National Transportation Safety Board

Washington, D.C. 20594

Safety Recommendation

Date: November 6, 2003

In reply refer to: R-03-21 and R-01-06

Honorable Allan Rutter
Administrator
Federal Railroad Administration
1120 Vermont Avenue, N.W.
Washington, D.C. 20590

On Tuesday, April 23, 2002, about 8:10 a.m. Pacific daylight time, eastbound Burlington Northern Santa Fe Railway (BNSF) freight train PLACCLO3-22 collided head on with standing westbound Southern California Regional Rail Authority (Metrolink) passenger train 809 on the No. 2 track at Control Point Atwood in Placentia, California.[1] Emergency response agencies reported that 162 persons were transported to local hospitals. There were two fatalities.[2] Damage was estimated at $4.6 million.

The National Transportation Safety Board determined that the probable cause of the accident was the freight train crew's inattentiveness to the signal system and their failure to observe, recognize, and act on the *approach* signal at milepost 42.31. Contributing to the accident was the absence of a positive train control system that would have automatically stopped the freight train short of the *stop* signal and thus prevented the collision.

Metrolink delivery series 200 and 207 railcars[3] have three exterior sidewall emergency access windows on each side of the upper-level deck. The lower-level deck has two emergency access windows on each side. A retro-reflective decal on the car exterior near each upper- and lower-level emergency access window describes the emergency window removal procedure. The instructions are to use a screwdriver to pry out the seal (grommet) surrounding the windowpane. The decal also includes a grommet-removal pictorial and additional step-by-step instructions.

[1] For more information, see National Transportation Safety Board, *Collision of Burlington Northern Santa Fe Freight Train With Metrolink Commuter Train at Placentia, California, April 23, 2002*, Railroad Accident Report NTSB/RAR-03/04 (Washington, DC: NTSB, 2003).

[2] In order to provide standard classifications, the Safety Board applies published aviation injury criteria (49 *Code of Federal Regulations* 830.2) to all modes of transportation. For statistical uniformity only, an injury to a person that results in death within 30 days of the accident is classified a fatality. In the Placentia accident, a third injured passenger, a 77-year-old woman, died on or about June 7, 2002, which was about 45 days after the accident. Under the foregoing criteria, she is not classified in this report as an accident fatality. The Safety Board's investigation did not identify any evidence that her death was directly attributable to injuries sustained in the accident. Further, this classification does not reflect any determination that she did not, in fact, succumb to injuries received in the accident.

[3] These delivery series include railcars 113, 167, and 634, all involved in this accident.

On the intermediate-level deck, all of the exterior sidewall windows could be removed by using an axe, a sledgehammer, or a similar impact tool to break the window glazing. Although emergency exit windows on the intermediate level had instructional signage and pull rings on the inside of the railcar, no instructional signage describing the window removal procedure was provided on the exterior sidewall near the intermediate-level deck windows, and such signage was not specifically required by regulations.

The upper- and lower-level decks of Metrolink delivery series 214 railcars[4] are fitted with the same exterior sidewall emergency access window configurations and exterior instructional signage as the series 200 and 207 cars described above. The intermediate-level deck windows can be removed without breaking the window glazing. Although not specifically required by regulation, intermediate-level exterior instructional signage was installed on this series of cars before the accident. The signage consists of a retro-reflective decal stating: "USE SCREWDRIVER TO PRY OUT SEAL SURROUNDING THE WINDOW PANE," along with additional step-by-step instructions.

Impact forces in this accident resulted in blockage of the stairway and the end bulkhead door of Metrolink cab car No. 634, essentially isolating passengers in one end of the car. Fortunately, the passengers were not incapacitated, and they were able to remove the emergency windows that, at the time of the accident, had instructional signage and pull rings on the inside (but not on the outside) of the windows. Removal of the windows from the outside would have been more difficult than from the inside. While well-equipped and trained emergency responders may be able to break or remove emergency exit windows to gain access to incapacitated passengers inside, the first people on the scene of railroad accidents are often nearby residents or passersby. Emergency access instructions on all emergency windows could aid such "good Samaritans" in providing assistance. The Safety Board concluded that the absence of exterior instructional signage on emergency exit windows of the Metrolink cars could hinder emergency response in future accidents, particularly in a scenario in which first responders might be untrained and ill-equipped civilian "good Samaritans."

FRA regulations do not specifically require exterior instructional signage for emergency responders on exterior intermediate-level deck emergency windows. Regulatory requirements for emergency window exits in passenger railcars are under 49 *Code of Federal Regulations* (CFR) 238.113, which states, "If the passenger car has multiple levels, each main level shall have a minimum of four emergency window exits, …." Regulatory requirements under 49 CFR 223.9(d)(1) and 49 CFR 223.9(d)(2), respectively, require that instructional signage describing emergency removal procedures be provided at the emergency window locations on both the inside and the outside of the railcar. Metrolink representatives told investigators that the intermediate level of the railcars is not considered a "main" level; hence, the exterior emergency windows at that level of the railcars were not required to have instructional signage.

Since the accident, Metrolink has taken steps to install such instructional signage on this series of railcar (a later delivery series had such signage installed) and is testing an emergency window design that will allow responders to remove intermediate-level windows from the outside without breaking them.

[4] None of which were involved in this accident.

The Safety Board is encouraged that Metrolink is taking prompt action to improve emergency access to its railcars but is concerned that passengers and crew riding on other railroads in the intermediate level of this type of railcar[5] may not be afforded the same degree of emergency access protection that is afforded to persons riding in the main level of that same railcar. The Safety Board therefore believes that the FRA should revise the language of 49 CFR 238.113(a)(1) to reflect that appropriate exterior instructional signage describing the emergency removal procedure be required at emergency windows on all levels of a multiple-level passenger railcar.

As the FRA is well aware, the Safety Board is concerned about the safety of railroad operations when backup systems are not available to intervene if a train crew operates a train improperly or fails to comply with wayside signals. Safety Board railroad accident investigations over the past 30 years have shown conclusively that the most effective way to avoid train-to-train collisions is through the use of positive train control systems that will automatically assume some control of a train when the train crew does not comply with the requirements of a signal indication.

Most recently, in its investigation of a May 28, 2002, collision of two BNSF freight trains near Clarendon, Texas, the Safety Board determined that the accident would have been prevented if an operational positive train control system had been in place on that section of track. Similarly, had such a system been in place and operational on the territory where the Placentia accident occurred, it would have intervened when the engineer failed to slow his train in response to the *approach* signal and would have stopped the train short of the *stop* signal. The Safety Board concluded that had a fully implemented positive train control system been in place on the BNSF San Bernardino Subdivision at the time of the accident, the system would have intervened to stop the freight train before it could enter into the track area occupied by Metrolink 809, and the collision would not have occurred.

Since 1969, the Safety Board has issued a number of safety recommendations related to positive train control. The most recent such recommendation was Safety Recommendation R-01-6, issued to the FRA as a result of the Safety Board's investigation of a train collision involving three freight trains in Bryan, Ohio.[6] In a response to the Safety Board's request for an update on the status of this recommendation, which is currently classified "Open–Acceptable Response," the FRA stated, in a May 5, 2003, letter to the Safety Board:

> FRA is doing everything within its power to prepare the way for PTC and encourage its rapid deployment. FRA shares the Board's disappointment that certain aspects of this work have not proceeded as rapidly as projected. For instance, the Association of American Railroads has yet to provide standards for interoperability of PTC systems. Nevertheless, we remain convinced that the momentum achieved to date, together with the strong potential for PTC technology to support other business needs, will result in the safety advances that we both seek.

[5] Approximately 300 railcars.

[6] National Transportation Safety Board, *Collision Involving Three Consolidated Rail Corporation Freight Trains Operating in Fog at Bryan, Ohio, January 17, 1999*, Railroad Accident Report NTSB/RAR-01/01 (Washington, DC: NTSB, 2001).

While the Safety Board understands that positive train control development is complex and expensive, the Board remains convinced that these systems provide the best approach to reduce human-error collisions. The Safety Board is aware of the BNSF program to develop a train collision avoidance system but remains concerned that it has taken so long for the FRA to require and for the railroad industry to develop and implement such systems. Therefore, the Safety Board reiterates Safety Recommendation R-01-06.

Based on its investigation of the April 23, 2002, collision at Placentia, California, the National Transportation Safety Board makes the following safety recommendation to the FRA:

> Revise the language of 49 *Code of Federal Regulations* 238.113(a)(1) to reflect that appropriate exterior instructional signage describing the emergency removal procedure be required at emergency windows on all levels of a multiple-level passenger railcar. (R-03-21)

In addition, the Safety Board reiterates the following, previously issued, safety recommendation to the Federal Railroad Administration:

> R-01-06
> 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.

The Safety Board also issued safety recommendations to the BNSF and to the Association of American Railroads. Please refer to Safety Recommendations R-03-21 and R-01-06 in your reply. If you need additional information, you may call (202) 314-6177.

Chairman ENGLEMAN, Vice Chairman ROSENKER, and Members GOGLIA, CARMODY, and HEALING concurred in this recommendation and reiteration.

Original Signed

By: Ellen G. Engleman
Chairman