National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: October 26, 2007

In reply refer to: R-07-16

Ms. Carole Brown
Chairman
Chicago Transit Board
567 W. Lake Street
Chicago, Illinois 60661

The National Transportation Safety Board is an independent Federal agency charged by Congress with investigating transportation accidents, determining their probable cause, and making recommendations to prevent similar accidents from occurring. We are providing the following information to urge your organization to take action on the safety recommendation in this letter. The Safety Board is vitally interested in this recommendation because it is designed to prevent accidents and save lives.

This recommendation addresses the need for the Chicago Transit Board to use its authority to direct the Chicago Transit Authority (CTA) to correct all safety deficiencies identified by the Regional Transportation Authority (RTA). The recommendation is derived from the Safety Board's investigation of the July 11, 2006, derailment of CTA train 220 in Chicago, Illinois, and is consistent with the evidence we found and the analysis we performed. As a result of this investigation, the Safety Board has issued 14 safety recommendations, 1 of which is addressed to the Chicago Transit Board. Information supporting this recommendation is discussed below. The Safety Board would appreciate a response from you within 90 days addressing the actions you have taken or intend to take to implement our recommendation.[1]

On Tuesday, July 11, 2006, about 5:06 p.m., central daylight time,[2] the last car of northbound[3] CTA Blue Line train number 220 derailed in the subway between the Clark/Lake and Grand/Milwaukee stations in downtown Chicago, Illinois. About 1,000 passengers were on board the eight-car rapid transit train. Following the derailment, the train came to a stop, and electrical arcing between the last car and the 600-volt direct current third rail generated smoke. The single operator in the lead car received a number of calls on the train intercom. The operator exited the control compartment, stepped onto the catwalk, and walked beside the train to investigate.

[1] For more information, see http://www.ntsb.gov/publictn/2007/RAR0702.pdf. National Transportation Safety Board, *Derailment of Chicago Transit Authority Train Number 220 Between Clark/Lake and Grand/Milwaukee Stations, Chicago, Illinois, July 11, 2006*, NTSB/RAR-07/02 (Washington, DC: NTSB 2007).

[2] All times are central daylight time.

[3] The Blue Line track is generally aligned in a geographical north to south direction; however, the track in the area of the derailment was aligned in an east to west direction.

Electrical power was removed from the third rail, and most passengers walked to an emergency exit stairway about 350 feet in front of the train that led to the street level. Some passengers had to be assisted in their evacuation by emergency responders. The Chicago Fire Department reported that 152 persons were treated and transported from the scene. There were no fatalities. Total damage exceeded $1 million.

The National Transportation Safety Board determined that the probable cause of the July 11, 2006, derailment of Chicago Transit Authority train number 220 in the subway in Chicago, Illinois, was the Chicago Transit Authority's ineffective management and oversight of its track inspection and maintenance program and its system safety program, which resulted in unsafe track conditions. Contributing to the accident were the Regional Transportation Authority's failure to require that action be taken by the Chicago Transit Authority to correct unsafe track conditions and the Federal Transit Administration's ineffective oversight of the Regional Transportation Authority. Contributing to the seriousness of the accident was smoke in the tunnel and the delay in removing that smoke.

CTA Oversight

Direct supervision of the CTA track inspectors is provided by the section roadmasters. A section roadmaster is responsible for a given territory and several track inspection teams. Although the section roadmaster for the derailment area communicated with his track inspectors by phone or radio throughout the day, he did not often review the quality and completeness of their work. In fact, he stated that during the 5 months prior to the accident, he had performed the required monthly inspection once only.

The investigation revealed hundreds of missing or incomplete track inspection records. It also revealed records that showed track defects without parallel records showing that repairs had been made. The lack of critical records and the poor preparation of those that did exist indicate that some roadmasters were not reviewing the records in accordance with CTA requirements. The CTA's Track Engineer IV Maintenance and the Manager of Track stated that they were unaware of this problem and they relied on the roadmasters to review the records.

The CTA utilized a System Safety Program Plan approach to monitor and inspect the varying functions within its departments, including the track department. System safety personnel were responsible for reviewing the track inspection and maintenance program. However, they did not monitor the inspection of the track structure or check the inspection records for completeness, and they did not have the technical track expertise to perform those functions. The system safety personnel stated that they primarily concentrated on the walkway areas in the tunnels and the emergency exits and left the oversight of track inspection to the track department. In fact, the 2005 annual internal safety audit did not identify any problems with the track or inspection records.

Overall, a deficient safety culture existed at the CTA that allowed the track infrastructure to deteriorate to an unsafe condition. Industry standards for inspecting and testing the track were not incorporated into CTA practices. Inspection records across the system were either missing or incomplete. Training and qualification requirements for track inspectors were less than those of other rail passenger carriers. There was a lack of effective supervisory oversight. The

system safety program failed to identify track program deficiencies. Further, when an outside review raised questions about deficient track conditions and the number of track inspection and maintenance employees available to do the work as compared to other similar operations within the industry, the CTA did not take corrective action to address the issues. The investigation found a series of latent conditions and active failures at many levels throughout the CTA corporate structure. Such a series is characteristic of an organizational accident.[4] The Safety Board concludes that because the CTA failed to establish an effective track inspection and maintenance program, unsafe track conditions and deficiencies were not corrected. Since the accident, the CTA has informed the Board that it has significantly increased staff in the track inspection and maintenance areas and reorganized its engineering and maintenance departments to separate track inspection activities from track maintenance activities. Thirty-six positions were added to the 69 inspector/maintenance positions, resulting in a new total of 105 positions. Although the Board notes that the CTA is making improvements, the Board remains concerned about the CTA's failure to recognize and correct unsafe track conditions identified by the RTA before the accident.

Therefore, the National Transportation Safety Board makes the following recommendation to the Chicago Transit Board:

> Direct the Chicago Transit Authority to correct all safety deficiencies identified by the Regional Transportation Authority in its most recent and future safety inspections and reviews, regardless of whether those deficiencies are labeled as "findings," "observations," or some other term. (R-07-16)

The Safety Board also issued safety recommendations to the Federal Transit Administration, the State of Illinois, the Regional Transportation Authority, and the Chicago Transit Authority. In your response to the recommendation in this letter, please refer to Safety Recommendation R-07-16. If you need additional information, you may call (202) 314-6177.

Chairman ROSENKER, Vice Chairman SUMWALT, and Members HERSMAN, HIGGINS, and CHEALANDER concurred in this recommendation. Vice Chairman SUMWALT and Member HIGGINS filed concurring statements, which are attached to the Railroad Accident Report for this accident.

[*Original Signed*]

By: Mark V. Rosenker
Chairman

[4] Dr. James Reason states that "organizational accidents have multiple causes involving many people operating at different levels of their respective companies." J. Reason, *Managing the Risks of Organizational Accidents* (Burlington: Ashgate Publishing Company, 1997) 1.