdrawn.

Neither the regulation, Hopco's procedures, nor industry practice require the removal of all thermal insulation from the LNG facility piping every three years. To do so is impractical and unnecessary to maintain safety, and, in some cases, could actually increase the risk of atmospheric corrosion. Section 193.2605(a) provides that operators "shall determine and perform, *consistent with generally accepted engineering practice*, the periodic inspections or tests needed to meet the applicable requirements of this subpart…" (emphasis added). The regulations, therefore, provide operators with flexibility on when and how to inspect insulated piping for external corrosion.

The rulemaking history of PHMSA's atmospheric corrosion control regulations for gas pipelines provides useful insight into the agency's expectations with regard to thermally insulated pipe. In a 2003 final rule, the Research and Special Programs Administration ("RSPA"), PHMSA's predecessor, addressed numerous public comments on proposed revisions to the atmospheric corrosion control regulations for gas pipelines at 49 C.F.R. § 192.479. 68 Fed. Reg. 53,895, 53,898 (Sept. 15, 2003). In the preamble to the final rule, PHMSA noted that a commenter on the proposed rule

> "was concerned that inspecting thermally insulated pipe could destroy the insulation system. It suggested making inspections 'wherever practical' and sampling pipe through windows cut into the jacketing. […] RSPA/OPS believes MichCon has suggested a reasonable way to meet the proposed requirement to inspect thermally insulated pipe for atmospheric corrosion. The rule is designed to allow operators to choose a satisfactory compliance method." *Id*.

This rulemaking history demonstrates the flexibility operators have to comply with atmospheric corrosion control regulations, and, more specifically, that PHMSA agreed that practical inspections and sampling through windows were appropriate means of compliance with the rule. In light of this history, and the text of the Part 193 rules at issue here, it is inappropriate to require the complete removal of insulation every three years.

Section 3.6C of Hopco's corrosion procedures also do not require the company to remove all insulation every three years. These procedures are attached to the PHMSA Violation Report as Exhibit A-5. Hopco's procedures provide that thermally insulated pipe is to be inspected "whenever said insulation is removed" but do not specify a removal frequency. See section 3.6E. Hopco's procedures provide that the corrosion engineer *may* require "systematic inspection of structures covered by thermal insulation…," but they do not require this. See section 3.6C. Indeed, Hopco's corrosion engineers have not required such a systematic inspection for multiple reasons.

During construction of the LNG facility, engineers selected stainless steel for much of the LNG facility piping because it meets cryogenic service temperature requirements and resists corrosion. As a result, more than 90% of the thermally insulated piping at the LNG facility is stainless steel. The chromium and nickel in stainless steel provide its corrosion resistance, and in the absence of free chlorides at elevated temperatures (above 120 degrees Fahrenheit), stainless steel is impervious to corrosion. Given that there are no significant external environmental sources of chlorides at the Hopkinton facility, and that LNG and LNG boil-off gas piping service temperatures are typically well below zero degrees Fahrenheit, Hopco's stainless steel piping is not subject to atmospheric corrosion.

The regulations recognize that materials not "subject to atmospheric corrosive attack" need not receive atmospheric corrosion protections, or inspections. See 49 C.F.R. §§ 193.2627 and 193.2635(d). Hopco's atmospheric corrosion control procedures reflect this and provide that "inspections shall not be required for materials that have been designed and selected to resist the corrosive atmosphere involved." See section 3.6B. Although atmospheric corrosion inspections

are not required for Hopco's stainless piping, the Company periodically removes the insulation on its stainless piping in order to inspect the pipe. Recent inspections of insulated stainless pipe have shown the pipe to be in excellent condition.

For the remaining carbon steel pipe at the LNG facility, Hopco removes insulation and performs inspections consistent with generally accepted engineering practices as permitted by § 193.2605(a). The primary industry standard for the control of corrosion under thermal insulation is NACE Standard Practice ("SP") 0198, Control of Corrosion Under Thermal Insulation and Fireproofing Materials-A Systems Approach (2010). SP0198 recommends that operators undertake a program of identifying insulation that shows signs of compromise or the intrusion of water and targeting these problem areas for insulation removal.[1] SP0198 also suggests that removal of all insulation would be impractical, and that while it would be an ideal way to inspect facilities, it would be time-consuming and expensive.[2]

API Recommended Practice ("RP") 574, Inspection Practices for Piping System Components (2009), also provides guidance on inspection for external corrosion on insulated pipe. RP 574, section 10.1.6, provides "[w]hen defects are found in the waterproof coating of insulation, either enough insulation should be removed or the affected area should be radiographed to determine the extent and severity of the corrosion." In sum, the Notice is inconsistent with the regulations, the rulemaking history of a similar Part 192 regulation, Hopco's procedures, and industry practices.

Hopco's practice is consistent with regulatory requirements and industry practices. Hopco selects insulation for removal on the basis of indications of insulation damage and through random selections. Hopco has removed insulation in the recent past and performed under-insulation inspections. The Company has included a series of documents reflecting these efforts with this response. See **Attachment 9**. Were Hopco to remove functional insulation on its cold pipelines, there is a risk of condensation on the pipe that would complicate the re-installation of the insulation by introducing water onto the surface of pipe that had previously been dry.

[1] NACE SP0198 (2010), section 6.
[2] *Id.*

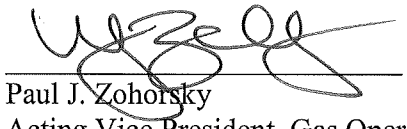
PHMSA proposes a civil penalty of $32,100 and a compliance order related to this Item. As no violation occurred, no civil penalty or compliance order is appropriate. However, should PHMSA proceed with a finding of violation on Item 5, Hopco believes that, in light of its good faith efforts and the materials and evidence contained in this filing and PHMSA's case file, that no penalty is warranted under the assessment criteria set out in 49 C.F.R. § 190.225. With respect to these criteria, there is no regulatory requirement or industry practice that requires the removal of all insulation every three years. In addition, this response and the materials in the record demonstrate that Hopco's current insulation removal practices posed no safety risks to its LNG facility or to the public. Finally, Hopco has no culpability because it fully complied with the regulations.

Similarly, as no violation occurred, no compliance order is appropriate. An order to remove all insulation every three years would not be appropriate given the mostly stainless steel construction of the LNG facility pipe, and the above-referenced industry standards that indicate complete insulation removal is not necessary or appropriate. Such a practice would also disrupt operations at the LNG facility and increase the risk of corrosion caused by condensation forming on pipe before re-insulation. It would be inefficient and unnecessary to remove good insulation that is effectively keeping moisture away from the piping. Nonetheless, Hopco is currently exploring whether there are opportunities for improvements to its procedures as a matter of good practice, and has hired R.A. Hoffmann Engineering to assist it in this effort.

D. Conclusion

Hopco wishes to reiterate its commitment to the safety of its LNG facility and the value placed on PHMSA oversight. Hopco appreciates PHMSA's consideration of our response and we look forward to the final order in this matter. In the meantime, please contact Mark E. Gunsalus, Director of Gas Service and Supply, at (508) 305-6986 if you have any questions about our response or the attached materials.

Respectfully submitted,



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cc: Kristin Baldwin, Esq., Counsel for Eastern Region, PHMSA
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Benjamin Fred, Esq., Designated Presiding Official, PHMSA

Attachments