

NATIONAL TRANSPORTATION SAFETY BOARD
Public Meeting of February 6, 2018
(Information subject to editing)

Special Investigation Report
End-of-Track Collisions at Terminal Stations, Hoboken, New Jersey, September 29, 2016,
and Atlantic Terminal, Brooklyn, New York, January 4, 2017

NTSB/SIR-18/01

This is a synopsis from the NTSB's report and does not include the Board's rationale for the conclusions, probable cause, and safety recommendations. NTSB staff is currently making final revisions to the report from which the attached conclusions and safety recommendations have been extracted. The final report and pertinent safety recommendation letters will be distributed to recommendation recipients as soon as possible. The attached information is subject to further review and editing to reflect changes adopted during the Board meeting.

Executive Summary

The National Transportation Safety Board launched investigative teams to two very similar accidents within 13 weeks of one another. In both accidents, the engineers failed to stop their trains before reaching the end of a terminating track at a station. The September 29, 2016, accident on the New Jersey Transit commuter railroad at Hoboken, New Jersey, killed one person, injured 110, and resulted in major damage to the passenger station. The January 4, 2017, accident on the Long Island Rail Road, (a subsidiary of Metropolitan Transportation Authority) at the Atlantic Terminal in Brooklyn, New York, injured 108 people.

As the National Transportation Safety Board investigations progressed, it became apparent that these accidents had almost identical probable causes and safety issues. The National Transportation Safety Board also realized that these safety issues were not unique to these two properties, but exist throughout the United States at many intercity passenger and commuter passenger train terminals.

This special investigation report includes discussions of both accidents, examines the common safety issues, and reviews the steps taken by New Jersey Transit and Long Island Rail Road in response to these accidents.

This report addresses the following safety issues:

- **Improving measures to ensure that engineers are fit for duty.** The National Transportation Safety Board has found untreated obstructive sleep apnea to be a causal factor in many highway and railroad accidents.

- **Installing positive train control at terminal tracks.** All passenger railroads that operate terminals with terminating tracks, including New Jersey Transit and Long Island Rail Road, have asked to be excluded from installing positive train control and the Federal Railroad Administration has granted all the requests.
- **Developing and implementing safety management systems.** In these accidents, the National Transportation Safety Board did not find evidence of either New Jersey Transit or Long Island Rail Road having a formal hazard analysis for trains operating into a terminal track, despite earlier accidents on both railroads where trains had struck the bumping post at the end of the track. Although the accidents were significantly less severe than the accidents discussed here, they established that the hazard existed and that another accident could occur.

PROBABLE CAUSES

Probable causes for each of the two accidents are noted in the accident briefs, which will be issued concurrently with the Special Investigation Report.

Hoboken

The National Transportation Safety Board determined that the probable cause of the Hoboken, New Jersey, accident was the failure of New Jersey Transit train 1614's engineer to stop the train after entering Hoboken Terminal due to the engineer's fatigue resulting from his undiagnosed severe obstructive sleep apnea. Contributing to the accident was New Jersey Transit's failure to follow its internal obstructive sleep apnea screening guidance and refer at-risk safety-sensitive personnel for definitive obstructive sleep apnea testing and treatment. Further contributing to the accident was the Federal Railroad Administration's failure to require railroads to medically screen employees in safety-sensitive positions for obstructive sleep apnea and other sleep disorders. Also contributing to the accident was the lack of either a device or safety system that could have intervened to stop the train before the collision.

Brooklyn

The National Transportation Safety Board determined the probable cause of the Brooklyn, New York, accident was that the engineer of Long Island Rail Road train 2817 fell asleep due to his chronic fatigue. Contributing to his chronic fatigue was the engineer's severe undiagnosed obstructive sleep apnea, and Long Island Rail Road's failure to initiate obstructive sleep apnea screening for safety-sensitive personnel and refer at-risk safety-sensitive personnel for definitive obstructive sleep apnea testing and treatment before the accident. Further contributing to the accident was the Federal Railroad Administration's failure to require railroads to medically screen employees in safety-sensitive positions for obstructive sleep apnea and other sleep disorders. Also contributing to the accident was the lack of either a device or a safety system that could have intervened to stop the train before the collision.

Findings

1. Lapses in the New Jersey Transit engineer's alertness prior to the accident resulted from his undiagnosed and untreated severe obstructive sleep apnea.
2. The failure of the New Jersey Transit obstructive sleep apnea screening program to adequately screen the engineer and refer him for definitive diagnostic testing and subsequent treatment contributed to the accident.
3. The failure of New Jersey Transit to follow internal guidance and refer at-risk safety-sensitive personnel including the engineer and other at-risk crew members for obstructive sleep apnea screening is evidence of a systemic failure of a critical safety system to ensure these personnel were fit for duty.
4. It was likely that fatigue from a variety of factors—including a rotating schedule, insufficient nightly sleep, poor sleep habits, and impaired sleep quality undiagnosed and untreated severe obstructive sleep apnea—resulted in the Long Island Rail Road engineer falling asleep during entry into the terminal, causing the collision.
5. The failure of the Federal Railroad Administration to adequately address the issue of employee fatigue due to obstructive sleep apnea and other sleep disorders, most recently evidenced by the August 2017 withdrawal of the advance notice of proposed rulemaking, jeopardizes public safety.
6. These accidents demonstrate the need for effective screening programs to reduce the risk of safety-sensitive employees with untreated obstructive sleep apnea operating trains.
7. Since the Federal Railroad Administration did not implement Safety Recommendation R-12-16 or comply with the legislated time limit in the Rail Safety Improvement Act to require railroads to develop and implement fatigue management plans, New Jersey Transit and Long Island Rail Road were not required to have a screening and treatment program for obstructive sleep apnea.
8. The New Jersey Transit obstructive sleep apnea screening and treatment program should reduce the risk safety-sensitive employees with undetected and untreated obstructive sleep apnea pose to rail safety.
9. The Metropolitan Transportation Authority obstructive sleep apnea screening and treatment program should reduce the risk safety-sensitive employees with undetected and untreated obstructive sleep apnea pose to rail safety.
10. As evidenced by these two accidents, relying solely on an engineer's ability to stop his or her train before reaching the end of these tracks does not provide the level of safety necessary to protect the public.
11. Bumping posts, of the type used in Hoboken and Atlantic Terminals, do not by themselves provide adequate protection at the end of a track.

12. Both the New Jersey Transit and the Long Island Rail Road system safety program plans were ineffective in identifying operational hazards associated with operating trains into terminal tracks.
13. The use of operating rules and procedures to mitigate end-of-track collisions was an inadequate method for preventing these accidents because it failed to eliminate the possibility of a single point failure.
14. New Jersey Transit and Long Island Rail Road did not consider that the previous end-of-track collisions represented an increased risk of future accidents.
15. If both New Jersey Transit and the Long Island Rail Road system safety program plans had identified obstructive sleep apnea screening as a risk-reduction action when evaluating employees for fitness for duty, it would have been unlikely that these employees would have been operating trains with undiagnosed and untreated obstructive sleep apnea.
16. If the Federal Railroad Administration, at a minimum, instructed railroads to use the *Collision Hazard Analysis Guide: Commuter and Intercity Passenger Rail Service* when identifying and mitigating hazards, commuter and intercity railroad safety would be improved.

RECOMMENDATIONS

New Recommendations

As a result of these investigations, the National Transportation Safety Board makes the following new safety recommendations:

To the Federal Railroad Administration:

1. Require intercity passenger and commuter railroads to implement technology to stop a train before reaching the end of tracks.
2. Include the *Collision Hazard Analysis Guide for Commuter and Intercity Passenger Rail Service* as part of the regulation or part of a detailed compliance manual to assist railroads in implementing Title 49 *Code of Federal Regulations* Part 270.

To New Jersey Transit and Metropolitan Transportation Authority (parent company of Long Island Rail Road):

3. Review and revise the hazard management portion of your system safety program plans to ensure that they document previous incidents and use them when identifying and assessing operational hazards.
4. Ensure that operator impairment due to medical conditions, including obstructive sleep apnea, is part of the hazard management portion of your system safety program plan.

Previously Issued Recommendations Reiterated in this Report

As a result of these investigation, the National Transportation Safety Board reiterates the following previously issued safety recommendations:

To the Federal Railroad Administration:

1. Require railroads to medically screen employees in safety-sensitive positions for sleep apnea and other sleep disorders. (R-12-16)
2. Develop and enforce medical standards that railroad employees in safety-sensitive positions diagnosed with sleep disorders must meet to be considered fit for duty. (R-16-044)