

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

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Forwarded to:

Honorable Ray Barnhart
Administrator
Federal Highway Administration
400 Seventh Street, S.W.
Washington, D.C. 20590

SAFETY RECOMMENDATION(S)

H-81-72 through -77

During a 1-month period in the fall of 1979, the National Transportation Safety Board (NTSB) investigated four accidents at railroad/highway grade crossings involving a train collision with a truck transporting petroleum products. Three of these accidents resulted in gasoline fires which engulfed the truck trailers and the train locomotives. While the drivers were uninjured in the three accidents involving fire, five railroad employees were killed, four were injured, and the total property damage for the three accidents was estimated to be more than \$923,000. These four accidents and five similar accidents, previously investigated by the NTSB, all involved factors that have been found to be common in accidents at crossings which involved trucks transporting bulk hazardous materials. Because of this accident experience, the NTSB initiated a special study 1/ to determine the magnitude of the problem and the characteristics of accidents at crossings involving trucks transporting bulk hazardous materials.

The NTSB examined data from its accident investigations involving train collisions with trucks transporting bulk hazardous materials and reviewed accident data on this type of accident from four agencies in the U.S. Department of Transportation (DOT). The data for 1975 through 1979 revealed a yearly average of 62 accidents, 7 fatalities, 41 injuries, and \$1,670,000 in property damage for these truck accidents.

Shortly after the NTSB initiated the accident investigation phase of this study in November 1980, four such accidents occurred within a 10-day period that resulted in 9 fatalities, 9 injuries, and \$718,000 in property damage. In this 10-day period, the total fatalities exceeded the yearly average, and the property damage was 43 percent of what might be expected for an entire year. Another accident investigated in 1981 resulted in the derailment of 5 locomotive units and 24 cars, 1 fatality, and \$2,748,000 in property damage--1.6 times the average annual property damage in recent years.

1/ For more detailed information, read Special Study--"Railroad/Highway Grade Crossing Accidents Involving Trucks Transporting Bulk Hazardous Materials" (NTSB-HZM-81-2).

In more recent accidents, two common factors have been observed. The first factor observed was that these accidents tend to occur near terminals. In those cases where accidents occurred at crossings with passive warning devices, a petroleum products terminal, depot, distribution center, etc., was either within a few miles of, or immediately adjacent to, the tracks. Nine accidents occurred at crossings with passive devices. In seven of these accidents, the petroleum distribution center was within 4 miles of the crossing, with five storage facilities within several thousand feet of the accident crossing. The two accidents within several miles of the depots were on the most direct routes to the terminals.

The second factor observed was that drivers involved in these accidents appeared to demonstrate an irresponsible or careless attitude at the crossings. Two drivers made conscious efforts to drive around gates; one driver disregarded flashers that were visible for 720 feet; two drivers approached crossings with passive devices with no apparent intention of stopping; and one driver did not stop at a crossing with passive devices even though he had been involved in an accident at the same crossing the day before. Some of these and other of the drivers had driving convictions (reckless driving or a number of speeding violations), suspensions, or accident histories in their State driver license records which suggest a serious lack of safety consciousness among drivers of trucks loaded with bulk hazardous materials.

Current rules of the road for bulk hazardous materials trucks at crossings are not uniform from State to State or at the Federal level. Differences exist in rules governing crossings with active or passive devices. These differences should be resolved to eliminate possible driver confusion--especially for drivers engaged in interstate transportation or those who may change residence frequently from one State to another. For example, the Uniform Vehicle Code does not require bulk hazardous materials trucks to stop at crossings protected by gates or alternately flashing light signals unless these devices are operating. The Bureau of Motor Carrier Safety (BMCS) requires trucks to stop even if the devices are not activated. The BMCS regulation could cause accidents because flashing light devices may not provide sufficient time for a truck to clear the crossing when it begins from a stopped position.

Drivers of bulk hazardous materials trucks must be made aware of the meanings of railroad traffic control devices, responsibilities at crossings, time-distance relationships, increased emphasis on law enforcement, and the hazards should an accident occur. This training can be accomplished through BMCS material such as the "On Guard" bulletin or through meetings conducted with drivers.

In May 1980, the Federal Highway Administration published a useful informational document ^{2/} that provides guidelines to be considered when designating routes for hazardous materials. The document suggests many variable roadway factors such as traffic and roadway conditions that should be considered in designating hazardous materials routes. Unfortunately, the document does not specifically address crossings unless they are considered as street or roadway intersections.

The discrepancies in DOT agency data found during the preparation of the NTSB study indicate that the existing data systems need improvement. The BMCS did not receive an accident report it should have for an accident investigated by the NTSB. Additionally, BMCS data conflicted with that of the Federal Railroad Administration in 20 cases. The BMCS data were probably in error in at least five of these cases. Based on the sample size (105 cases), the BMCS data may have errors in reporting of at least 5 percent and perhaps as many as 20 percent of the cases.

^{2/} Development of Criteria to Designate Routes for Transporting Hazardous Materials, Report No. FHWA/RD-80-105, May 1980.

In several cases in the BMCS data, spillage of hazardous cargo was coded, yet the cargo was not coded as a hazardous material. Such discrepancies should be avoided. In other cases, the cargo was coded as "other" and specified as "batteri" and "fuel oi." Computer permutations of the spelling of hazardous materials perhaps could flag these accidents for further clarification. Those accident reports involving companies that frequently transport bulk hazardous materials in which the material is coded as liquids in tanks or empty tanks should be flagged for further followup to determine whether hazardous materials were involved.

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

Encourage States to identify crossings with passive warning devices used by trucks transporting bulk hazardous materials and to designate specific routes, which have grade separations or crossings with active warning devices, for trucks carrying bulk hazardous materials to use near hazardous materials terminals and depots. (Class II, Priority Action) (H-81-72)

Establish a method which, through a cooperative effort of hazardous materials carriers and the railroads, will identify to the States crossings that are frequently used by bulk hazardous materials trucks and that need improved warning devices. (Class II, Priority Action) (H-81-73)

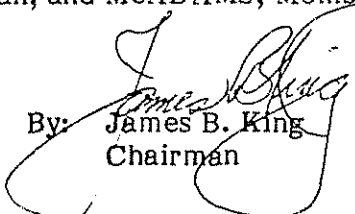
Issue an "On Guard" Bulletin to shippers and carriers of bulk hazardous materials alerting drivers of trucks carrying bulk hazardous materials to the dangers of crossings. The bulletin should encourage drivers to use routes with grade separations or crossings with active warning devices and to report to their supervisors the locations of crossings with passive warning devices that must be used. (Class II, Priority Action) (H-81-74)

Modify the informational document "Criteria to Designate Routes for Transporting Hazardous Materials" to specifically address the hazards of crossings. (Class III, Longer-Term Action) (H-81-75)

Study the feasibility of requiring drivers to have an additional national or State license or endorsement to drive trucks used to transport bulk hazardous materials. The study should establish criteria for prior driving record and training in handling hazardous materials and in emergency procedures. (Class III, Longer-Term Action) (H-81-76)

Amend 49 CFR 392.10 to require trucks carrying bulk hazardous materials to stop at crossings with active warning devices only when the devices are activated to warn drivers of an approaching train, so that it will be consistent with the Uniform Vehicle Code. (Class II, Priority Action) (H-81-77)

KING, Chairman, and GOLDMAN and BURSLEY, Members, concurred in these recommendations. DRIVER, Vice Chairman, and McADAMS, Member, did not participate.

By: 
James B. King
Chairman

