



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

1200 New Jersey Avenue, SE
Washington, DC 20590

March 18, 2015

The Honorable Christopher A. Hart
Chairman
National Transportation Safety Board
490 L'Enfant Plaza, SW
Washington, DC 20594

Dear Chairman Hart:

This letter provides a response to the National Transportation Safety Board's (NTSB) December 12, 2014 letter requesting the Pipeline and Hazardous Materials Safety Administration (PHMSA) to provide information regarding its comments (submitted September 26, 2014) on Notice of Proposed Rulemaking (NPRM) "Hazardous Materials: Enhanced Tank Car Standards and Operational Controls for High-Hazard Flammable Trains" (HM-251; 79 FR 45015) with respect to Safety Recommendations R-12-5 and R-12-6. We thank the NTSB for its ongoing contributions to safety as well as engaging in the rulemaking process by submitting comments on rulemakings. I respond in kind to the specific request for information with regard to these two recommendations.

R-12-5

Require all newly-manufactured and existing general service tank cars authorized for transportation of denatured fuel ethanol and crude oil in PGs I and II have enhanced tank head and shell puncture resistance systems and top fittings protection that exceed existing design requirements for DOT Specification 111 tank cars.

In the December 2014 letter, the NTSB stated, "...we again strongly urge you to require a retrofit for top fittings protection on DOT-111 tank cars in continued crude oil and ethanol service." Additionally, in the comments submitted on the NPRM, the NTSB disputes PHMSA's belief that the cost of such a retrofit is not supported by a corresponding safety benefit. This is based on our claim that the volume of releases from top fittings is a fraction, typically less than five percent, of the volume of releases from the tank shell and head punctures. You call attention to data from two accidents (Cherry Valley, IL and Tiskilwa, IL) showing that large volumes of flammable liquids were released solely through breaches in the damaged top fittings. The NTSB further share that the Transportation Safety Board of Canada (TSB) investigation of the Lac-Megantic accident found that unprotected top fittings were breached in 16 of the 31 DOT-111 tank cars, while breaches occurred in only 4 of the 32 tank cars equipped with top fittings. The NTSB concludes that this recommendation cannot be closed in an "acceptable" status unless existing tank cars are retrofitted with top fittings protection.

As we are operating under an open rulemaking, I cannot fully share the final decision on top fitting protection retrofit of DOT-111 tank cars. When conducting its Draft Regulatory Impact Analysis (RIA), PHMSA eliminated alternatives with modest safety improvement benefits relative to their cost. As stated in the RIA, the estimated marginal safety benefit of preventing releases by retrofitting DOT-111 tank cars with top fitting protection does not justify the costs of installation. PHMSA estimated that top fittings protection would add \$24,500 to the retrofit cost of each tank car, but would provide only marginal (1.3 percent) additional safety protection. This is a small contribution to overall safety enhancements compared to combined effect of full-height head shields, thermal protection, and a full jacket that reduces the probability of release by approximately 40 percent. The combined retrofit cost of these components, was estimated at \$27,400 per car. The Department estimates that outfitting legacy DOT-111s with top fittings protection might yield benefits of roughly one tenth or less the size of the cost.

Newly constructed cars, however, are required to have additional top fittings protection. That being said, PHMSA is aware of AAR Tank Car Committee efforts as part of a task force to evaluate potential advancements in existing top fittings protections that may provide additional protection without significant modifications to the tank car. PHMSA and FRA urge industry to consider these enhancements that can be used for both new and retrofitted tank cars.

R-12-6

Recommends that PHMSA require all bottom outlet valves used on newly-manufactured and existing non-pressure tank cars are designed to remain closed during accidents in which the valve and operating handle are subjected to impact forces.

The NTSB has asked for “specifics” on our plan to address this recommended action. As I stated above, we are in an open rulemaking period and cannot share the final decision on requirements for bottom outlet valves. I want to remind the NTSB, however, that our proposed action permitted either removal of the handle to the bottom outlet valve so as not to expose it to impact forces under accident conditions or to implement a protection system to prevent actuation of the handle under impact forces. This provides for flexibility and two ways to comply.

Protection of the bottom outlet valves is currently a regulatory requirement and is invaluable in an accident scenario as it limits the likelihood of a release of lading. A bottom outlet valve designed to prevent actuation or opening in a derailment is a useful enhancement when combined with other tank car enhancements to reduce the likelihood and amount of release. Note that an AAR task force has been convened to develop a bottom outlet design that would prevent opening during accident conditions. PHMSA and FRA believe that if a car owner or offeror chooses not to remove the handle for transportation, an easy-to-install design will soon be readily available at a low cost.

Given the constraints of an open rulemaking, I am only able to say that as proposed in the NPRM and as evaluated in the RIA, the effectiveness of a tank car design is determined by a collective variety of design factors. I ask that the NTSB take into consideration the totality of effectiveness

(i.e., the totality of safety benefits) of any regulatory change regarding enhanced tank car requirements. This includes your recommendations on top fittings protection and bottom outlet valves. Also, the NTSB's comments to the rulemaking will be more fully discussed and addressed in the preamble discussion of comments on the NPRM in a published final rule.

If we can be of further assistance or answer any additional questions, please do not hesitate to Contact Stephen Domotor, Chief Safety Officer/Assistant Administrator at 202-366-7530 or at Stephen.Domotor@dot.gov.

Sincerely,

A handwritten signature in black ink, appearing to read "Timothy J. Butters", with a long horizontal flourish extending to the right.

Timothy J. Butters
Acting Administrator