

P-1604



January 3, 2012

Mr. Charles Hochman  
Senior Technical Officer  
Office of Hazardous Materials Safety  
Pipeline and Hazardous Materials Safety Administration  
U.S. Department of Transportation  
East Building, 2nd Floor  
Mail Stop: E21-317  
1200 New Jersey Ave., SE  
Washington, DC 20590

Dear Mr. Hochman:

On behalf of the members of the National Propane Gas Association (NPGA), NPGA submits this petition to the Pipeline and Hazardous Materials Safety Administration (PHMSA) to revise the portion of the federal Hazardous Materials Regulations (HMR) that addresses the periodic test and inspection requirements for specification cargo tanks. Specifically, we request that PHMSA modify 49 CFR 180.407(c) as it pertains to the Pressure Test and Internal Visual Inspection requirements for MC-331 specification cargo tanks. Battelle developed a substantial amount of research data to support our petition and that data is included with this letter.

NPGA is the national trade association of the propane industry having a membership of about 3,000 companies, with 39 state and regional associations representing members in all 50 states. NPGA's membership includes retail marketers of propane gas who deliver the fuel to the end user, propane producers, transporters and wholesalers, and manufacturers and distributors of equipment, containers and appliances. Propane gas is used in over 18 million installations nationwide for home and commercial heating and cooking, in agriculture, in industrial processing and as a clean air alternative engine fuel for both over-the-road vehicles and industrial lift trucks.

The over-the-road delivery infrastructure of the propane industry consists of two types of cargo tank motor vehicles to transport propane, a highway *transport*, which typically delivers propane to bulk plant facilities, and a smaller bulk delivery truck, called a *bobtail*, which typically delivers propane to the end user, e.g. residential, commercial, and agricultural customers. While both types of cargo tank motor vehicles are required to meet the DOT MC-331 specifications, please note that NPGA's petition request is limited only to MC-331 cargo tanks in dedicated propane service that are less than 3500 gallons water capacity and constructed of certain types (grades) of steel as noted, i.e. *bobtails*.

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## Background

Currently, the federal HMR require that propane cargo tanks (*bobtails*) of MC 331 specifications be periodically requalified and pressure-tested every five years {49 CFR 180.407} to remain in service. The pressure test is performed at 1.5 times the maximum allowable working pressure and is typically a hydrostatic test (commonly referred to as a “hydrotest”) with water as the test medium.

The required hydrostatic testing of bobtails is a burden to the propane industry for several reasons. Bobtails must be taken out of service for a period of up to a week. Water is introduced into the tank, which can be detrimental to the tank and to the fuel contained in the tank. Before being put back into use, the container must be completely free of any water. Practically speaking, the removal of bobtails from propane service can hamper a company’s operations.

In 2001, NPGA conducted a survey to determine whether companies that perform the 5-year hydrostatic test requirement had experienced any failures. None of the 203 survey respondents reported a hydrotest failure for tanks of less than 3500 gallon water capacity.

Based on the results of this survey, NPGA began a process to determine what it would take to build a technical case for a change to the federal regulations and the hydrostatic testing period for MC-331 specification cargo tanks. To that end, NPGA hired Battelle to develop the technical analysis needed to support such a change.

## Research Work

Battelle executed this project in three phases to consider the technical aspects of an extension of the current five-year hydrotest period. In Phase 0, Battelle performed a feasibility study to determine if the DOT was open to discussing a change to the inspection period. The study also included a review of international standards that addressed cargo tank inspection periods. {Note that during Phase 0 of this project, NPGA and Battelle met with DOT officials in September 2004 and the notes from that meeting are contained in the Phase 0 final report, which is included with this letter.}

In Phase 1, Battelle developed crack growth models to estimate the time to failure of a tank that has undergone several pressure cycles. The pressure cycles were simplifications of daily and seasonal ambient temperature swings and represented the thermodynamic effects expected to occur on the cargo tank.

Finally, in Phase 2, to analyze the dynamic effects on the cargo tank, Battelle instrumented the MC-331 cargo tank on a truck chassis and subjected it to actual road loads. These loads were extrapolated for many years as the basis to determine the estimated life of the tank.

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Based on the results, the details of which are included in each final report, Battelle concluded that the analysis and data generated as part of this study supports NPGA's recommendation to extend the requalification period from 5 years to 10 years for MC-331 specification cargo tanks that meet the following requirements:

- Used in dedicated propane service;
- Have a water capacity less than 3,500 gallons; and
- Constructed of one or more of the following materials:
  - Non-quenched and tempered (NQT) SA-612 steel;
  - Non-quenched and tempered (NQT) SA-202 or SA-455 steels, provided the materials have full-size equivalent (FSE) Charpy-vee notch (CVN) energy test data that demonstrate 75% shear-area ductility at 32 degrees F with an average of three or more samples greater than 15 ft-lb FSE, with none less than 10 ft-lb FSE.

As noted above, NPGA believes that in order to implement this change, a revision to 49 CFR 180.407(c) would be required. To facilitate PHMSA's review, NPGA has attached to this letter proposed regulatory text that would seek to accomplish this purpose.

NPGA appreciates PHMSA's consideration of our petition to amend the Hazardous Materials Regulations. Please feel free to contact us if you have any questions.

Sincerely,



Michael A. Calderera  
Vice President, Regulatory and Technical Services  
NPGA

**PROPOSED REVISION TO 49 CFR 180.407(c)**

(c) *Periodic test and inspection.* Each specification cargo tank must be tested and inspected as specified in the following table by an inspector meeting the qualifications in §180.409. The retest date shall be determined from the specified interval identified in the following table from the most recent inspection or the CTMV certification date.

**Compliance Dates—Inspections and Test Under §180.407(C)**

Test or inspection (cargo tank specification, configuration, and service)	Date by which first test must be completed (see note 1)	Interval period after first test
External Visual Inspection:		
****	****	****
Internal Visual Inspection:		
****	****	****
<b><u>MC 331 cargo tanks &lt; 3500 gallons water capacity in dedicated propane service constructed of NQT SA-612 steel (See Note 5)</u></b>	<b><u>TBD</u></b>	<b><u>10 Years</u></b>
****	****	****
Lining Inspection:		
****	****	****
Leakage Test:		
****	****	****
Pressure Test:		
(Hydrostatic or pneumatic) (See Notes 2 and 3)		
All cargo tanks which are insulated with no manhole or insulated and lined, except MC 338	September 1, 1991	1 year.
All cargo tanks designed to be loaded by vacuum with full opening rear heads	September 1, 1992	2 years.
MC 330 and MC 331 cargo tanks in chlorine service	September 1, 1992	2 years.
<b><u>MC 331 cargo tanks &lt; 3500 gallons water capacity in dedicated propane service constructed of NQT SA-612 steel (See Note 5)</u></b>	<b><u>TBD</u></b>	<b><u>10 Years</u></b>
All other cargo tanks	September 1, 1995	5 years.
Thickness Test: ****	****	****

Notes 1-4: \*\*\*\*

**Note 5: 10-year inspection interval also applies to cargo tanks constructed of NQT SA-202 or SA-455 steels provided the materials have full-size equivalent (FSE) Charpy vee notch (CVN) energy test data that demonstrates 75% shear-area ductility at 32 degrees F with an average of 3 or more samples > 15 ft-lb FSE with no sample < 10 ft-lb FSE.**

**§ 173.134 Class 6, Division 6.2—Definitions and exceptions.**

(a) *Definitions and classification criteria.* For the purposes of this subchapter, the following definitions and classification criteria apply to Division 6.2 materials.

(7) Blood collected for the purpose of blood transfusion or the preparation of blood products; blood products; plasma; plasma derivatives; blood components; tissues or organs intended for use in transplant operations; and human cell, tissues, and cellular and tissue-based products regulated under authority of the Public Health Service Act (42 U.S.C. 264-272) and/or the Food, Drug, and Cosmetic Act (21 U.S.C. 332 *et seq.* ).

(b) *Exceptions.* The following are not subject to the requirements of this subchapter as Division 6.2 materials:

(16) Agricultural products and food as defined in the Federal Food, Drug, and Cosmetics Act (21 U.S.C. 332 *et seq.* ).