



U.S. Department
of Transportation

Administrator

1200 New Jersey Avenue, SE
Washington, DC 20590

**Pipeline and Hazardous
Material Safety
Administration**

August 7, 2012

The Honorable Deborah A. P. Hersman
Chairman
National Transportation Safety Board
490 L'Enfant Plaza, SW
Washington, DC 20594

Dear Chairman Hersman:

Thank you for your May 4, 2012 letter regarding NTSB Safety Recommendations H-12-2 through -6 issued to the Pipeline and Hazardous Materials Safety Administration (PHMSA) in response to the National Transportation Safety Board (NTSB) investigation of a July 15, 2009 incident in Swansea, SC in which the transfer hose from a cargo tank motor vehicle (CTMV) ruptured shortly after transfer of anhydrous ammonia had begun from the CTMV to a storage tank. The resulting release of anhydrous ammonia caused one fatality, minor respiratory problems for several persons, and the sheltering in place of nearby residents. The NTSB determined that the probable cause of the accident was use of a cargo hose assembly that was not chemically compatible with the anhydrous ammonia. NTSB also asserted that the lack of explicit requirements in the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) to verify that a cargo hose assembly is chemically compatible with the product to be transferred before transfer operations begin contributed to the incident.

Recommendation H-12-2

“With the Federal Motor Carrier Safety Administration, jointly issue a safety advisory bulletin to inform cargo tank motor vehicle owners and operators, registered inspectors of these vehicles, and transfer facility operators about the circumstances of this accident and actions needed to prevent the occurrence of a similar accident.”

On May 8, 2010, the Federal Motor Carrier Safety Administration (FMCSA) published a safety advisory that was mailed to motor carriers informing them of the dangers of improper use and maintenance of hoses and hose assemblies used in the loading and unloading of liquefied petroleum gas (LPG) and anhydrous ammonia (NH₃). FMCSA, with assistance from PHMSA, has since revised and will publish an updated version of this safety advisory by the end of the calendar year 2012 to include information about the circumstances of the Swansea, SC incident

and appropriate actions that can be taken to prevent a similar accident. FMCSA will distribute this notice to motor carriers and to trade associations whose members are engaged in either LPG or NH₃ transportation, including: National Tank Truck Carriers, The American Trucking Associations, the National Propane Gas Association, The Fertilizer Institute, and others as identified. To inform registered inspectors, the notice will be sent to the Commercial Vehicle Safety Alliance for distribution to their lead Motor Carrier Safety Assistance Program (MCSAP) agency contacts. Additionally, FMCSA will encourage motor carriers to share the safety advisory with their respective transfer facility operators. Upon publication, PHMSA and FMCSA will post the advisory to our respective websites and provide a copy to NTSB.

Recommendation H-12-3

Require cargo tank motor vehicle carriers and transfer facilities to verify (1) that cargo transfer hose assemblies, whether carried on the vehicle or provided by the facility, are chemically compatible with the hazardous material to be transferred and (2) that drivers verify hoses are marked as compatible with the material to be transferred before either loading or unloading operations begin.

On March 11, 2011, PHMSA published a notice of proposed rulemaking (HM-247; 76 FR 13313) proposing to amend the HMR to require each person who engages in cargo tank loading or unloading operations to perform a risk assessment of the operations and to develop and implement safe operating procedures based upon the results of the risk assessment. As proposed, the risk assessment must evaluate the current procedures used and must consider the characteristics and hazards of the material to be transferred and measures necessary to ensure safe handling of the material. We expect that this assessment would address those safety issues raised by the Swansea, SC incident, including, the compatibility of hazardous material lading and transfer equipment (e.g., cargo hose assembly), and driver recognition of markings indicating the suitability of equipment for specific types of transfer operations. Additionally, the operating procedures required to be developed and maintained under the proposed rulemaking must include pre-transfer procedures such as checking on components of the transfer system, including cargo hose assemblies, prior to initiation of the transfer. As part of this check, any equipment, including cargo hose assemblies supplied by a facility or the motor carrier must be compatible with the lading. I believe the proposals in this rulemaking address Safety Recommendation H-12-3 and we plan no further action upon publication of a final rule. PHMSA will notify NTSB when a final rule is published.

Recommendation H-12-4

Amend the provisions of Title 49 Code of Federal Regulations 173.315(n)(2) to require that passive emergency shutdown control systems for highway cargo tanks activate in the event of a partial or complete failure of a cargo hose assembly.

PHMSA believes no additional action is warranted with regard to Safety Recommendation H-12-4. The HMR provides for appropriate measures to prevent hazards from the unintentional

release of liquefied compressed gas due to the failure of a cargo hose assembly. PHMSA believes further regulations to require operation of a passive emergency shutdown control system in the event of a partial failure of a cargo hose assembly is not warranted. The HMR requires a systematic approach to prevent an incident that combines equipment with a human factor. In addition to a passive emergency shutdown control system in the event of a complete failure of the cargo hose assembly, a qualified person attending the unloading operation must remain within 25 feet of the cargo tank and must have an unobstructed view of the cargo tank and cargo hose assembly to the maximum extent practicable. The qualified person must also perform a safety check of the components of the discharge system including the cargo hose assembly prior to transfer and may not initiate a transfer if the hose assembly is found to have any condition outlined in 49 CFR 180.416(g)(1) (e.g., damage to the hose cover exposing reinforcement). Finally, in the event of a release, the qualified person must shut the primary means of closure and shut down all motive and auxiliary power equipment. See 49 CFR 177.840. Implementation of this systematic approach, along with adhering to the requirements for an annual leakage test and the inspection and maintenance program for a cargo hose assembly serves to prevent conditions that could lead to the partial failure of a cargo hose assembly and to prevent hazards from the unintentional release of liquefied compressed gas.

Furthermore, an initial review of hazardous material incident reports over the past decade encompassing the Swansea, SC incident shows a minimal number of incidents¹ involving the rupture of a cargo hose assembly during the transfer of liquefied compressed gas from a CTMV and the Swansea, SC incident is the only incident involving a fatality. We are aware of only one manufacturer that can provide equipment that will operate under conditions of a partial failure that would address Safety Recommendation H-12-4 yet, when considering the cost of this equipment to cargo tank owners in liquefied compressed gas service and the few incidents and injuries that have occurred, I do not believe a rulemaking action can be cost justified on a cost/benefit basis at this time.

Recommendation H-12-5

Publish and disseminate a formal interpretation of Title 49 Code of Federal Regulations 180.416(d) that includes the criteria used to determine when a cargo transfer hose assembly is “in service.”

PHMSA is in the final stages of completing a letter of interpretation with regard to the meaning of “in service” as it relates to the 49 CFR 180.416(d)(1) requirement to visually inspect the cargo hose assembly once each calendar month it is in service. The letter of interpretation will clarify that a cargo hose assembly installed or (to be) carried on a cargo tank motor vehicle in liquefied compressed gas service must be inspected monthly regardless of whether or not it has been used. As part of the safety check requirement prior to unloading of a CTMV in liquefied compressed

¹ Review of incidents with a hose rupture listed as the failure mode showed ten incidents although from review of the event descriptions, it was not readily discernible whether there was a complete or partial hose rupture. Also, incidents involving movement of the CTMV leading to complete failure of the cargo hose assembly were not included in this set of incidents because the recommendation would not impact these events.

gas service, a qualified person must inspect components of the discharge system, including the cargo hose assembly, that are readily observed during the normal course of unloading but need not take extraordinary steps to check components not readily visible. See 49 CFR 177.840(m). The inspection requirement of 49 CFR 180.416 serves to ensure that at least once a month each cargo hose assembly assigned to a cargo tank motor vehicle in liquefied compressed gas service will undergo a thorough visual inspection. Upon completion of the letter of interpretation, we will provide a copy of the letter to NTSB and post a copy to our website.

Recommendation H-12-6

Issue guidance to motor carriers and registered inspectors that clarifies the testing and the recordkeeping requirements of Title 49 Code of Federal Regulations 180.407 for cargo hose assemblies and cargo tanks that are used to transport liquefied compressed gases to ensure that all hose assemblies are tested for leaks on an annual basis.

PHMSA believes the current regulations already address safety recommendation H-12-6 and therefore will be taking no further action. In its investigation report, the NTSB asserted that “the lack of clarity of the regulation (section 180.407(h)(4)) [was] also a factor in this accident.” Specifically, the NTSB believes that the requirement for the annual leakage test that allows a cargo hose assembly not permanently attached to the CTMV to be tested separately from the cargo tank leaves it open for interpretation depending on the individual. It further asserted that “[one] possible misinterpretation would be that a hose assembly may be tested for leaks at a time other than during the annual inspection of a CTMV.” During the investigation, PHMSA informed NTSB investigators that a CTMV should not pass an annual inspection without its hose assembly being leakage tested, since the hose assembly is considered to be part of the vehicle. The NTSB concluded, however, that the Registered Inspectors of vehicles owned by the company involved in the incident allowed twelve vehicles to pass annual inspection when none of the vehicles were equipped with cargo hose assemblies, and indicates the industry understanding of this requirement is not consistent with PHMSA’s interpretation regarding leakage test requirements.

The NTSB’s understanding is not a misinterpretation. A cargo hose assembly not permanently attached may be tested at a time other than during the time the cargo tank is leakage tested. A final rule under docket HM-225A (May 24, 1999; 64 FR 28030) adopted new inspection, maintenance, and testing requirements for cargo tank discharge systems, including cargo hose assemblies. In the final rule preamble, we stated that the annual hose inspection must be conducted by a Registered Inspector as part of the leakage test procedures already required by the HMR. For cargo hose assemblies not permanently attached to the CTMV, the annual hose test does not necessarily have to be done by the same Registered Inspector or at the same time as the leakage test for the cargo tank (64 FR 28034). This accommodates situations where a hose may not be available at the time of the cargo tank leakage test (e.g., it is under repair) or where a CTMV may have multiple hoses assigned to the vehicle. As long as a cargo hose assembly is successfully tested within 12 months from the date of the last leakage test documented by the

Registered Inspector as part of the written record of inspection, it can be used regardless of the date of leakage test of the cargo tank.

Furthermore, failure on the part of the Registered Inspectors to conduct proper inspections and tests, or to accurately document records of the tests, does not reflect a lack of clarity in the HMR.

The HMR states very clearly that a cargo hose assembly must be leak tested annually, and that the Registered Inspector must, provide a written record of the test, the hose identification number, the date of the leakage test, and the condition of the hose assembly tested. See 49 CFR 180.417(h)(4) and 180.416(e). Therefore, PHMSA plans no action relative to Safety Recommendation H-12-6.

Regards,

A handwritten signature in black ink, appearing to read "Cynthia L. Quarterman". The signature is fluid and cursive, with a large loop at the end.

Cynthia L. Quarterman