



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

1200 New Jersey Ave, S.E.  
Washington, D.C. 20590

FEB 25 2009

Mr. Daniel G. Shelton  
Vice President  
HazMat Resources, Inc.  
10104 Creedmoor Road  
Raleigh, NC 27615

Ref. No. 08-0153

Dear Mr. Shelton:

This responds to your May 2, 2008 letter requesting clarification of requirements in the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to loading of anhydrous ammonia into cargo tanks and portable tanks. Specifically, you ask whether Note 5 to the table in § 173.315(a)(2) applies to a cargo tank filled with anhydrous ammonia or ammonia solutions to less than 87.5% by volume.

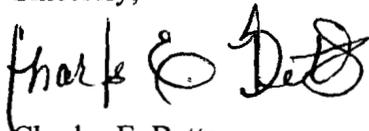
The table in § 173.315(a)(2) sets forth maximum permitted filling densities for cargo tanks and portable tanks authorized for the transportation of compressed gases. For anhydrous ammonia and anhydrous ammonia solutions with greater than 50% ammonia, the maximum permitted filling density for authorized cargo tanks and portable tanks is 82% by volume. In accordance with Note 5 to the table, uninsulated cargo tanks and portable tanks may be filled to 87.5% by volume provided the temperature of the lading (NH<sub>3</sub>) is not lower than 30° F or the filling of the tank is stopped at the first indication of frost or ice formation on the outside surface of the tank and is not resumed until such frost or ice has disappeared. Note 5 applies only to the loading of uninsulated cargo tanks filled to between 82.1% and 87.5% by volume.

According to your letter, some facilities load anhydrous ammonia at temperatures as cold as 0° F to 20° F to reduce the pressure in the trailer so that the loading process may be completed more quickly. You ask whether this practice is permitted. The answer is yes, provided all other applicable requirements are met. You also ask whether the HMR prohibit loading anhydrous ammonia at any temperature that would create frost on the tank or the associated piping. The answer is no, except as specified in Note 5 to the table in § 173.315(a)(2).

Additional guidance and information may be found in Compressed Gas Association Pamphlets G-2, Anhydrous Ammonia, and G-2.1, ANSI Requirements and Storage and Handling of Anhydrous Ammonia.

I hope this answers your inquiry.

Sincerely,

A handwritten signature in black ink, appearing to read "Charles E. Betts". The signature is written in a cursive style with a large initial "C" and "B".

Charles E. Betts  
Chief, Standards Development  
Office of Hazardous Materials Standards

# HazMat Resources, Inc.

10104 Creedmoor Road  
Raleigh, N.C. 27615

Boatne  
§ 173.315(a)(2)  
Cargo + Portable Tanks  
May 2, 2008

08-0153

Mr. Edward Mazzullo  
Office Director, Office of Hazardous Materials Standards  
U.S. Department of Transportation  
Pipeline and Hazardous Materials Safety Administration  
East Building, 2nd Floor  
Mail Stop: E21-317  
1200 New Jersey Ave., SE  
Washington, DC 20590

Mr. Mazzullo,

Please accept this letter as our request for an interpretation of the table in 49 CFR 173.315(a)(2) where it references the maximum permitted filling density, percent by volume for Ammonia, anhydrous or Ammonia solutions with greater than 50 percent ammonia that it can be 82 percent with a reference to Note 5. Note 5 states as follows:

“Unlagged cargo tanks and portable tank containers for liquid anhydrous ammonia may be filled to 87.5 percent by volume provided the temperature of the anhydrous ammonia being loaded into such tanks is determined to be not lower than 30°F. or provided the filling of such tanks is stopped at the first indication of frost or ice formation on the outside surface of the tank and is not resumed until such frost or ice has disappeared.”

Currently, some loading facilities are loading ammonia as cold as 0°F to 20°F to reduce the pressure in the trailer so the loading process can be performed quickly. This “cold shock” creates frost on the tank and the associated piping and the driver must wait until the temperature stabilizes before they can proceed because frost on the piping is a tale tale sign that the tank or the associated piping might be leaking and this would certainly be a reason to be detained by a road side inspector for a closer look.

When one reads Note 5 it appears that the requirements to load a tank at a temperature not lower than 30°F or to stop loading at the first indication of frost or ice formation only applies when you are loading to a volume capacity of 87.5 percent. If you are loading to 82 percent you never get to Note 5.

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Question 1: With reference to Note 5 in the Table in 173.315(a)(2), what is the significance of loading to 82 percent versus loading to 87.5 percent?

Question 2: Is it a violation to “cold shock” a cargo tank (loading product at temperatures below 30°F) when loading anhydrous ammonia in unlagged cargo tanks at a percent fill less than 82 percent.

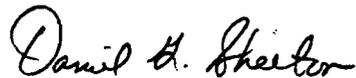
Question 3: Is it a violation to load anhydrous ammonia at a temperature lower than 30°F in unlagged cargo tanks at a percent fill less than 82 percent?

Question 4: Is it a violation to load anhydrous ammonia at any temperature that would create frost on the tank or the associated piping at any percent by volume, not just 87.5 percent by volume in an unlagged cargo tank.

Question 5: Does Note 5 apply to the loading of anhydrous ammonia between 82.1 percent and 87.4 percent fill by volume.

Because of the increase in demand for anhydrous ammonia for industrial uses and the reduction in the transportation of this product by rail car, these factors have created additional pressures at loading facilities to load cargo tanks as quickly as possible. A good rule of thumb is one rail car equals four cargo tanks. This issue is only going to get worse as time goes on and any thing you can do in a effort to research this information and provide a timely reply is appreciated.

Sincerely



Daniel G. Shelton  
Vice President  
HazMat Resources, Inc.

cc: Charles Whittington  
President  
Grammer Industries, Inc.  
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Grammer, Indiana 47236