

Log R-450

NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.

ISSUED: August 12, 1983

Forwarded to:

Dr. Geraldine Cox, Vice President  
Chemical Manufacturers Association  
2501 M Street, N.W.  
Washington, D.C. 20037

SAFETY RECOMMENDATION(S)

R-83-92

About 5:12 a.m., c.d.t., on September 28, 1982, Illinois Central Gulf Railroad (ICG) freight train Extra 9629 East (GS-2-28) derailed 43 cars on the single main track of the Hammond District in Livingston, Louisiana. Of the derailed cars, 36 were tank cars; 27 of these cars contained various regulated hazardous or toxic chemical commodities, 2 contained nonregulated hazardous materials, and 5 contained flammable petroleum products. A total of 20 tank cars were punctured or breached in the derailment. Fires broke out in the wreckage, and smoke and toxic gases were released into the atmosphere. Thermally-induced explosions of two tank cars that had not been punctured caused them to rocket violently. About 3,000 persons living within a 5-mile radius of the derailment site were evacuated for as long as 2 weeks. Nineteen residences and other buildings in Livingston were destroyed or severely damaged. More than 200,000 gallons of toxic chemical product were spilled and absorbed into the ground, requiring extensive excavation of contaminated soil and its transportation to a distant dump site. This has resulted in long-term closure of the railroad line and an adjacent highway. Property damage has been estimated to be in excess of \$14 million. 1/

Although emergency response personnel knew what hazardous materials were involved in the derailment, their exact location in the wreckage was not known. Many tank car placards were torn off in the derailment. Car numbers and placards that were still in place were often obscured by fire, smoke, and wreckage. Despite close-in videotaped aerial and ground surveillance by the State Police, the exact location of several potentially dangerous cars could not be determined for 2 1/2 days. These cars were close to two covered hopper cars filled with burning plastic pellets that were generating the most intensive fire and heat radiation in the wreckage. Had it been possible to quickly identify the car loaded with metallic sodium, which was highly reactive to water, the pellet fire might have been attacked to reduce the fire and heat impingement on the vinyl chloride cars.

For many years, tank cars used to transport hydrocyanic acid, one of the more hazardous commodities shipped by rail, have had a special color scheme — red stripes on the otherwise all-white tank. This idea, adopted by the chemical industry to make these cars particularly easy to identify in car handling, train placement, and derailment

1/ For more detailed information read Railroad Accident Report—"Derailment of Illinois Central Gulf Railroad Freight Train Extra 9629 East (GS-2-28) and Release of Hazardous Materials at Livingston, Louisiana, September 28, 1982" (NTSB-~~RA R-83-06~~).

RA R-83-5

situations, has been eminently successful. The identification problems encountered at Livingston, and at an earlier hazardous materials derailment at Colonial Heights, Virginia, <sup>2/</sup> suggest that the chemical industry should give serious consideration to expanding the color-coding idea to other highly dangerous commodities. According to the Association of American Railroads, more than 75 percent of tank cars used to transport hazardous materials are dedicated to single-commodity service. Thus, in the transportation of many hazardous materials, unique color coding would be no less practicable than has proven to be the case with hydrocyanic acid.

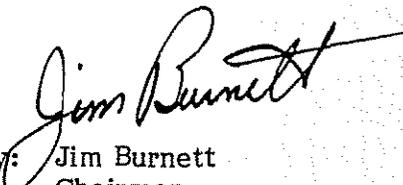
In response to the suggestion that the color-coding principle be expanded to include other hazardous materials, the Chemical Manufacturers Association (CMA) pointed out that there are hundreds of hazardous chemicals shipped in tank cars and that expansion of color coding might be unworkable. This would be particularly true, according to CMA, if coding was done on a generic basis because of the varying response actions required for individual chemicals within a generic classification. CMA also saw potential difficulties with color coding for specific chemicals since a large number of color combinations would be required and the fact that not all tank cars are dedicated to hauling a specific commodity. Nevertheless, the Safety Board believes that the car identification problems experienced at Livingston indicate that the merits of extending color-coding identification of tank cars to particularly high-risk commodities should be closely examined and that CMA has the capability to undertake the task.

Therefore, the National Transportation Safety Board recommends that the Chemical Manufacturers Association:

Extend the use of color coding of tank cars or adopt some other effective means of identifying high-risk commodity tank cars in switching operations and in wreck clearing operations. (Class II, Priority Action) (R-83-92)

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility ". . .to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations" (P.L. 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations. Therefore, we would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter.

BURNETT, Chairman, GOLDMAN, Vice Chairman, and McADAMS, BURSLEY, and ENGEN, Members, concurred in this recommendation.

  
By: Jim Burnett  
Chairman

<sup>2/</sup> See National Transportation Safety Board Railroad Accident Report, "Derailment of Seaboard Coast Line Railroad Train No. 120, Colonial Heights, Virginia, May 31, 1982" (NTSB-RAR-83-4).