



# National Transportation Safety Board

Washington, D.C. 20594

December 15, 1999

Mr. Richard L. Abramson  
Railroad Accident  
Boston, Massachusetts  
December 12, 1990  
File MC 980669, Accident Number DCA91MR003

## RESPONSE TO PETITION FOR RECONSIDERATION

In accordance with 49 *Code of Federal Regulations* Part 845, the National Transportation Safety Board has reviewed a petition for reconsideration and modification of its findings and probable cause. The petition, which is dated May 21, 1998, is from Mr. Richard L. Abramson, the apprentice engineer on the accident train. The accident happened at Back Bay station, Boston, in 1990 and involved National Railroad Passenger Corporation (Amtrak) train 66. (For more information, see *Derailment and Collision of Amtrak Passenger Train 66 with MBTA Commuter Train 906 at Back Bay Station, Boston, Massachusetts, December 12, 1990* [NTSB/RAR-92/01].)

The National Transportation Safety Board has reviewed the petition and hereby GRANTS THE PETITION IN ITS ENTIRETY.

### **Synopsis of Accident**

Amtrak passenger train 66 struck a Massachusetts Bay Transit Authority (MBTA) commuter train as both trains entered Back Bay station.

Train 66 was on a curve when it derailed and struck the western end of the MBTA train, which was on the adjacent track. A fire ignited after the collision. On train 66, 7 crewmembers and 43 passengers were injured; on the MBTA train, 5 crewmembers and 351 passengers were injured. Seven firefighters were also injured. The estimated damage exceeded \$12.5 million.

The engineer told the apprentice to operate the locomotive. The apprentice did so, under the direct supervision of the engineer, for the entire trip. According to the engineer, before each stop at a station he moved behind the apprentice, where he could supervise and instruct him in the proper brake application. The engineer added that the method of operation he used when instructing an apprentice engineer was to "talk" the apprentice through every station.

In preparation for the stop at Back Bay station (milepost [MP] 227.5), the engineer told the apprentice to begin applying the automatic air brakes when the Ruggles Street station (MP

226.5) platform came into view. According to the apprentice, the train was traveling 94 mph, and as the train passed the signal at MP 226.2, west of the Ruggles Street station, he made a minimum 10- or 12-pound-per-square-inch (psi) service application of the automatic air brakes. He stated that he then released the locomotive independent brake and reduced the throttle to run 1 or 2 position.

The engineer told the apprentice to make a further brake application, and the apprentice made a 32-psi application (full-service application) while passing the Ruggles Street station platform. The engineer stated that he and the apprentice could sense that the train was not slowing sufficiently. According to the apprentice, the engineer made an emergency application of the automatic air brakes. The train entered the 30-mph curve at about 76 mph.

As the train moved into the curve, the engine crew felt the locomotive tip to the left, toward the track where the MBTA train was. The crewmembers reported that events then became unclear until after their train struck the MBTA train.

The Safety Board determined the following probable cause:

The probable cause of this accident was the failure of the apprentice locomotive engineer to reduce speed in sufficient time to negotiate the curve into Back Bay station as a result of inadequate supervision provided by the locomotive engineer. Contributing to the accident was Amtrak's failure to provide adequate quality control oversight for its locomotive engineer training program, including the adequacy of selection and training for apprentices and selection and training of engineers who serve as supervisors to apprentices during on-the-job training. Also contributing to the accident was Amtrak's failure to have advance warning devices for a speed restriction for the curve entering Back Bay station.

## ***Discussion***

The petitioner submits that the Safety Board's probable cause is misleading in citing him; he argues that at the time of the accident, he was following the engineer's directions. The petitioner believes that the probable cause is correct in citing the inadequacy of the engineer's supervision as the reason for the delay in braking the train. The petitioner did not submit any additional evidence or analysis other than his statement that the Safety Board's probable cause "clearly puts the responsibility on the instructing engineer and Amtrak."

The Safety Board agrees with the petitioner's analysis of his role in the accident. The Board's report states:

Proper operation of the train is the responsibility of the engineer of record. Under Amtrak rules, the engineer is responsible for the observance of signals and the control and regulation of train movement. He is also responsible for instructing apprentices and for ensuring that they are familiar with their duties.

The apprentice was inexperienced and inadequately supervised. Only twice before the accident trip had he operated a train into Back Bay station. No two engineers operate their trains exactly the same way on any given territory. It is quite probable that during the previous two trips the apprentice may have initiated braking at different points along the right-of-way and did not have an established fixed point of reference to tell him where to initiate braking.

The apprentice was on the train for two reasons. He was receiving instructions on train handling, and he was preparing to qualify on the physical characteristics of the route. An engineer must memorize the characteristics of his route in order to identify the location of signals, areas where speed restrictions are imposed, or other hazardous conditions ahead. Until the apprentice engineer is fully qualified on the run, he cannot be expected to know where the braking points for slow orders or curves are. He is completely dependent for this information on the qualified engineer who is training him.

The engineer had not had any formal training in overseeing an apprentice. In fact, it was the findings of the Safety Board about this accident that caused Amtrak to intensify its training program for engineers.

According to the engineer's testimony, the engineer told the apprentice to initiate braking just west of the Ruggles Street station. According to both the engineer and the apprentice, the apprentice did begin braking just west of the Ruggles Street station. During the investigation, Amtrak officials and locomotive engineers stated that the engineer should have instructed the apprentice to start braking the train at the Pickle Factory, a landmark structure at MP 225.7; they said that a train going nearly 100 mph, as the train was, could not be slowed enough to negotiate the curve into Back Bay station safely if braking began, as was reported, at the Ruggles Street station.

The probable cause is correct in saying that the apprentice, in fact, did not brake in sufficient time. However, the responsibility for braking and train operation belongs solely to the engineer of record. It was the engineer who was responsible for seeing to it that braking was started well before the 30-mph speed restriction went into effect.

Consequently, the Safety Board believes that, although the petitioner was involved in the accident sequence, his actions (or inaction) were approved by the engineer; as a result, the petitioner should not be described as having failed to reduce the train's speed in time. The Safety Board, therefore, concurs with the petitioner's argument.

The probable cause of this accident was the failure of the locomotive engineer to ensure that the train was braked early enough to allow it to enter Back Bay station safely.

Consequently, *Derailment and Collision of Amtrak Passenger Train 66 with MBTA Commuter Train 906 at Back Bay Station, Boston, Massachusetts, December 12, 1990* will be modified.

"Operated by an apprentice engineer" will be deleted from the first sentence of the second paragraph of the Executive Summary.

The probable cause will be changed to read as follows:

The probable cause of this accident was the failure of the locomotive engineer to adequately supervise the operation of Amtrak train 66 by the apprentice locomotive engineer. Contributing to the accident was Amtrak's failure to provide adequate quality control oversight for its locomotive engineer training program, including the adequacy of selection and training for apprentices and selection and training of engineers who serve as supervisors to apprentices during on-the-job training. Also contributing to the accident was Amtrak's failure to have advance warning devices for a speed restriction for the curve entering Back Bay station.

Chairman HALL, Vice Chairman FRANCIS, and Members HAMMERSCHMIDT, GOGLIA, and BLACK concurred in granting this petition for reconsideration.