



# National Transportation Safety Board

Washington, D.C. 20594  
Safety Recommendation

*Log 624 # C*

Date: October 12, 1990

In reply refer to: R-90-37 through -39

Honorable Gilbert Carmichael  
Administrator  
Federal Railroad Administration  
400 7th Street, S.W.  
Washington, D.C. 20590

On February 26, 1989, CSX Transportation, Inc., freight train No. D812-26 derailed at mile post 16.1 while traveling about 43 mph over Consolidated Rail Corporation (Conrail) main track No. 1, near the south end of Conrail's rail yard, Akron, Ohio. Twenty-one freight cars in the train derailed, including nine tank cars filled with butane. The nine tank cars came to rest adjacent to a B.F. Goodrich Chemical Company plant, and butane released from two breached tank cars immediately caught fire. About 1,750 residents were evacuated from a 1-square-mile area. On February 28, 1989, while some of the derailed tank cars were being moved from the accident site, one tank car full of butane rolled off its trucks; as a result, about 25 families were evacuated from a second area.<sup>1</sup>

The event recorders installed on the four CSX locomotive units of freight train No. D812-26 recorded only elapsed time, locomotive speed, and distance traveled; however, multi-event recorders are readily available that record other parameters including traction motor current, throttle position, locomotive braking, and direction of travel. Had the units been equipped with multi-event recorders, Safety Board investigators would have been able to obtain more information regarding the manner in which the train was being operated approaching the accident site, particularly throttle positions and the timing of brake pipe pressure reductions. Further, without the multi-event recorders, investigators were unable to corroborate crew testimony about certain aspects of how the train was being operated immediately before the derailment.

The Safety Board has documented its position regarding the mandatory use of event recorders in the railroad industry in previous accident

---

<sup>1</sup> National Transportation Safety Board. 1990. Derailment of a CSX Transportation freight train and fire involving butane in Akron, Ohio, February 26, 1989. Hazardous Materials Accident Report NTSB/HZM-90/02. Washington, D.C.

investigations<sup>2</sup> and through the issuance of safety recommendations to the industry and the Federal Railroad Administration (FRA). Further, the Safety Board has stated in previous reports of accident investigations that the Rail Safety Improvement Act of 1988 mandates rules requiring event recorders and does not give the FRA freedom to decide whether Federal regulatory intervention on this subject is necessary. Consequently, the Safety Board has recommended that the FRA "expedite the rulemaking requiring the use of event recorders in the railroad industry" (Safety Recommendation R-89-50). The FRA's position, as stated on March 30, 1990, in its most recent response to Safety Recommendation R-89-50, is that the FRA is "analyzing...information to determine if a Federal requirement for event recorders is cost beneficial, and if so, how a rule is to be implemented." While the lack of effective action by the FRA continues to cause the Safety Board concern, it should be noted that the FRA administrator has agreed that some type of recording device should be required on trains, and a proposed rule is currently being developed by the FRA. In view of FRA's effort to proceed with rulemaking activity, Safety Recommendation R-89-50 will be classified as "Open--Acceptable Response."

About 1 month before the accident, the Akron subdivision was inspected by an FRA track inspector to determine compliance with the Federal track safety standards. During this inspection, one rail brace defect and nine track bolt defects were noted on the northbound track. Two days after the accident, the same area was inspected by State and Federal track inspectors and 75 track defects were noted including 30 track bolt defects and 29 locations of fouled ballast. Certain track defects, such as missing bolts and defective joint bars, are readily determinable to track inspectors, whereas other track conditions, such as fouled ballast, require a more subjective evaluation. The discrepancy in the number of defects noted 1 month before the accident and immediately after the accident is of concern to the Safety Board. Although the track in the immediate area of the derailment may have been in compliance with Class 3 standards, the track in the general area north and south of the accident site was determined by an FRA inspector after the accident to be out of compliance with the Class 3 standards. Although the Safety Board acknowledges that track conditions may deteriorate during a 1-month period, the Safety Board does not believe that conditions deteriorated rapidly enough in that short period to account for the discrepancy in the defects noted after the accident. Several inches of snow covered the ground when the first inspection was conducted, which raises concerns about the adequacy of conducting an inspection under those conditions. The snow cover may explain why many defective track conditions went unnoticed. However, because there is a certain amount of subjectivity

---

<sup>2</sup> (a) National Transportation Safety Board. 1989. Head-on collision between Iowa Interstate Railroad Extra 470 West and Extra 406 East with release of hazardous materials, near Altoona, Iowa, on July 30, 1988. Railroad Accident Report NTSB/RAR-89/04. Washington, DC. 98 p. (b) National Transportation Safety Board. 1990. Derailment of Southern Pacific Transportation Company freight train on May 12, 1989, and subsequent rupture of Calnev petroleum pipeline on May 25, 1989, San Bernardino, California. Railroad Accident Report NTSB/RAR-90/02. Washington, DC. 193 p.

in evaluating some track conditions, it is also possible that defective track structure conditions are not being uniformly noted in the Akron subdivision. Whatever the reason for the discrepancy in the track defects noted, the Safety Board is concerned about the quality and thoroughness of the FRA's inspection of the track prior to the accident. Accordingly, the Safety Board believes that the FRA should evaluate the adequacy of track inspections being conducted on the Akron subdivision and institute necessary changes to ensure proper inspections.

There was no Federal or company requirement that after the train departed its initial terminal the train consist be updated as cars were either added or set off en route. The consist obtained by the Conrail safety supervisor in Cleveland and brought to the accident site did not reflect the makeup of the train at the time of the derailment. Even though the brakeman reviewed this document at the command post and identified which cars had been set off and added, the incident commander was not confident that only butane was involved in the derailment. As a result, he and the Conrail safety supervisor entered the accident area in an attempt to identify those cars involved in the derailment and exposed themselves needlessly to hazardous conditions. The company required that the conductor prepare a "wheel report" listing those cars that had been set off or added en route; however, at the time of the accident, the report did not identify the five cars that had been added at Warwick. The conductor was able to determine which cars derailed and, consequently, which hazardous materials were involved in the derailment by compiling information from several documents he carried and from information he learned from the front-end crew.

The onboard train documents are an early source of information for emergency response personnel for determining what hazardous materials may be involved in a derailment. The Safety Board believes, therefore, that the train consist should at all times accurately reflect the location and position of hazardous materials cars in the train. Without this up-to-date information, emergency response personnel are unable to plan appropriate actions. The Safety Board notes that CSX and the railroad industry are researching methods of providing aboard each train real-time documentation of train consists. The Union Pacific, for example, is experimenting with the use of onboard computers to generate real-time consist information. The Safety Board believes, however, that until adequate methods are developed, the FRA should revise the existing regulations to require that crews update train documents when cars are added or set off after the train has departed its initial terminal.

After the fire department was confident about the information regarding hazardous materials in the derailed tank cars, onscene activities were accomplished in a timely and professional manner. These activities included the response to the tank car fires, the response to the fire at the adjacent chemical facility, and the evacuation of residents. The fire department, and the city in general, however, depended on the expertise of the railroad for the removal of the wreckage from the initial derailment site. The operations chief considered it unsafe to unload the product from the tank cars at the accident site because of the continuing fire from tank car CITX 33875 and agreed with CSX's plan to rerail the tank cars and move them

to Akron Junction yard where the cars would be more permanently secured for the movement to Canton--a location with facilities where the product could then be offloaded. The railroad, however, did not discuss alternatives with the city nor did the railroad advise the city of the possible risks associated with rerailling the tank cars. Only after the second event (when the tank car rolled off its trucks while being moved after the derailment) were alternative plans and the risks associated with each course of action discussed thoroughly with city officials.

The Safety Board recognizes the limited technical resources that may be available to local communities regarding wreckage clearing operations and understands the communities' reliance on the railroad to take the appropriate course of action. For this reason, it is necessary for the railroad to discuss with the local emergency response agencies the severity of known damage to tank cars carrying hazardous materials and the dangers posed to public safety, all possible courses of actions, and any associated risks. However, it is also important that the incident commander, as the person in charge of overall activity at the scene of an accident, play an active role and search out information about the severity of known tank car damage and dangers posed, possible solutions or alternatives, and risks involved. Further, the Safety Board is concerned that the presence of the FRA personnel, who may have been able to offer technical advice or guidance, was not made known to the incident commander until after the second event.

The decision by the railroad to reraill the tank cars at the initial derailment site concerns the Safety Board, aside from the fact that the risks associated with such a move were not discussed with local authorities. CSX mechanical personnel expressed concern that rerailling the tank cars for further movement was dangerous and not the preferred method. The Safety Board concludes that, given the assessment by CSX mechanical personnel and the severity of the damage to the tank car body bolsters and couplers, the railroad should not have rerailled the tank cars but, rather, should have waited until flatcars were available before moving the tanks from the derailment site.

The Safety Board has previously expressed concern about the need for written technical guidance to help emergency response personnel assess the severity of tank car damage and select the appropriate means to remove the wreckage. As a result of the Safety Board's investigation of a freight train derailment involving hazardous materials near Inwood, Indiana, on November 8, 1979,<sup>3</sup> a safety recommendation was issued asking the FRA to:

I-80-2

Develop guidelines for handling tank cars containing pressurized liquefied gases at accident sites based on research and tests of a representative sample of damaged tank cars.

---

<sup>3</sup> National Transportation Safety Board. 1980. Tank car structural integrity after derailment. Special Investigation Report NTSB-SIR-80-1. Washington, DC. 37 p.

In its initial response to this recommendation in May 1981, the FRA indicated that it agreed with the intent of the recommendation and would initiate a program to inspect damaged tank cars. In December 1981, the FRA indicated that it would coordinate the program with the Association of American Railroads (AAR). Based on these responses, the safety recommendation has been classified as "Open--Acceptable Response." On July 3, 1990, the FRA provided an update on 21 open safety recommendations related to hazardous materials, including I-80-2. The FRA stated in that letter that the approach to Safety Recommendation I-80-2 outlined in 1981 "proved to be impracticable." The FRA, however, provided copies of work that has been done on this topic since the issuance of the recommendation, including AAR's publication "Tank Car Damage Assessment" and an FRA document used in its accident/incident investigation course on hazardous materials, portions of which address the assessment of the severity of tank car damage. The Safety Board has also been informed that the FRA, in conjunction with industry wreckage clearing experts, is currently developing technical guidelines to help wreckage clearing personnel assess the severity of tank car damage and select wreckage clearing actions based on damage assessments. The Safety Board has reviewed the AAR's publication and the FRA's investigation course material and believes that these documents and FRA's ongoing project with industry wreckage clearing experts address the concerns that prompted the Safety Board's recommendation. Pending completion of the FRA guidelines for wreckage clearing personnel, Safety Recommendation I-80-2 will be classified as "Open--Acceptable Alternate Response."

It is important to note that the AAR stated in the preface to its "Tank Car Damage Assessment" that these guidelines are to be used by individuals who have experience in assessing tank car damage and who are knowledgeable of tank car construction requirements and wreckage clearing operations. Emergency responders often do not have such technical experience and knowledge; however, they should be aware of these guidelines when securing the services of someone with this experience and knowledge, when assessing the seriousness of dangers posed as a result of tank car damages, and when evaluating alternative actions available to minimize those dangers. Further, FRA personnel responding to accidents should make their presence and purpose known to local emergency response personnel, inform local emergency response personnel of the guidance currently available for assessing tank car damage and wreckage clearing operations, and notify emergency response personnel of any imminently hazardous conditions that may exist.

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

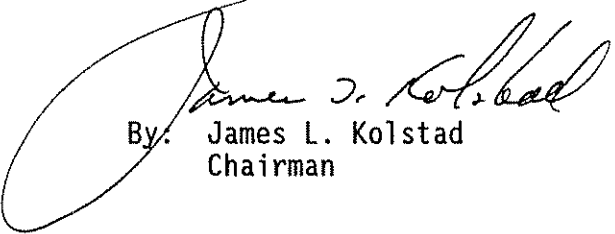
Evaluate the adequacy of track inspections being conducted on the Akron subdivision by Federal Railroad Administration inspectors and institute necessary changes to ensure thorough and consistent inspections. (Class II, Priority Action) (R-90-37)

Revise 49 CFR 174.26(b) to require the traincrew to maintain, at all times, a document reflecting the current position of hazardous materials cars in the train. (Class II, Priority Action) (R-90-38)

Require that Federal Railroad Administration personnel responding to a derailment involving hazardous materials (1) make their presence and purpose known to local emergency response personnel, (2) advise local authorities of guidance available for assessing tank car damage and wreckage clearing operations, and (3) notify emergency response personnel of any imminently hazardous conditions that may exist. (Class II, Priority Action) (R-90-39)

Also as a result of its investigation of this accident, the Safety Board issued safety recommendations to the CSX Transportation Inc., the City of Akron, the Association of American Railroads, the International Association of Fire Chiefs, the National League of Cities, the National Association of Counties, the National Fire Protection Association, the American National Standards Institute, Inc., and the National Association of Regulatory Utility Commissioners.

KOLSTAD, Chairman, COUGHLIN, Vice Chairman, and LAUBER, BURNETT, and HART, Members, concurred in these recommendations.



By: James L. Kolstad  
Chairman