

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: October 6, 1981

 Forwarded to:

Mr. W. H. Dempsey
 President and Chief Executive Officer
 Association of American Railroads
 1920 L Street, N.W.
 Washington, D.C. 20036

SAFETY RECOMMENDATION(S)

R-81-96

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).

To reduce the number of accidents involving train collisions with trucks transporting bulk hazardous materials, a uniform, coordinated effort is needed. The education, enforcement, engineering, and legislative effort that is required involves interaction among agencies that may ordinarily not become involved in each other's activities. The trucking associations, State and local departments of transportation, railroads, labor groups, enforcement agencies, legislatures, carriers, and shippers should participate in this effort. Many of these agencies are already working together on "Operation Lifesaver" which is being coordinated by the National Safety Council. At least one railroad company already has extended the Operation Lifesaver program to specifically address this problem.

In May 1980, the Southern Railway System (SRS) implemented a pilot program in Alabama which was aimed directly at the trucking industry as well as the State and local law enforcement groups. The SRS program, which will be extended soon to North Carolina, involves six aspects:

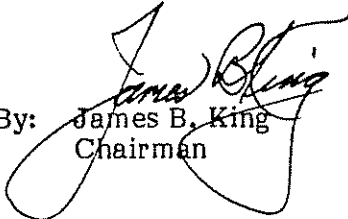
- (1) Identifying all the hazardous material bulk loading facilities near SRS trackage, which enables the SRS to pinpoint those companies where driver information programs should be concentrated, and identifies those crossings where a high density of tank truck traffic is likely. Once these locations are identified, enforcement can be concentrated or improvements in grade crossing traffic control devices can be scheduled.
- (2) Holding educational meetings with the drivers, traffic managers, and other employees at bulk loading facilities. These in-plant meetings include a short introduction, a movie ("Lucky You"), a question-and-answer session, and distribution of informational reminders.
- (3) Holding personal meetings with drivers and distribution of information at nonbulk loading plants or at truckstops, accompanied by a local law officer.
- (4) Encouraging State and local law enforcement officials to enforce laws that require hazardous materials trucks to stop at crossings, through meetings held to discuss the problem and the program. The SRS has developed a form that allows a police officer who is on his/her way to answer another call and who witnesses a truck not stopping at a crossing to record the pertinent information. The complete form is sent to the SRS which notifies the trucking company, either by phone or by personal contact, to inform it of the truckdriver's violation and of the associated hazards.
- (5) Encouraging field enforcement officers with the truck law enforcement division of the State's Public Service Commission to stop truckdrivers who are seen using crossings dangerously and to discuss the hazards with the truckdrivers. These officers explain the Operation Lifesaver program when they talk with truckdrivers at truck stops and weighing stations.
- (6) Notifying trucking companies when the SRS receives a locomotive engineer's near-collision report or a report from a law official. The truck companies can then take the appropriate steps internally to correct unsafe driver behavior.

The collective DOT data show that SRS trains experienced 17 crossing accidents with trucks transporting hazardous materials over a 5-year period (3.4 accidents/year). In a 14-month period, during most of 1980 and the early part of 1981, 48 near-collisions between SRS trains and tank trucks were reported. If SRS experience is representative, it could be estimated that for every reported accident there are at least 12 near-collisions. Nationwide, this would indicate as many as 750 near-collisions annually that jeopardize the lives of railroad personnel in locomotives, as well as nearby motorists, residents, and bystanders.

Therefore, the National Transportation Safety Board recommends that the Association of American Railroads:

Encourage railroads to develop programs for train crewmembers to report: (1) truck carriers identified as transporters of bulk hazardous materials, (2) crossings with passive warning devices which are used frequently by bulk hazardous materials trucks, and (3) bulk hazardous materials trucks which are involved in near-collisions. (Class II, Priority Action) (R-81-96)

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

By: 
James B. King
Chairman



NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

ISSUED: October 6, 1981

Forwarded to:

Honorable Howard Dugoff
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Research and Special Programs Administration
400 7th Street S.W.
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SAFETY RECOMMENDATION(S)

R-81-97 and -98

At 4 a.m., P.d.t., on May 22, 1981, Southern Pacific Transportation Company's (SP) westbound Extra 9164 derailed 39 cars at Surf, California, while moving successively through a 2° curve, a short length of tangent track, and a 1° curve on a 1-percent descending grade. The derailed cars struck and derailed 20 cars of eastbound SP Extra 8874, which was standing on a side track south of the main track, and the locomotive, 3 cars, and the caboose of SP Lompoc Local Extra 1507, which was standing on a side track north of the main track. One employee was injured seriously, and 13 other employees and 3 transients were treated and released at hospitals. Damage was estimated at \$1,552,522. ^{1/}

During the derailment, an "empty" DOT 112A 400W tank car, which had last contained hydrogen fluoride, struck the locomotive of Extra 1507, and a gash about 36 inches long was cut in the side of the tank. Because of the gash, gas from an unknown residual amount of hydrogen fluoride in the tank car, under approximately 16 psi (at 70° F), escaped and formed a gas cloud. None of the crewmembers or three transients, reported to have been riding on Extra 9164 West, was seriously injured by the escaping gas.

The determination that a tank car is "empty" is based on the railroad's Uniform Freight Classification Tariff Rule 35, Section 7, which permits not more than 3 percent by weight or up to 1/3 of the quantity shown on billing documents for the last revenue-paying shipment of a tank car's contents to be left in the car when it is unloaded. This procedure maintains pressurization so that contaminants will not enter the car. The tariff is used to describe the classification of freight on which transportation charges will be based. The shipper determines whether the car is offered to the carrier as an "empty" or a "load." Freight charges usually are not imposed for "empty" cars moving under Rule 35, Section 7.

Title 49 CFR 174.25(c) requires that unless a waybill accompanies an "empty" tank car identifying the last contents of the car, the information must be shown on the consist or wheel report. In addition, 49 CFR 172 requires that an "empty" tank car placard be applied to "empty" tank cars that last contained hazardous materials unless all previous contents have been cleaned out of the car. Title 49 CFR 173

^{1/} For more detailed information, read Railroad Accident Report--"Derailment of Southern Pacific Transportation Company Freight Train Extra 9164 West, Surf, California, May 22, 1981" (NTSB-RAR-81-8).

requires that cars transporting hydrogen fluoride be marked with the commodity name in 4-inch-high letters on the sides of the car. The tank car in the Surf accident was marked and placarded as required by regulations. The car came to rest against the engine of Extra 1507 with the end placard and markings visible from south of the yard office.

In some instances, "empty" tank cars that last contained hazardous or corrosive materials are identified on a consist as "dangerous." The conductor of Extra 8874 East said that the consist of Extra 9164 West did not provide adequate information about hazardous materials cars and "empty" tank cars to enable their being quickly identified. The Safety Board discussed the problem posed by "empty" tank cars in its report of a 1970 accident at Soundview, Connecticut. ^{2/} At Surf, the contents of the "empty" hazardous materials tank car injured 17 persons. The exact quantity of the hydrogen fluoride in the car could not be determined from documents furnished to the railroad. Despite the stenciling of the product name on the car and the "empty" placards, the carrier and others had no way of assessing the danger posed by the "empty" car in the accident without knowledge of the amount of product left in the car.


The International Association of Fire Chiefs (IAFC) has petitioned the Materials Transportation Bureau (MTB) for the removal of all references to "empty" placards in 49 CFR Parts 172 and 174 because the IAFC believes the placards are misleading. The U.S. Department of Transportation (DOT) has issued an Advance Notice of Proposed Rulemaking (Docket HM-180) regarding such placards. The Safety Board believes that the petition of the IAFC to amend the safety regulations to provide more adequate safety information is timely and has merit.

Therefore, as a result of its investigation of this accident, the Safety Board recommends that the Materials Transportation Bureau of the Research and Special Programs Administration:

Amend 49 CFR 171.8 to define in specific quantities the maximum quantity of a hazardous material that may be moved in a tank car placarded under 49 CFR 172.525 and offered for transportation by a shipper as an "empty" tank car under DOT regulations. (Class II, Priority Action) (R-81-97)

Amend 49 CFR 174.25(c) to require that shippers show on shipping papers the approximate weight of a hazardous material contained in a tank car offered by the shipper to a carrier as an "empty" tank car for movement under Rule 35 of the Uniform Freight Classification Tariff. (Class II, Priority Action) (R-81-98)

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


for By: James B. King
Chairman

^{2/} Railroad Accident Report--"Penn Central Transportation Company Freight Train Derailment Passenger Train Collision with Hazardous Material Car, Soundview, Connecticut, October 8, 1970" (NTSB-RAR-72-1).