



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

Administrator

1200 New Jersey Ave., S.E.  
Washington, DC 20590

JAN 27 2014

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

Dear Chairman Hersman:

This letter provides an update regarding actions to address Safety Recommendation H-92-1. This recommendation was issued to the Pipeline and Hazardous Materials Safety Administration (PHMSA) as a result of the National Transportation Safety Board's (NTSB) 1991 investigations of seven highway accidents in which Department of Transportation (DOT) specification cargo tanks<sup>1</sup> overturned and hazardous materials were released through damaged closures or fittings on top of the tanks. The failure of the devices to provide adequate rollover protection raised concerns about their performance, and about the adequacy and enforcement of the DOT requirements regarding the structural integrity and the configuration of the rollover protection devices. The recommendation resulting from NTSB's investigations of these highway accidents is shown below.

H-92-1

*Provide cargo tank manufacturers with specific written guidance about (a) the factors and assumptions that must be considered when calculating the loads on cargo tank rollover protection devices in determining compliance with existing Department of Transportation performance standards; and (b) acceptable means to shield and protect the top-mounted closure fittings on all bulk liquid cargo tanks.*

Since 1989 PHMSA has taken steps to help improve the safety of cargo tanks under an accident condition (e.g., an overturn). For example, PHMSA adopted and refined a requirement in the hazardous materials regulations (HMR) that each pressure relief device (PRD) (i.e., a closure) on these specification cargo tank types must reseal to a leak-tight position after being subjected to the dynamic forces of an accident without releasing more than one liter of hazardous material.<sup>2</sup> Further, with the publication of a final rule in September of 1990, PHMSA required a PRD must be able to withstand a surge of up to 30 psig above the design set pressure for at least 60 milliseconds regardless of vehicle orientation. See 49 CFR § 178.345-10(b)(3). In April of 2003, PHMSA clarified the HMR to state specifically that an accident damage protection device such

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<sup>1</sup> The NTSB investigated 300 series cargo tanks (306 and 312). Much of this fleet of cargo tanks has been replaced by authorized manufacture of 400 series cargo tanks (406, 407, and 412).

<sup>2</sup> Final rules published June 12, 1989 (54 FR 24982); September 7, 1990 (55 FR 37028); June 7, 1991 (56 FR 27872); and November 3, 1994 (59 FR 55162).

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as an overturn protection device must be certified by a Design Certifying Engineer (DCE).<sup>3</sup> Certification by a DCE ensures that an experienced person is reviewing the design for compliance with specification requirements. The DCE must be registered with the Federal Motor Carrier Safety Administration (FMCSA) in accordance with 49 CFR Part 107, Subpart F. See 49 CFR § 178.320(b).

With regard to the above safety recommendation, PHMSA agrees that providing information that can offer assistance in achieving compliance with regulations and thereby further aid in preventing or minimizing the risk of hazardous material release from a cargo tank overturn is a beneficial endeavor. Through collaborative efforts with members of your program staff, PHMSA plans to resolve this longstanding safety recommendation by updating guidance on the subject of calculating the loads on cargo tank rollover protection devices and acceptable means to protect closure fittings, and disseminating that guidance to the regulated community and DCEs.

Specifically, there are two guidance documents currently available that speak directly to this safety recommendation, one a Federal guidance document<sup>4</sup> and one an industry association recommended practice.<sup>5</sup> Because the guidance document has not been updated in a number of years, PHMSA plans, in collaboration with the FMCSA, to examine this document for accuracy and consistency with the HMR as well as industry guidance. Once the review is satisfactorily completed, we will update and/or revise the document accordingly.

Additionally, we will increase awareness of the availability of both guidance documents: (1) by providing access to the guidance document and referencing the recommended practice on our collective government websites and through other multimedia options; and (2) by distributing information about the availability of these documents to registered DCEs. It should also be noted that according to the TTMA, most cargo tank manufacturers are members and represent approximately 92% of the cargo tanks built. Thus, taken together, I believe these actions will provide the necessary guidance and reach the intended audience. We will notify the NTSB as soon as these actions have been completed.

If we can be of further assistance or answer any additional questions, please do not hesitate to contact Dirk Der Kinderen, NTSB Program Manager, Office of Hazardous Materials, Standards Development Division at 202-366-4460 or by email at [Dirk.DerKinderen@dot.gov](mailto:Dirk.DerKinderen@dot.gov).

Regards,



Cynthia L. Quarterman

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<sup>3</sup> Final rule published April 18, 2003 (68 FR 19277).

<sup>4</sup> Ch. 7 (Rollover Damage Protection), Guidelines for Structural Evaluation of Cargo Tanks, Federal Highway Administration, Office of Motor Carrier Field Operations, June 1996.

<sup>5</sup> DOT 400 Series Cargo Tank Rollover Protection, TTMA Recommended Practice, RP No. 87-13, Tank Truck Manufacturers Association, reissued April 2013.