



# National Transportation Safety Board

Washington, D.C. 20594

## Safety Recommendation

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**Date:** August 10, 2010

**In reply refer to:** R-10-4 and -5

The Honorable Peter M. Rogoff  
Administrator  
Federal Transit Administration  
1200 New Jersey Ave, SE  
Washington, D.C. 20590

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On Monday, June 22, 2009, about 4:58 p.m., eastern daylight time, inbound Washington Metropolitan Area Transit Authority (WMATA) Metrorail train 112 struck the rear of stopped inbound Metrorail train 214. The accident occurred on aboveground track on the Metrorail Red Line near the Fort Totten station in Washington, D.C. The lead car of train 112 struck the rear car of train 214, causing the rear car of train 214 to telescope<sup>1</sup> into the lead car of train 112, resulting in a loss of occupant survival space in the lead car of about 63 feet (about 84 percent of its total length). Nine people aboard train 112, including the train operator, were killed. Emergency response agencies reported transporting 52 people to local hospitals. Damage to train equipment was estimated to be \$12 million.<sup>2</sup>

The National Transportation Safety Board (NTSB) determined that the probable cause of the June 22, 2009, collision of WMATA Metrorail train 112 with the rear of standing train 214 near the Fort Totten station was (1) a failure of the track circuit modules, built by GRS/Alstom Signaling Inc., that caused the automatic train control system to lose detection of train 214 (the struck train) and thus transmit speed commands to train 112 (the striking train) up to the point of impact, and (2) WMATA's failure to ensure that the enhanced track circuit verification test (developed following the 2005 Rosslyn near-collisions) was institutionalized and used systemwide, which would have identified the faulty track circuit before the accident.

Contributing to the accident were (1) WMATA's lack of a safety culture, (2) WMATA's failure to effectively maintain and monitor the performance of its automatic train control system, (3) GRS/Alstom Signaling Inc.'s failure to provide a maintenance plan to detect spurious signals

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<sup>1</sup> *Telescoping* occurs when a railcar body breaches the end structure of another carbody and passes into the structure of that carbody.

<sup>2</sup> See *Collision of Two Washington Metropolitan Area Transit Authority Metrorail Trains Near Fort Totten Station, Washington, D.C., June 22, 2009*, Railroad Accident Report NTSB/RAR-10/02 (Washington, DC: National Transportation Safety Board, 2010) on the NTSB website at <<http://nts.gov/publicctn/2010/RAR1002.pdf>>.

that could cause its track circuit modules to malfunction, (4) ineffective safety oversight by the WMATA Board of Directors, (5) the Tri-State Oversight Committee's ineffective oversight and lack of safety oversight authority, and (6) the Federal Transit Administration's lack of statutory authority to provide federal safety oversight.

Contributing to the severity of passenger injuries and the number of fatalities was WMATA's failure to replace or retrofit the 1000-series railcars after these cars were shown in a previous accident to exhibit poor crashworthiness.

### **Safety Reporting Systems**

WMATA was required, under Title 49 *Code of Federal Regulations* (CFR) 659.31, to have a process for identifying and resolving hazards. WMATA's operations have several possible sources of information with which to identify potential hazards, including the results of audits and inspections as well as the data recorded in newer railcars and the advanced information system used by the operations control center to oversee train operations.

Other modes of transportation have established safety programs for collecting and analyzing recorded operations data and collecting reports of safety concerns and near-misses from frontline personnel, such as vehicle operators and maintenance technicians. In commercial aviation, for example, many airline operators use data from recorders on board their aircraft to monitor trends in operations and identify possible safety concerns. The recorded operational data provide objective safety information that is not otherwise obtainable. The value of operational data analysis programs is the possible early identification of some types of adverse safety trends that, if uncorrected, could lead to accidents.<sup>3</sup>

Similarly, non-punitive self-reporting programs—such as the Federal Aviation Administration's Aviation Safety Action Program<sup>4</sup> and Air Traffic Safety Action Program,<sup>5</sup> and the National Aeronautics and Space Administration's Aviation Safety Reporting System<sup>6</sup>—allow individuals to report safety issues without fear that the reports will be used to take disciplinary or enforcement action against them.

The Federal Railroad Administration (FRA) is currently conducting pilot tests of the Confidential Close Call Reporting System (C<sup>3</sup>RS).<sup>7</sup> The C<sup>3</sup>RS is a voluntary, confidential program of the FRA, the Bureau of Transportation Statistics (BTS), the U.S. Department of Transportation (DOT) Volpe Center, railroad carriers, carrier employees, and labor organizations.

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<sup>3</sup> See Federal Aviation Administration Advisory Circular (AC) 120-82, *Flight Operations Quality Assurance*: <[http://www.airweb.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgAdvisoryCircular.nsf/0/40C02FC39C1577B686256E8A005AFB0A](http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/40C02FC39C1577B686256E8A005AFB0A)>.

<sup>4</sup> See Federal Aviation Administration AC 120-66B, *Aviation Safety Action Program (ASAP)*: <[http://www.airweb.faa.gov/Regulatory\\_and\\_Guidance\\_Library/rgAdvisoryCircular.nsf/0/61C319D7A04907A886256C7900648358](http://www.airweb.faa.gov/Regulatory_and_Guidance_Library/rgAdvisoryCircular.nsf/0/61C319D7A04907A886256C7900648358)>.

<sup>5</sup> See Federal Aviation Administration Air Traffic Organization Policy Notice, N JO 7210.741, *Air Traffic Safety Action Program (ATSAP)*: <<http://www.faa.gov/documentLibrary/media/Notice/N7210.741.pdf>>.

<sup>6</sup> A detailed description is available on the Aviation Safety Reporting System website at <<http://asrs.arc.nasa.gov/>>.

<sup>7</sup> Three C<sup>3</sup>RS demonstration sites are currently in operation, with a fourth scheduled to begin in fall 2010.

Operators implement the reporting system, employees make reports, labor organizations represent employees, the FRA sponsors and oversees the program, the BTS and the Volpe Center act as independent third-party managers, and a peer review team of various stakeholder representatives oversees corrective actions. The C<sup>3</sup>RS includes several qualities that have been considered critical to the success of other safety reporting systems, including the following:

- The system is designed to capture close calls, safety concerns, and suggestions from all employees.
- The reporting process is voluntary and designed to maintain reporter confidentiality.
- The system provides the reporter protection from discipline and enforcement action, except in the case of intentional misconduct.
- The system is managed by an independent third-party—in this case, the BTS and the DOT Volpe Center.
- The system includes a mechanism to distribute reports (with identification removed) on safety trends and corrective actions to all participating organizations.
- The system tracks carrier reports on corrective actions to measure system impact on safety.
- The system evaluates and identifies ways to improve reporting system effectiveness.

Regular reviews of recorded data and non-punitive safety reports from these programs have identified safety issues and trends that would not have been readily identified through traditional oversight programs. The NTSB concludes that the safety of rail transit operations would be improved by periodic transit agency review of recorded operational data and non-punitive safety reports, which have been demonstrated to be effective tools for identifying safety problems in other modes of transportation. The NTSB therefore recommends that the Federal Transit Administration (FTA) facilitate the development of non-punitive safety reporting programs at all transit agencies to collect reports from employees in all divisions within their agencies and to have their safety departments; representatives of their operations, maintenance, and engineering departments; and representatives of labor organizations regularly review these reports and share the results of those reviews across all divisions of their agencies.

### **Federal Provisions for Transit Employee Toxicological Testing**

After the accident, WMATA did not obtain toxicological specimens from the fatally injured operator of train 112 (the striking train). Such a collection was not required by FTA regulation. The FTA requires that

As soon as practicable following an accident involving the loss of a human life, an employer shall conduct drug and alcohol tests on each surviving covered employee operating the mass transit vehicle at the time of the accident.<sup>8</sup>

The train 112 operator did not survive the accident and thus was not covered by this requirement.

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<sup>8</sup> Title 49 CFR 655.44(a)(1)(i).

DOT regulations state that a transit agency “must not collect, by catheterization or other means, urine from an unconscious employee to conduct a drug test under this part.”<sup>9</sup> This DOT regulation does not address fatally injured employees.

Although the NTSB was able to obtain specimens from the deceased operator under its own authority, it is concerned that specimens cannot be obtained by WMATA or other transit agencies for their transit employees who are fatally injured while on duty. The NTSB notes that, in contrast to FTA regulations, FRA regulations require that drug testing specimens be obtained from a fatally injured railroad employee.<sup>10</sup>

At the time of this accident, federal regulations did not permit transit agencies to collect toxicological specimens from employees killed or rendered unconscious by on-duty accidents. The NTSB concludes that the FTA’s lack of toxicological specimen authority prevents transit agencies from collecting pertinent information for determining the circumstances of transit accidents. The NTSB therefore recommends that the FTA seek authority similar to FRA regulations (49 CFR 219.207) to require that transit agencies obtain toxicological specimens from covered transit employees and contractors who are fatally injured as a result of an on-duty accident.

Therefore, the National Transportation Safety Board makes the following safety recommendations to the Federal Transit Administration:

Facilitate the development of non-punitive safety reporting programs at all transit agencies to collect reports from employees in all divisions within their agencies and to have their safety departments; representatives of their operations, maintenance, and engineering departments; and representatives of labor organizations regularly review these reports and share the results of those reviews across all divisions of their agencies. (R-10-4)

Seek authority similar to Federal Railroad Administration regulations (Title 49 *Code of Federal Regulations* 219.207) to require that transit agencies obtain toxicological specimens from covered transit employees and contractors who are fatally injured as a result of an on-duty accident. (R-10-5)

The NTSB also issued safety recommendations to the Department of Transportation, the Tri-State Oversight Committee, the Washington Metropolitan Area Transit Authority Board of Directors, the Washington Metropolitan Area Transit Authority, Alstom Signaling Inc., the Massachusetts Bay Transportation Authority, the Southeastern Pennsylvania Transportation Authority, the Greater Cleveland Regional Transit Authority, the Metropolitan Atlanta Regional Transportation Authority, the Los Angeles County Metropolitan Transportation Authority, and the Chicago Transit Authority.

In response to the recommendations in this letter, please refer to Safety Recommendations R-10-4 and -5. If you would like to submit your response electronically rather

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<sup>9</sup> Title 49 CFR 40.61(b)(3).

<sup>10</sup> Title 49 CFR 219.207.

than in hard copy, you may send it to the following e-mail address: [correspondence@ntsb.gov](mailto:correspondence@ntsb.gov). If your response includes attachments that exceed 5 megabytes, please e-mail us asking for instructions on how to use our secure mailbox procedures. To avoid confusion, please use only one method of submission (that is, do not submit both an electronic copy and a hard copy of the same response letter).

Chairman HERSMAN, Vice Chairman HART, and Members SUMWALT, WEENER, and ROSEKIND concurred in these recommendations.

*[Original Signed]*

By: Deborah A.P. Hersman  
Chairman