Lag R-624

# National Transportation Safety Board

Washington, D.C. 20594

**Safety Recommendation**

Date: October 12, 1990

In reply refer to: R-90-28 through -31

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President
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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.[1]

The crewmembers of D812-26 testified at the Safety Board's public hearing on this accident that although they had never been trained on the actions to take following an emergency situation, they recognized the importance of contacting emergency response personnel immediately following a derailment and providing information regarding hazardous materials involved. Their onscene actions immediately following the derailment, however, indicate otherwise. While the traincrew quickly called and informed the dispatcher of the derailment, prudently set up signals to warn approaching trains of the derailment, and used their documents to identify the northern- and southern-most cars involved in the derailment, there appeared to be no urgency in contacting the emergency response personnel onsite and providing the necessary information regarding the contents of the tank cars involved in the derailment. The front-end crew, apparently believing that either the dispatcher or the conductor would provide the necessary information to

[1] 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.

emergency response personnel, were leaving the accident site to get a soft drink at a nearby restaurant when they encountered a local police official, who then requested that the crewmembers meet with the fire chief. The conductor and flagman were preoccupied for more than an hour attempting to prevent onlookers from approaching too closely to the burning tank cars and never did seek emergency response personnel. While the crew should make every effort to protect onlookers from the dangers of derailed tank cars, the crew should have also recognized the need to contact emergency response personnel when it became evident that emergency response agencies were onscene. The Safety Board concludes that the traincrew, contrary to company instructions, did not contact as soon as possible emergency response personnel onsite to provide them with shipping papers and vital information about hazardous materials involved in the derailment. Although the Safety Board recognizes the confusion and unpredictable situations that may arise following a hazardous materials emergency, the actions of the crew of D812-26 were not indicative of a crew that had been instructed and trained thoroughly about actions to take following an emergency involving hazardous materials.

Even after the front-end crew came in contact with the fire chief, the crew did not convey accurate and complete information to the fire chief regarding the location of the other crewmembers and a second copy of the consist. After the brakeman and the fire chief returned to the accident site and were unsuccessful in locating the lost profile, the brakeman contacted the conductor by radio to let the fire chief talk to the conductor about the cars involved in the derailment. However, neither the conductor nor the brakeman informed the fire chief that he was talking to the conductor or that the conductor and the flagman were at the rear of the train with a second copy of the profile (the fire chief believed that he was talking with someone in the rail yard). Had the fire chief been informed that he was talking to the conductor who was at the rear of the train with a second copy of the profile, the fire chief could have sent someone to that location to obtain the profile and much of the subsequent skepticism about the cars involved in the derailment could have been avoided. The traincrew's failure to communicate accurate and complete information to the fire chief again suggests a lack of thorough training on the actions to take immediately following an emergency involving hazardous materials.

The actions of the first arriving railroad supervisory personnel suggest that first line supervisors also had not been adequately instructed on the actions to take immediately following an emergency involving hazardous materials. After the CSX trainmaster arrived onscene and talked to the flagman by radio, he believed that fire department personnel had been provided with the necessary information regarding the derailed tank cars. He then returned to Akron Junction. He made no effort to contact the fire chief to determine if all necessary information had been provided or to verify the accuracy of the information. Although the Safety Board recognizes that supervisory personnel may have other responsibilities following a train derailment, the Board believes that supervisors must first verify that emergency response agencies have received accurate and timely information regarding any hazardous materials involved in the derailment.

The Safety Board has previously addressed the need for traincrews, as well as railroad supervisors, to be trained on the actions to be taken immediately following a train derailment involving hazardous materials, particularly the need to provide emergency response personnel with any documentation regarding hazardous materials that may be involved in the derailment. In its report of the derailment of a Seaboard Coast Line Railroad (now part of CSX Transportation) train at Colonial Heights, Virginia, on May 31, 1982,[2] the Safety Board stated:

> Throughout a hazardous materials emergency, and especially during the early minutes, it is essential that to the fullest extent possible, accurate and complete information be provided to emergency response personnel about the hazardous materials which present a threat to the safety of the public and the responding personnel. How quickly this information is provided to the appropriate personnel often determines the magnitude and duration of these incidents. The prompt transfer of accurate information is one task which the Safety Board has observed repeatedly as being the main impediment to an efficient and coordinated response to a transportation accident involving hazardous materials.

As a result of its investigation of that accident, the Safety Board issued the following safety recommendations to the railroad:

> R-83-48
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> Periodically instruct and test traincrews and supervisory personnel on the procedures for using train documents to identify all cars transporting hazardous materials and the information to be provided to assist emergency response personnel.
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> R-83-49
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> Require supervisory personnel arriving at the scene of an emergency to determine what information has been provided by traincrews to emergency response personnel, to verify the accuracy of the information provided, and to advise the onscene coordinator of any errors or omissions in the initial information given by the traincrews.

The recommendations were classified as "Closed--Acceptable Action" on May 24, 1983, after the railroad responded that the importance of notifying emergency response personnel of any hazardous materials entrained would be stressed in rules classes and timetable instructions.

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[2] National Transportation Safety Board. 1983. Derailment of Seaboard Coast Line Railroad train No. 120, at Colonial Heights, Virginia, on May 31, 1982. Railroad Accident Report NTSB/RAR-83/04. Washington, DC. 45 p.

As a result of its special investigation of the release of oleum during wreckage clearing operations after the derailment of a Seaboard System (now part of CSX Transportation) freight train in Clay, Kentucky, on February 5, 1984,[3] the Safety Board, on July 22, 1985, recommended that the railroad:

R-85-80

Modify its program of periodic training of train service employees to include instructions on the meaning and applications of operating rules applicable to an emergency involving hazardous materials.

The recommendation was classified as "Closed--Acceptable Response" on March 25, 1986, after the Seaboard System assured the Safety Board that all employees would receive instructions on those rules applicable to an emergency involving hazardous materials.

As a result of its investigation of the derailment of a Baltimore and Ohio Railroad Company freight train near Miamisburg, Ohio, on July 8, 1986,[4] the Safety Board issued the following safety recommendation to the CSX:

R-87-56

Reemphasize to all operating personnel the importance of directing their initial activities following a derailment to the cooperative support of local emergency response agencies.

On March 9, 1988, the CSX informed the Safety Board of (1) the bulletins that had been issued addressing the "Prevent Accidental Chemical Exposure" program, (2) the revised hazardous materials training schedule, and (3) the procedures outlined in the CSX's Hazardous Materials Emergency Response Guide. Based on the information provided, the recommendation was classified as "Closed--Acceptable Action" on July 25, 1988.

The Safety Board believes that the accident in Akron illustrates that CSX personnel were still not provided adequate training on the actions to take immediately following an emergency situation despite the Safety Board's recommendations on this issue and CSX's assertions that this training was being accomplished. Although it appears that CSX management has made the necessary information available in the form of bulletins or guidelines, operating crews apparently are not understanding or being instructed

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[3] National Transportation Safety Board. 1985. Release of oleum during wreckage-clearing following derailment of Seaboard System Railroad train Extra 8294 North, Clay, Kentucky, February 5, 1984. Special Investigation Report NTSB/SIR-85/01. Washington, DC. 39 p.

[4] National Transportation Safety Board. 1987. Hazardous materials release following the derailment of Baltimore and Ohio Railroad Company train No. SLFR, Miamisburg, Ohio, July 8, 1986. Hazardous Materials Accident Report NTSB/HZM-87/01. Washington, DC. 90 p.

sufficiently on the importance of this information. The Safety Board acknowledges CSX's efforts after the Akron accident (1) to provide division managers enhanced training on responding to rail transportation emergencies involving hazardous materials and (2) to review the feasibility of providing video tapes on hazardous materials rules and on emergency response for use in operating rules classes. The Safety Board believes, however, that specific training on responding to emergencies involving hazardous materials needs to be provided to traincrews and supervisory personnel in addition to what is covered in operating rules classes for traincrews. This training should include, at a minimum, the responsibility of crewmembers to identify themselves to emergency response personnel and to provide accurate information, including onboard documentation, of hazardous materials involved in the accident, and the responsibility of supervisory personnel to verify that emergency response personnel have all needed information and that it is accurate.

The investigation revealed that none of the crewmembers had been tested on their knowledge of their responsibilities for emergencies involving hazardous materials. Further, a CSX trainmaster said that although he did not evaluate the crewmembers after the accident, he took no exception to their actions. The Safety Board believes that evaluation is an integral part of employee training; it should be conducted in the classroom and in the operating environment to be certain employees understand their responsibilities and to provide a measure of the adequacy of the railroad's training program. The Safety Board believes that CSX should outline the means by which supervisors are to determine if their employees understand fully their responsibilities.

Because of the problems the fire department experienced in laying hoses and obtaining sufficient water supply, the delay in obtaining information about the tank cars involved in the derailment did not, in this instance, delay the fire department's attack on the fire. However, had there been no delay in providing the water supply, insufficient knowledge of the hazardous materials involved could have adversely affected the fire department's attack on the fire. It is vital that railroad personnel provide, and emergency response personnel obtain, as quickly as possible following the accident accurate information about the hazardous materials involved in the derailment. The Safety Board believes that the breakdown in communicating and locating vital information regarding the cars involved in the derailment may have resulted, in part, from the lack of jointly conducted emergency response drills and exercises between the city agencies and the railroad. The fire department and the B.F. Goodrich Chemical Company had engaged in emergency drills and preplanning for a disaster, which attests to the well organized manner in which the emergency situation at the chemical facility was handled.

The Safety Board has previously addressed the need for local emergency response agencies and railroads to conduct joint emergency preparedness

exercises. The Safety Board's 1985 report[5] on rail yard safety reviewed the status of emergency preparedness for handling releases of hazardous materials in rail yards and concluded that much work remained to be accomplished. On April 30, 1985, the Safety Board issued the following safety recommendation to all railroads[6] that operate rail yards:

R-85-53

In coordination with communities adjacent to your railroad yards, develop and implement emergency planning and response procedures for handling releases of hazardous materials. These procedures should address, at a minimum, initial notification procedures, response actions for the safe handling of releases of the various types of hazardous materials transported, identification of key contact personnel, conduct of emergency drills and exercises, and identification of the resources to be provided and the actions to be taken by the railroad and the community.

The Seaboard System Railroad informed the Safety Board on July 21, 1985, that it was working with its "partner," the Chessie System Railroads, to ensure an appropriate and adequate response to a hazardous materials emergency in a railroad yard, including the coordination of its plans and procedures with local emergency responders. On February 8, 1988, the CSX informed the Safety Board that the Seaboard and the Chessie had merged their operations under the name of CSX Transportation, Inc., and this merger included the establishment of a single organization of hazardous materials specialists and adoption of the best features of both programs. The company informed the Safety Board that the CSX "Prevent Accidental Chemical Exposure" program for yards and terminals had been implemented and that this plan included the coordination of the emergency response plans and procedures with those in the community.

The Safety Board believes that although the railroad industry in general has recognized the need in the past few years to coordinate emergency response activity with local authorities and has taken steps toward that goal, further efforts by the railroads and the emergency response agencies are needed to fully accomplish this goal. This accident illustrates that CSX's prior efforts to coordinate emergency response plans and procedures with local response agencies had not been fully accomplished with all communities through which CSX trains operate. However, after the Akron accident, CSX, in cooperation with the fire departments and rescue agencies of Summit County and the City of Akron, conducted 6 days of comprehensive

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[5] National Transportation Safety Board. 1985. Railroad yard safety: hazardous materials and emergency preparedness. Special Investigation Report NTSB/SIR-85/03. Washington, DC. 25 p.

[6] The Southern Railway System and the Chessie System Railroads were excluded as recipients of this recommendation because they already had established a corporate policy for meeting the objective of the recommendation.

orientation, training, and field exercises on the handling of hazardous materials incidents in rail transportation. CSX indicated that it plans to conduct similar training programs at other locations in its system and was developing a computerized hazardous materials data program that could provide local emergency response agencies information about hazardous materials that are being transported through their communities. The Safety Board notes the actions taken by CSX after the Akron accident and urges the railroad to complete as soon as possible the training program, particularly to conduct emergency drills and exercises, with all communities through which CSX trains operate. Although Safety Recommendation R-85-53 to the Seaboard System Railroad (CSX) was being held in an "Open-Acceptable Action" status based on the railroad's efforts to address emergency preparedness, it is now being classified as "Closed--Acceptable Action/Superseded" as a result of the new recommendation being issued in conjunction with this report on the Akron accident.

There was no Federal or company requirement that after freight train D812-26 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. Until the FRA has acted to revise the regulations, the CSX should require this of its operating crews.

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 rerailing 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.

Therefore, the National Transportation Safety Board recommends that the CSX Transportation, Inc.:

> Provide training, in addition to operating rules classes, to operating crews and supervisors on the actions they are to take immediately following an accident involving hazardous materials; this training should include, at a minimum, (1) the responsibility of crewmembers to identify themselves to emergency response personnel and to provide accurate information, including onboard documentation, of hazardous materials involved in the accident, (2) the responsibility of supervisory personnel to verify that emergency response personnel have all needed information and that it is accurate, and (3) the means by which supervisors are to determine if employees understand fully their responsibilities. (Class II, Priority Action) (R-90-28)
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> Complete, as soon as possible, drills and exercises for handling releases of hazardous materials with all communities through which CSX hazardous materials trains operate. (Class II, Priority Action) (R-90-29)
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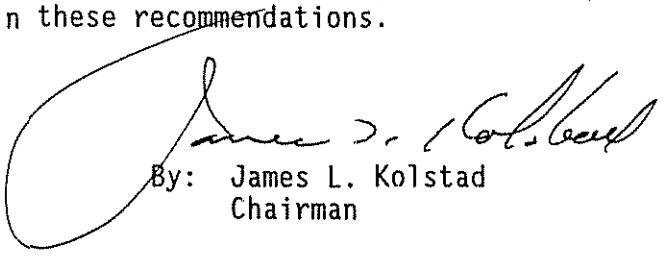
> Require supervisory personnel to explain, before implementing wreckage clearing activities, to local emergency response agencies the alternative actions considered as well as the planned action and the risks associated with each. (Class II, Priority Action) (R-90-30)

Require traincrews to update the train consist to accurately reflect the position of hazardous materials as cars are added or set off en route. (Class II, Priority Action) (R-90-31)

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" (Public Law 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations and would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter. Please refer to Safety Recommendations R-90-28 through -31 in your reply.

Also as a result of its investigation of this accident, the Safety Board issued safety recommendations to the City of Akron, the Association of American Railroads, the Federal Railroad Administration, 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