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## National Transportation Safety Board

Washington, D.C. 20594

AUG 18 2003

Office of the Vice Chairman

Samuel G. Bonasso  
Acting Administrator  
Research and Special Programs Administration  
Washington, D.C. 20590

Dear Mr. Bonasso:

Thank you for the May 5, 2003, response to the National Transportation Safety Board regarding Safety Recommendation H-95-37, stated below, which was issued to the Federal Highway Administration (FHWA) as a result of the Safety Board's special investigation of an accident involving a cargo tank carrying liquefied petroleum gas (LPG) in White Plains, New York, on July 27, 1994. The Board notes that the responsibility for this issue now lies with the Federal Motor Carrier Safety Administration (FMCSA).

### H-95-37

In cooperation with the Federal Highway Administration [Federal Motor Carrier Safety Administration<sup>1</sup>], study methods and develop standards to improve the crashworthiness on front heads of cargo tanks used to transport liquefied gases and potentially lethal nonflammable compressed gases.

The Safety Board appreciates receiving copies of the two most recent studies conducted by Pressure Sciences that resulted in two reports: "Further Work to Improve Crashworthiness of Front Heads of MC-33 1 Cargo Tank Motor Vehicles," dated March 2001, and "Evaluation of FHWA Study of Accident Stresses in Rollover Protection Structures," dated April 2001. The Board notes that these economic and physical modeling studies were conducted to address improvement of crashworthiness on front heads of cargo tanks and ways to mitigate the effects of the impact to prevent failure of the tank. Design alternatives included (1) differing head thicknesses and configurations, (2) adding a secondary head at various spacings, and (3) adding various energy-absorbing materials of various thicknesses. The Board further notes that, based upon the findings of these analyses, RSPA and the FMCSA determined that the economics of these measures do not justify mandating them.

The Safety Board recognizes the cooperative efforts of RSPA and the FMCSA to study methods to improve crashworthiness of front heads on cargo tanks used to transport liquefied

<sup>1</sup> This recommendation was reassigned when the FMCSA was created and motor carrier responsibilities moved out of the FHWA to that agency.

acknowledges that RSPA and the FMCSA may be constrained from taking action on this issue by the negative cost-benefit ratio outlined in the study, the Board continues to believe that improvements are needed in the crashworthiness performance of heads on highway cargo tanks transporting such products as LPG, particularly given that we have been investigating accidents involving these highway cargo tanks since 1979. The crashworthiness performance of these heads remains a critical safety issue. The gases transported in these tanks will almost always increase the severity of an accident in which the tank heads fail. In addition, such an event can easily result in the explosion of flammable gases or the generation of a cloud of toxic gas, and the rocketing of the cargo tank over significant distances. Consequently, Safety Recommendation H-95-37 is classified "Closed—Unacceptable Action."

Sincerely,



Mark V. Rosenker  
Vice Chairman

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