National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendations

Date: May 25 1999

In Reply Refer To: R-99-1

Mr. George Warrington
President and Chief Executive Officer
National Railroad Passenger Corporation
60 Massachusetts Avenue, NE
Washington, D.C. 20002

About 9:44 a.m., on July 30, 1998, eastbound New Jersey Transit (NJT) train No. 5426 derailed the lead cab car and east truck of the first passenger car while traversing a power-operated switch/split-point derail at milepost 10.5 in the National Railroad Passenger Corporation's (Amtrak's) Hunter interlocking in Newark, New Jersey. The engineer sustained minor injuries. None of the 300 passengers was injured. Damages were estimated at $10,000.

NJT train No. 5426 had departed Raritan, New Jersey, at 8:33 a.m., in revenue passenger service en route to Amtrak's Pennsylvania Station in Newark. Train No. 5426 was proceeding from Consolidated Rail Corporation's Lehigh Valley Line toward the Hunter interlocking when it received a stop indication about 200 yards from the interlocking. The engineer said that she stopped the train and waited until signal 6E displayed a slow-approach signal, about 10 minutes later. She then proceeded and was operating the train about 12 mph when she began to pass through the interlocking. The engineer said that when she observed switch No. 54, it appeared to be properly aligned. She stated that as the lead cab car passed over the switch, she felt the car behind her derail, which caused the cab car to shift and derail.

From interviews, records reviews, and on-site inspections, the National Transportation Safety Board determined that the following events and actions occurred. The interlocking where the derailment occurred was being modified, and two new power-operated switch machines had been installed for a new connecting track that was being constructed about ½ mile east of the present connecting track. Because of the length of the new switch machines' circuitry, voltage losses had occurred, resulting in switch position indication problems. The day before this accident, the interlocking tower operator had experienced indication failures at switch No. 54. In response, an Amtrak communication and signal (C&S) construction team was dispatched on July 30, 1998, to make circuit changes to prevent the failures from reoccurring.

As directed by the tower operator, the C&S construction team foreman radioed for authorization to begin work on the switch after a particular westbound NJT train passed the Hunter interlocking, about 9:08 a.m. Contrary to Amtrak's *Special Instructions Governing*

Construction and Maintenance of Signals and Interlockings (AMT-23 rules), the C&S team did not lock, block, and spike the switch before beginning to make the wire changes.

The tower train director then instructed the tower operator to apply a panel blocking device on track No. 4 at Hunter interlocking to prevent signals from displaying proceed indications. The tower operator, however, did not record that blocking devices were being used on track No. 4 between 9:08 and 9:18 a.m., as required by the *Northeast Operating Rules Advisory Committee* standards and by Amtrak's *Special Instructions Governing Operation of Signals and Interlockings*.

Radio transcripts indicate that about 9:18 a.m., the train director called and advised the C&S construction team foreman that it was necessary to run westbound NJT train No. 3829 and eastbound NJT train No. 5426 (the accident train) on track No. 4. However, the signal foreman later stated that he thought his team had received permission to work on switch No. 54 after the first train passed. After the first train passed, the C&S construction team resumed work on the switch circuit.

About 9:41 a.m., the train director notified the signal foreman that he could not reverse switch No. 54 for NJT train No. 5426. Later investigation disclosed that the wire changes being made had caused the switch to stop before properly aligning, which had resulted in the switch points being locked in the reverse position.

The C&S construction team foreman then applied a jumper wire to energize the reverse indication relay for switch No. 54, which allowed the tower operator to display wayside signal 6E for eastbound train movement. In applying the jumper wire, the Safety Board determined and the signal foreman admitted that he did not comply with AMT-23 rules, including advising the train director before a jumper wire is applied, using the proper length of wire, physically checking the position of the switch, and taking precautionary measures to secure the switch points in the proper position.

The Safety Board is concerned about the lack of compliance by Amtrak employees with required procedures that are essential for safe operation. Training records maintained at company level show that the C&S construction team foreman in charge of making the wire changes initially received instruction on AMT-23 rules in December 1988. Amtrak officials stated that he would have been trained and tested on the application of the AMT-23 rules when he was promoted to foreman on December 27, 1990. However, Amtrak could not produce a record of this training. From interviews, the Safety Board determined that inconsistencies in refresher training and in documenting training existed systemwide. The Safety Board is convinced that Amtrak's management needs to maintain a better system of documentation and oversight to ensure that employees receive refresher training needed for safe operations. Amtrak policy requires that C&S supervisors provide their employees with recurrent training at intervals not to exceed 24 months and that the supervisors maintain a record of such training. However, because of employee turn-over, only the present C&S supervisor of the signal foreman was able to provide a record of training for the past year. Moreover, the documentation for one of the team members indicates only that he received instruction on AMT-23 rules; the records do not identify which specific rules were stressed in the instruction.

The Hunter interlocking, where the accident occurred, has three separate construction projects in progress. The Safety Board is aware that Amtrak has or is planning extensive construction projects on about 400 miles[1] of its Northeast Corridor between Washington, D.C., and Boston, Massachusetts. On July 12, 1998, the Federal Railroad Administration ordered Amtrak to install a new train control system to ensure the safety of trains that will be traveling up to 150 mph between New Haven, Connecticut, and Boston and of trains that will be traveling up to 135 mph between Washington, D.C., and New York, New York. All of the projects require circuit changes that will interface with the existing signal system.

The Safety Board is concerned that the lack of management oversight, specifically as it pertains to ensuring the training of workers involved in construction projects with wiring changes, combined with the increased operating speed of trains in the corridor, could contribute to a catastrophic accident. The Safety Board believes that ensuring that employees have a complete understanding of the operating procedures pertaining to the use of signal jumper wires and the use and recording of blocking devices is critical to the safe movement of trains in interlockings undergoing construction. Therefore, the National Transportation Safety Board makes the following safety recommendation to the National Railroad Passenger Corporation:

> Implement oversight procedures to ensure that employees receive refresher training in applicable procedures related to the safe movement of trains through interlockings undergoing construction or maintenance, that employees follow such procedures, and that documentation of the training is maintained systemwide. (R-99-1)

The Safety Board is interested in any action taken as a result of its safety recommendation. Therefore, it would appreciate a response from you regarding action taken or contemplated with respect to the recommendation in this letter. Please refer to Safety Recommendation R-99-1 in your reply. If you have any questions, you may call (202) 314-6488.

Original Signed
By: Jim Hall
Chairman

[1] Excludes the Metro-North Railroad from New Rochelle, New York, to New Haven, Connecticut.