National Transportation Safety Board
Washington, D.C. 20594

Office of the Chairman

APR 0 1 2008

The Honorable Carl T. Johnson
Administrator
Pipeline and Hazardous Materials Safety
Administration
1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

Dear Mr. Johnson:

Thank you for the June 19 and July 31, 2007, responses signed by Ms. Stacey L. Gerard, Assistant Administrator/Chief Safety Officer, to the National Transportation Safety Board regarding Safety Recommendations I-02-1 and -2, R-89-53, R-92-23, R-01-3, and R-04-10, stated below. The National Transportation Safety Board issued these recommendations to the Department of Transportation and the Research and Special Programs Administration (RSPA, whose hazardous materials safety responsibilities now belong to the Pipeline and Hazardous Materials Safety Administration [PHMSA]), as a result of the Safety Board's investigation of five hazardous materials accident investigations. A brief discussion of each recommendation follows.

Safety Recommendations I-02-1 and -2, stated below, were issued to the Department of Transportation on July 16, 2002, as a result of the Safety Board's investigation of the hazardous materials release from a railroad tank car and the subsequent fire at Riverview, Michigan, on July 14, 2001.

I-02-1

Develop, with the assistance of the Environmental Protection Agency [EPA] and Occupational Safety and Health Administration [OSHA], safety requirements that apply to the loading and unloading of railroad tank cars, highway cargo tanks, and other bulk containers that address the inspection and maintenance of cargo transfer equipment, emergency shutdown measures, and personal protection requirements.

I-02-2

Implement, after the adoption of safety requirements developed in response to Safety Recommendation I-02-1, an oversight program to ensure compliance with these requirements.

Safety Recommendation R-04-10, stated below, was issued to RSPA on December 15, 2004, as a result of the Safety Board's investigation of the catastrophic rupture of a railroad tank car containing hazardous waste near Freeport, Texas, on September 13, 2002.

R-04-10

> In cooperation with the Occupational Safety and Health Administration and the Environmental Protection Agency, develop regulations that require safe operating procedures to be established before hazardous materials are heated in a railroad tank car for unloading; at a minimum, the procedures should include the monitoring of internal tank pressure and cargo temperature.

On March 29, 2007, PHMSA and Safety Board staff met at Board Headquarters to discuss open safety recommendations, including those related to reducing the risk of hazardous materials incidents during loading and unloading operations. A recent PHMSA review of bulk loading and unloading incidents that have occurred over the past decade suggests that roughly one-quarter to one-half of all hazardous materials transportation incidents may be attributable to loading and unloading operations, particularly those involving bulk packaging.

On June 14, 2007, PHMSA hosted a public workshop on reducing the risk of hazardous materials incidents during loading and unloading operations. The workshop included a series of panel presentations covering such issues as incident data analysis and evaluation, a discussion of National Transportation Safety Board and Chemical Safety Board accident investigation reports, loading and unloading procedures, recommended practices, and training. Workshop attendees, which included Safety Board staff, reviewed an initial draft of a "best practices" document and were asked to provide comments.

The Safety Board notes that PHMSA is seeking advice from OSHA and the EPA and is bringing all stakeholders together in government, industry, and the emergency response community to examine bulk loading and unloading issues, the range of potential industry actions needed, and the appropriate expertise to reduce risk in the transportation of hazardous materials. The Board further notes that on January 4, 2008, PHMSA published a notice and request for comments in the *Federal Register* (FR) on the best practices document, "Proposed Recommended Practices for Bulk Loading and Unloading Hazardous Materials in Transportation," reviewed in draft at the workshop.

Although PHMSA has taken the first step in collecting public comments, it needs to move forward on regulatory action addressing these three recommendations, using the results of the workshop and other opportunities for public comment. The safety requirements that are developed should address the loading and unloading of railroad tank cars and other bulk containers that include the inspection and maintenance of cargo transfer equipment, emergency shutdown measures, personal protection, procedures for heating products in a railroad tank car before unloading, the monitoring of internal tank pressure, and cargo temperature.

The Safety Board believes that the June 14, 2007, public workshop and the FR notice are positive actions on the part of PHMSA to address the Board's concerns, but additional action, as discussed above, is needed. Pending PHMSA's taking regulatory action necessary to reduce the

risk of hazardous materials loading and unloading operations by incorporating these best practices directly or by reference in the hazardous materials regulations and the implementation of an oversight program to ensure compliance with those safety requirements as recommended, Safety Recommendations I-02-1 and -2, and R-04-10, remain classified "Open—Unacceptable Response." We would appreciate receiving updates as PHMSA's efforts continue to address these issues.

Safety Recommendation R-89-53, stated below, was issued to RSPA on June 14, 1989, as a result of the Safety Board's investigation of the head-on collision between two Iowa Interstate Railroad, Ltd., freight trains near Altoona, Iowa, on July 30, 1988.

R-89-53

> Assist and cooperate with the Federal Railroad Administration in amending 49 CFR Part 179 to require that closure fittings on hazardous materials rail tanks be designed to maintain their integrity in accidents that are typically survivable by the rail tank.

The Safety Board notes that PHMSA, the FRA, and the industry continue to work together to implement this recommendation. The FRA is reviewing a final research report on the structural strength of various tank-car fittings and the need for fitting protection devices to reduce the probability of loss of lading. Board staff obtained a copy of the report, "Survivability of Railroad Tank Car Top Fittings in Rollover Scenario Derailments" (DOT/FRA/ORD-06/11). Two concepts for protection were modeled and, although both models survived the nominal rollover, neither survived severe impact.

The Safety Board notes that the report recommends the FRA consider developing specifications for improving the survivability of top fittings on non-pressurized tank cars. The Board is disappointed that this recommendation is more than 18 years old and there has yet to be rulemaking initiated, as outlined in the recommendation. Accordingly, Safety Recommendation R-89-53 is classified "Open—Unacceptable Response." We urge PHMSA and the FRA to expedite completion of the research project and facilitate a decision on regulatory revisions.

Safety Recommendation ~~R-92-23, stated below, was~~ issued to RSPA on December 31, 1992, as a result of the Safety Board's special investigation of the inspection and testing of railroad tank cars in response to two accidents in which hazardous materials were released because of a structural failure of the tank car.

R-92-23

> Develop and promulgate, with the Federal Railroad Administration, requirements for the periodic testing and inspection of rail tank cars that help to ensure the detection of cracks before they propagate to critical length by establishing inspection intervals that are based on the defect size detectable by the inspection method used, the stress level, and the crack propagation characteristics of the structural component (requirement based on a damage-tolerance approach).

The Safety Board notes that RSPA published a final rule on September 21, 1995, to increase the frequency of required testing and inspections of rail tank cars based on accumulated and average mileage. To address damage tolerance, the FRA has sponsored a research project at two universities, the University of Illinois and the University of South Carolina. The overall objective of the project was to propose and develop new and improved rational procedures for assessing the structural integrity of stub sill tank cars, in order to reduce the probability of structural failure of a car that could lead to an accident. The research specifically focuses on procedures for establishing safe inspection intervals to detect the presence of fatigue cracks in the stub sill assembly before they grow to critical size. The University of Illinois' report on its work, "Tank Car Reliability Design and Analysis" (DOT/FRA/ORD-07/05), has been published by the FRA; the report by the University of South Carolina is nearing completion.

The Safety Board notes that PHMSA is working with the FRA to expedite completion of the research project and to facilitate a decision on regulatory revisions. Pending completion of the project to determine procedures for the periodic testing and inspection of rail tank cars based on a damage-tolerance approach, Safety Recommendation R-92-23 is classified "Open—Acceptable Response."

Safety Recommendation R-01-3, stated below, was issued to RSPA on March 12, 2001, as a result of the Safety Board's investigation of the rupture of a railroad tank car containing hazardous waste near Clymers, Indiana, on February 18, 1999.

R-01-3

> Evaluate, with the assistance of the Federal Railroad Administration, the Association of American Railroads [AAR], and the Railway Progress Institute, the deterioration of pressure relief devices through normal service and then develop inspection criteria to ensure that the pressure relief devices [PRDs] remain functional between regular inspection intervals. Incorporate these inspection criteria into the U.S. Department of Transportation hazardous materials regulations.

The Safety Board notes that a task force was formed at the AAR's Tank Car Committee meeting on April 25, 2001, to develop a protocol for determining the condition of PRDs as they are removed from tank cars. At its July 2004 meeting, the committee agreed to include the current PRD inspection form and instructions in Appendix U of the AAR's *Manual of Standards and Recommended Practices, Section C-III, Specifications for Tank Cars M-1002.* In April 2005, language was adopted into the AAR Manual to require a root cause analysis by the valve manufacturer when cracked pressure relief valve stems or springs are found. Board staff learned from a telephone conversation with the AAR's Director of Tank Car Safety on September 27, 2007, that the appendix had been revised and would be distributed beginning on October 1, 2007, to anyone requesting a copy.

The Safety Board notes that the AAR task force has data on over 5,000 pressure relief valve inspections and expects to make recommendations to the AAR Tank Car Committee later this year. Minutes from the April 2007 AAR tank car committee meeting indicated that more data had become available and was being added to the database for evaluation. It has been suggested that the

tolerances for pressure relief valves be increased from +/- 3 percent for new or rebuilt valves to +/- 10 percent for rebuilt valves (new valves would remain at +/-3 percent). The AAR's Director of Tank Car Safety also suggested changing the periodic testing interval of PRDs for anhydrous ammonia tank cars from 10 years to 5 years to address the issues of scale and product build-up.

The Safety Board emphasizes that although increasing the tolerance of bench-tested PRDs will decrease their failure rate, such action will not necessarily increase their reliability. PHMSA stated it would consider regulatory changes once the tank car committee completes its review of the data and would work with the FRA to expedite completion of the AAR's analysis. The Board is particularly interested in knowing the results of the PRD evaluations, including the number of PRDs inspected and tested, the number that passed or failed specified tolerances, and whether the inspection intervals are adequate to ensure that PRDs will remain functional between inspections. Pending PHMSA's response to these questions, and PHMSA's completing regulatory action necessary to reduce the risk of the deterioration of PRDs between regular inspections, Safety Recommendation R-92-23 is classified "Open—Acceptable Response."

Thank you for your response to these recommendations and your commitment to transportation safety. Please provide periodic updates as you continue action to fully implement Safety Recommendations I-02-1 and -2, R-01-3, R-89-53, R-92-23, and R-04-10.

Sincerely,

Mark V. Rosenker
Chairman

cc: Ms. Stacey L. Gerard
Assistant Administrator/Chief Safety Officer

Ms. Linda Lawson, Director
Office of Safety, Energy, and Environment
~~Office of Transportation~~ Policy