

NATIONAL TRANSPORTATION SAFETY BOARD
WASHINGTON, D.C.

Log R-436A

ISSUED: February 28, 1983

Forwarded to:
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Chairman and President
National Railroad Passenger Corporation
400 North Capitol Street, N.W.
Washington, D.C. 20001

SAFETY RECOMMENDATION(S)
R-83-21 through -26

About 3:15 a.m. on June 15, 1982, National Railroad Passenger Corporation (Amtrak) Train No. 5 (the San Francisco Zephyr), with 315 persons onboard, derailed near Emerson, Iowa, while traveling about 74 miles per hour on the Burlington Northern Railroad (BN). The train was traveling westbound on the No. 2 main track when it encountered floodwater over the top of washed-out rails. The accident resulted in 1 passenger fatality and 27 injuries. Damage was estimated to be about \$3,381,940. ^{1/}

A series of weather forecasts was issued by the National Weather Service Forecast Office concerning flood and storm watches and warnings in southeast Nebraska and southwest Iowa during the evening of June 14 and early morning of June 15. A weather "watch" indicates that a potential threat exists and that persons in the affected area should make necessary preparations and keep informed of pending conditions. A weather "warning" indicates that the threat has materialized and is imminent or has been reported, and that persons in the affected area should take immediate precautions. Severe thunderstorm warnings were first issued for Mills County at 9:50 p.m. on June 14. A flash flood watch was issued at 10:30 p.m., and six subsequent weather bulletins indicated severe weather in that area.

The BN collects meteorological data from designated stations along its railroad four times daily. The weather data conveyed to the dispatchers are furnished by observations made by the station operators. The operators must rely on their personal evaluations because the stations are not equipped with any weather monitoring devices and because the operators do not have access to commercial weather data. Further, since all of the stations are located directly along the railroad, the scope of the observations is limited to a small area. In this instance, the weather reporting stations encompassing the accident site were located about 82 miles apart. The BN's method of collecting meteorological data proved to be inadequate in this instance to prevent the derailment. The Safety Board believes that the BN, and all railroad common carriers which gather meteorological data through similar methods, should implement professionally gathered and evaluated meteorological data collection methods, such as subscribing to data services offered by the National Oceanic and Atmospheric Administration, to better assure the safe operation of trains.

^{1/} For more detailed information, read National Transportation Safety Board's Railroad Accident Report--"Derailment of Amtrak Train No. 5 (The San Francisco Zephyr) On the Burlington Northern Railroad, Emerson, Iowa, June 15, 1982" (NTSB-RAR-83-2).

Evacuation of the injured was complicated by the tilting of several of the cars and by the mud and floodwater in the cars. The Acting Civil Defense Disaster Coordinator, who assisted in the emergency response, stated that the rescue effort also was complicated because the emergency lights installed on the train did not function and the rescuers had to rely on flashlights. He further stated that the rescue efforts were hampered by an absence of clearly marked emergency window exits and by an absence of instructions for their use. He said that the onboard Amtrak employees did not seem to know about the location or operation of the emergency exits. He stated that rescuers were not able to break one of the inner Lexan plastic windows with extrication bars to use as an emergency exit. The rescuers also experienced difficulties with the operation of the power-assisted end doors in the passenger cars. The Acting Civil Defense Disaster Coordinator stated that he and his colleagues had not seen or been aware of an Amtrak booklet entitled "Emergency Evacuation Procedures."

The Safety Board has noted these problems in prior Board investigations of derailments of Amtrak passenger trains. After a collision between a commuter train and a passenger train at Seabrook, Maryland, on June 19, 1978, 2/ the Safety Board recommended that Amtrak:

Arrange for a program along passenger train routes for training and familiarizing emergency rescue organizations in the type of train equipment being used. (R-79-35)

In response to that recommendation, Amtrak prepared and published a self-instructive booklet entitled "Emergency Evacuation Procedures." Amtrak advised the Safety Board that the booklet was being distributed to fire departments and rescue squads along all Amtrak routes in the United States. Based on this action, the Safety Board classified the recommendation in a "Closed—Acceptable Action" status. The Safety Board believes that, as a result of the Emerson, Iowa, accident, Amtrak should evaluate the distribution that was made of the "Emergency Evacuation Procedures" booklet to determine why the emergency personnel involved in this accident were not aware of the booklet, and whether this informational hiatus was isolated or typical of other situations which may exist along all Amtrak routes.

As a result of the Seabrook, Maryland, accident, the Safety Board also recommended that Amtrak:

Establish a program to train crewmembers in the proper procedures for care of passengers in derailment and emergency situations. (R-79-36)

This recommendation was reiterated to Amtrak as a result of an accident at Lawrence, Kansas, on October 2, 1979. 3/ The Safety Board noted that in both of these accidents, Amtrak personnel on the trains were not prepared to render effective aid to the passengers. Amtrak advised the Safety Board of a training program that it had instituted for its employees, which included the standard Red Cross Multi-Media First-Aid Training

2/ For more detailed information, read National Transportation Safety Board's Railroad Accident Report--"Rear-End Collision of Conrail Commuter Train No. 400 and Amtrak Passenger Train No. 60, Seabrook, Maryland, June 19, 1978" (NTSB-RAR-79-3).

3/ For more detailed information read National Transportation Safety Board's Railroad Accident Report--"Derailment of Amtrak Train No. 4, The Southwest Limited, On the Atchison, Topeka and Santa Fe Railway Company, Lawrence, Kansas, October 2, 1979" (NTSB-RAR-80-4).

and detailed training in emergency procedures. Based on Amtrak's implementation of this training program for Amtrak onboard employees after these accidents, the Safety Board classified the recommendation in a "Closed--Acceptable Action" status. The Safety Board believes that as a result of the Emerson, Iowa, accident, Amtrak should evaluate the effectiveness of its training program to better assure that onboard employees can render effective aid to passengers in emergency situations.

Amtrak Train No. 5 derailed at a time when most passengers were asleep and relaxed. More of the 298 passengers could have been seriously injured and more fatalities could have occurred if the train had derailed when passengers were awake and walking about. The Safety Board believes that the possibility for large numbers of passengers being injured in an accident further supports the need for adequate training of both Amtrak employees and emergency response personnel. Also, the Safety Board believes that Amtrak should consider implementing an onboard briefing program to instruct passengers in methods of emergency evacuation.

As a result of its investigation of this accident, the National Transportation Safety Board recommends that the National Railroad Passenger Corporation (Amtrak):

Adopt a system of professionally gathered and evaluated meteorological information to better assure timely knowledge of climatic conditions that may affect the safe operation of passenger train movements for all Amtrak routes. (Class II, Priority Action) (R-83-21)

Require that those railroads under contractual agreement to operate passenger trains adopt a system of professionally gathered and evaluated meteorological information to better assure timely knowledge of climatic conditions that may affect the safe operation of those passenger train movements. (Class II, Priority Action) (R-83-22)

Provide copies of Amtrak's *Emergency Evacuation Procedures* booklet to all emergency response organizations not possessing those procedures from the original distribution, along all designated passenger train routes. (Class II, Priority Action) (R-83-23)

Review and revise, where necessary, the training and retraining programs for onboard employees in emergency procedures, including the operation of emergency exits, to improve onboard employee competence to render effective assistance to passengers in emergency situations. (Class II, Priority Action) (R-83-24)

Evaluate and modify, as necessary, emergency lighting systems in passenger-carrying cars to better protect the functioning of emergency lights in emergency situations. (Class II, Priority Action) (R-83-25)

Formulate and implement an onboard briefing program for onboard passengers in methods of emergency evacuation. (Class II, Priority Action) (R-83-26)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and McADAMS, BURSLEY, and ENGEN, Members, concurred in these recommendations.

By: 
Jim Burnett
Chairman