

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: July 19, 1978

Forwarded to:

Honorable Karl S. Bowers
Acting Administrator
Federal Highway Administration
Washington, D.C. 20590

} SAFETY RECOMMENDATION(S)

H-78-51 and 52

About 9:30 a.m. on September 24, 1977, an Usher Transport, Inc., tractor-cargo-tank semitrailer transporting 8,200 gallons of gasoline southbound on State Route 11 near Beattyville, Kentucky, descended a 12.6-percent, 720-foot-long hill. ^{1/} The truck rounded a sharp curve, crossed over a rough railroad track just in front of an approaching train, slid off the road, and overturned as it struck a nearby building. The tank overturned on a parked vehicle and slid to its final resting position. Gasoline was released from the damaged tractor-cargo-tank semitrailer and ignited. Seven persons died as a result of the fire. Fire destroyed 6 buildings and 16 parked cars.

Stone walls, houses, utility poles, and trees were located within 10 feet of the edge of the pavement on both sides of the downgrade. A "STOP" sign was posted for southbound vehicles 180 feet south of the railroad tracks.

In addition to this truck, the Safety Board has knowledge of at least six other trucks which have descended the hill out of control. On December 5, 1977, a truck loaded with dryboard descended the same hill out of control and struck three vehicles; no one was injured. On February 2, 1978, another truck loaded with lumber descended the same hill out of control and overturned; no one was injured. Within the 6 months before the September 24 accident, witnesses recalled that two truckdrivers had lost control of their vehicles at the bottom of this hill and two or three coal trucks had been unable to stop for the "STOP" sign.

^{1/} For more information read "Highway Accident Report: Usher Transport, Inc., Tractor-Cargo-Tank-Semitrailer Overturn and Fire, State Route 11, Beattyville, Kentucky, September 24, 1977," (NTSB-HAR-78-4).

About 7:04 p.m. on August 20, 1976, a tractor-semitrailer descended a 10-percent, 1,600-foot-long hill in Valley View, Ohio. 2/ At the bottom of the 10-percent grade, the truck collided with 10 automobiles that were stopped at an intersection. Fire ensued, and 8 of the 27 automobile occupants died; 15 persons were injured. Trees, bushes, utility poles, guardrail sections with steep upslopes and downslopes, and buildings were adjacent to this segment of highway. This location had an accident history involving loss of speed control.

In both accident locations, drivers who had lost control of speed had no alternative escape available. Both of the corridors were lined with numerous fixed objects, and no escape ramps or decelerating devices were available.

A review of current research in the area revealed that studies are being conducted by the States of Tennessee and West Virginia which deal with truck escape ramps. However, since these ramps are too large for installation in developed areas, such as the accident sites in Beattyville and Valley View, the Safety Board believes that escape alternates, such as energy attenuating devices, should be developed and provided where land constraints restrict the construction of larger conventional escape ramps.

Following its investigation of a previous accident, 3/ the Safety Board recommended that the Bureau of Motor Carrier Safety (BMCS) conduct an investigation designed to resolve the overturn stability problems of tank-truck combinations (H-72-45). Also, as a result of its investigation of an accident on the New Jersey Turnpike on September 21, 1972, 4/ the Safety Board recommended that the BMCS study 49 CFR 178.337 in order to develop more explicit rulemaking aimed at reducing leakage and subsequent catastrophic failures of hazardous materials cargo tanks in accidents (H-73-37). A resultant study by Dynamic Science, Inc., 5/ for the FHWA, presented data showing that in 43 cargo-tank overturn accidents, the shell leaked in 30 percent of the accidents and the manhole and fill openings failed in 21 percent of the accidents. On page 177, the study concludes that specifications of MC 306 cargo-tank standards need to be improved in order to reduce the frequency of overturn accidents. On page 189, the report states that "The results of the cargo-tank test program indicate that maintenance of cargo-tanks needs to be improved."

2/ "Highway Accident Report: Long Transportation Company Tractor-Semitrailer Collision With Multiple Vehicles, Valley View, Ohio, August 20, 1976," NTSB-HAR-77-3.

3/ "Highway Accident Report: Tank-Truck Combination Overturn onto Volkswagen Microbus, Followed by Fire, U.S. Route 611, Moscow, Pennsylvania, September 5, 1971," NTSB-HAR-72-6.

4/ "Highway Accident Report: Multiple Vehicle Collision Followed by Propylene Cargo Tank Explosions, New Jersey Turnpike, Exit 8, September 21, 1972," NTSB-HAR-73-4.

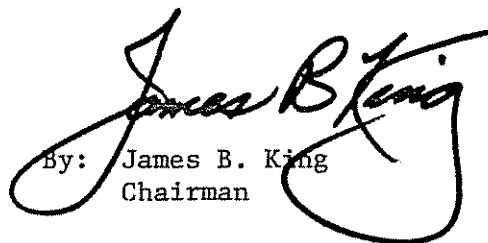
5/ FHWA Study, "Analysis of Cargo Tank Integrity in Rollovers, Final Report, October 1977," by Dynamics Sciences, Inc., FHWA Contract DOT-FH-9193.

Therefore, the National Transportation Safety Board recommends that the Federal Highway Administration:

Expedite the implementation of the findings of the FHWA study, "Analysis of Cargo-Tank Integrity in Rollovers, Final Report, October, 1977," by Dynamic Sciences, Inc., FHWA Contract DOT-FH-9193. (Class II, Priority Action) (H-78-51)

Research the feasibility of installing energy attenuating devices capable of decelerating large runaway vehicles on steep grades where the use of adjacent property prohibits the installation of truck escape routes. (Class II, Priority Action) (H-78-52)

KING, Chairman, McADAMS, HOGUE, and DRIVER, Members, concurred in the above recommendations.


By: James B. King
Chairman

