



National Transportation Safety Board

Washington, D.C. 20594

Urgent Safety Recommendation

Date: December 22, 2005

In reply refer to: R-05-18

Mr. Philip A. Pagano
Executive Director
Northeast Illinois Regional Commuter Railroad Corporation
547 W. Jackson Boulevard
Chicago, Illinois 60661-5717

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. The urgent safety recommendation in this letter is derived from the Safety Board's investigation of the two derailments that occurred on the Northeast Illinois Regional Commuter Railroad Corporation (Metra) property at West 47th Street in Chicago, Illinois; one on October 12, 2003,¹ and the most recent on September 17, 2005.² The Board would appreciate a response from you within 30 days addressing the actions you have taken or intend to take to implement our recommendation.

In the October 12, 2003, accident, westbound Metra train 519 derailed about 4:38 p.m. while operating at 68 mph as it traversed a crossover from track 1 to track 2 in the vicinity of Control Point 48th (CP 48)³ Street in Chicago, Illinois. The entire train, operating with two locomotives in the lead and five passenger cars, derailed. The maximum authorized speed through the crossover was 10 mph. There were about 375 passengers and a crew of 3 on board. As a result of the accident, 47 injured passengers were transported to eight local hospitals. Of these, 44 were treated and released, and 3 were admitted for observation. Damages from the accident exceeded \$5 million.

In the September 17, 2005, accident, eastbound Metra train 504 derailed about 8:35 a.m., central daylight time, while operating at a speed of about 69 mph as it traversed the crossover in the vicinity of CP 48. The entire train, operating in the push-mode,⁴ was comprised of five cars

¹ National Transportation Safety Board, *Derailment of Northeast Illinois Regional Commuter Railroad Train 519 in Chicago, Illinois, October 12, 2003*, Railroad Accident Report NTSB/RAR-05/03 (Washington, DC: NTSB, 2005).

² This accident is still under investigation as DCA-05-MR-013.

³ CP 48 is Metra's name for the signal location near West 47th and South Federal Streets in Chicago, Illinois.

⁴ The *push-mode* has a cab-control compartment in the lead car for the engineer with the unoccupied locomotive(s) pushing the train.

and one locomotive at the rear. The train derailed as it traversed the crossover routing the train from track 2 to track 1. The crossover had a prescribed operating speed of 10 mph. The fourth car from the head end of the train struck a steel girder of a bridge that carried the tracks over 47th Street. Metra reported that there were 185 passengers on the train; 129 were injured and required medical attention. Of those, 38 were seriously injured and required hospitalization and 2 were fatally injured.

The accidents shared a common location: the crossover at CP 48 on the Joliet Sub District. The basic difference between the two accidents was that train 519 was to cross over from track 1 to track 2 traveling in the westbound direction, whereas train 504 was to cross over from track 2 to track 1 traveling in the eastbound direction. Both trains were operating on tracks where train movement was governed by wayside signal indications. The wayside signals display a signal aspect to indicate the route and any crossover or divergence from the track being traversed that by railroad operating rules require an engineer to take certain specific actions to control the train.

The Joliet Sub District is the only Metra-owned track that has an automatic cab signal (ACS) system to provide the train engineer an in-cab replication of the wayside signal information being displayed. However, the ACS system is only installed on a portion of the sub district from milepost (MP) 14.5 to MP 40.2. There is no ACS system from the Chicago Terminal to MP 14.5, which includes the accident area, MP 4.7 at CP 48.

Most Metra locomotives are equipped with cab signals that operate on tracks that have ACS, automatic train control (ATC), or automatic train stop (ATS).⁵ Metra's ACS system does not have enforcement capability. An ATC system can enforce compliance if a train exceeds a predetermined speed for the signal indication and does not reduce its speed at a sufficient rate by automatically applying the train brakes. An ATS system automatically applies the train brakes until the train stops.

The engineers for both accident trains told investigators that they believed they were operating on a "clear" signal indication, but Safety Board signal testing and recorded data examined after the accidents do not support the statements of either engineer. The signal tests showed that in each accident the signals displayed an "approach diverging;" which by rule required the engineers to "proceed prepared to advance on diverging route at next signal and through the turnout at maximum authorized speed [10 mph];" this signal was then followed by another signal, near the turnout, that displayed a "diverging clear" that required the engineers to "proceed on diverging route at prescribed speed [10 mph] through the turnout."

The Safety Board believes that had an automatic train control system with enforcement capabilities been in place at the time of the accidents, the accidents could have been avoided. ATC and ATS systems have been available to railroads for many years with proven reliability in the industry. In recent years, the Board has investigated many accidents where engineers have,

⁵ Metra operates commuter service on the property of several other carriers in the Chicago area: the National Railroad Passenger Corporation (Amtrak), the Burlington Northern Santa Fe Railway, the Canadian National, the Canadian Pacific Railway, the Northern Indiana Commuter Transportation District, and the Union Pacific Railroad (UP). Only the UP has ATC, which enforces compliance with cab and wayside signals, and ATS, which is a system activated by wayside inductors positioned to automatically stop a train for compliance.

for various reasons, failed to take appropriate action to avoid dangerous situations, such as head-on and rear-end collisions that have resulted in serious accidents with injuries and fatalities.

The Safety Board has made several safety recommendations calling for the installation of positive train control systems that will initiate action to either slow or stop a train in the event the engineer of the train fails to do so. The most recent recommendation was made to the Federal Railroad Administration (FRA) following the January 17, 1999, collision and derailment of three trains near Bryan, Ohio.⁶

R-01-6

Facilitate actions necessary for development and implementation of positive train control systems that include collision avoidance, and require implementation of positive train control systems on main line tracks, establishing priority requirements for high-risk corridors such as those where commuter and intercity passenger railroads operate.

On June 2, 2004, the safety recommendation was classified as “Open—Acceptable Response.” However, the Board has been making safety recommendations for positive train control to the FRA and the railroad industry since 1987 and is concerned that public and railroad safety still remain at risk. Therefore on November 23, 2005, the Board reiterated Safety Recommendation R-01-6 to the FRA.

In addition, as a result of the October 12, 2003, accident, the Safety Board issued a safety recommendation to Metra on November 23, 2005, calling for the installation of positive train control on its commuter routes.

R-05-13

Install a positive train control system on your commuter train routes.

The Board realizes that it will take time for Metra to develop and implement a positive train control system on its commuter train routes. Nevertheless, there have been two serious accidents at the same location in the Joliet Sub District, and much of this track does have an ACS system, which could be extended to provide additional protection at this site. Therefore, the Board believes that Metra should install an automatic train control system with cab signals and train control enforcement over the entire Joliet Sub District, until a positive train control system is installed.

⁶ National Transportation Safety Board, *Collision Involving Three Consolidated Rail Corporation Freight Trains Operating in Fog on a Double Main Track Near Bryan, Ohio, January 17, 1999*, Railroad Accident Report NTSB/RAR-01/01 (Washington, DC: NTSB, 2005).

The National Transportation Safety Board therefore makes the following urgent safety recommendation to the Northeast Illinois Regional Commuter Railroad Corporation:

Install an automatic train control system with cab signals and train control enforcement over the entire Joliet Sub District, until a positive train control system is installed. (Urgent) (R-05-18)

In your response to the recommendation in this letter, please refer to Safety Recommendation R-05-18. If you need additional information, you may call (202) 314-6177.

Acting Chairman ROSENKER and Members ENGLEMAN CONNERS and HERSMAN concurred in this recommendation.

[Original Signed]

By: Mark V. Rosenker
Acting Chairman