

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: May 27, 1977

Forwarded to:

Honorable William M. Cox
Administrator
Federal Highway Administration
Department of Transportation
Washington, D. C. 20590

SAFETY RECOMMENDATION(S)

H-77-6

During its investigation of a tractor cargo tank semitrailer overturn accident in Moscow, Pennsylvania, on September 5, 1971, the National Transportation Safety Board determined that the excessive speed of the truck in a turn, combined with the dynamic surge of its liquid cargo, was the probable cause of the accident. The Safety Board recommended that:

The Bureau of Motor Carrier Safety [BMCS] (Federal Highway Administration), in cooperation with affected industries, as represented by the Tank Truck Technical Council, conduct an investigation designed to resolve the overturn stability problems created by liquid surging of partially loaded tank-truck combinations. The ultimate objective of such a research program should be the promulgation of Federal regulations to limit the effects of surge to a specific degree. Such regulations might be based on acceptable liquid cargo outage and/or dampening requirements, consistent with safe tank-truck operation. (Recommendation No. H-72-45)

In response to this recommendation, the BMCS initiated a research project, "Vehicle Handling and Control Due to Cargo Shifting," which is scheduled to be completed in August 1977. We have been informed that this date may be extended, however.

On May 11, 1976, a Transport Company of Texas tractor cargo tank semitrailer transporting a partial load of anhydrous ammonia overturned in Houston, Texas. During the crash, the tank ruptured and the ammonia escaped and vaporized; 5 persons died and 178 persons were injured as a result of ammonia inhalation. In its investigation of this accident, the Safety Board determined that the excessive speed of the truck combined

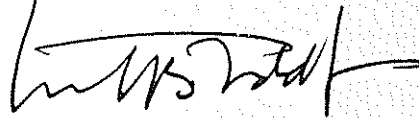
with the lateral surge of the liquid cargo in the tank was the probable cause of the overturn.

There is no doubt that lateral surge of liquid cargo is a hazard and that drivers of cargo tank vehicles need to be reminded of the hazard when the tank is partially loaded.

Considering the length of time before the completion of the BMCS research and initiation of any corrective action, and because similar accidents continue to occur, the Safety Board recommends that the Bureau of Motor Carrier Safety of the Federal Highway Administration:

Issue an ON-GUARD Bulletin to warn the drivers of cargo tank trucks and of tractors hauling cargo tank semitrailers of the hazard of lateral surge of liquid cargoes, and to inform the drivers of the correct operating procedures to use whenever the tank is partially loaded. (Class I, Urgent Followup) (H-77-6)

TODD, Chairman, BAILEY, Vice Chairman, McADAMS, HOGUE, and HALEY, Members, concurred in the above recommendation.



By: Webster B. Todd, Jr.
Chairman

