



National Transportation Safety Board

Washington, DC 20594

Railroad Accident Brief

National Passenger Railroad Corporation (Amtrak) Passenger Train 55 Collision with Rocks and Subsequent Derailment on the New England Central Railroad Northfield, Vermont

The Accident

On October 5, 2015, at 10:22 a.m. eastern daylight time (EDT), southbound National Passenger Railroad Corporation (Amtrak) passenger train 55 derailed at milepost (MP) 65.2 after striking a rock pile that fouled the track on the New England Central Railroad (NECR) Roxbury Subdivision track near Northfield, Vermont.¹ The collision caused the locomotive and four coach cars to derail; the locomotive and the first coach car slid down a steep embankment. (See figure 1.) Four train crew members and three passengers were injured. Amtrak estimated the equipment damages at \$10 million, and the NECR estimated the track-related damages at \$200,000.

The NECR Roxbury Subdivision is in a geographic north-south orientation between St. Albans, Vermont, and White River, Vermont. The track was not equipped with slide-fence detectors that could provide a warning to the approaching trains. Amtrak restricts the operational maximum authorized speed to 59 mph. The event recorder data indicated that the train was operating at 59 mph a few seconds prior to the collision.

¹ All times referenced in the report are eastern daylight times (EDT).

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Figure 1. View of derailment (white arrow points to the coach car; yellow arrow points to the locomotive.)

On October 5, 2015, at 8:13 a.m., the crew (the engineer, the conductor, the assistant conductor, and the lead service attendant) went on duty at Saint Albans. The engineer and conductor tested the air brakes, and they departed with the train 45 minutes later. On its last stop prior to the accident, the train stopped at Montpelier, Vermont, to pick up passengers. At that time, the passenger count was 98. The train departed Montpelier while operating under track warrant control authority.²

At 10:21 a.m., the train dispatcher provided the assistant conductor with a track warrant that authorized the train to continue southbound between MP 68 and 19. One minute later, as the train traversed a curve, the engineer observed an obstruction ahead on the track and initiated an emergency-brake application. The locomotive struck a large rock pile that was on the tracks. (See

² Track Warrant Control is a method to authorize train movements or protect men or machines on a main track within specified limits designated by the timetable.

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figure 2.) The collision with the rocks caused the locomotive and the first coach car to derail over a steep embankment to the southeast. The locomotive and coach car traveled about 310 feet beyond the point of derailment and about 85 feet down the embankment from the main track.



Figure 2. A photo from digital forward-facing video recorder on locomotive.

Emergency Response

The first 911 call was received at 10:25 a.m. The 911 response center dispatched the Northfield Police Department, the Northfield Fire Department, Northfield Ambulance Service, and the Vermont State Police. Mutual aid resources included the fire department and the emergency medical services resources from Montpelier, Roxbury, Berlin, the City of Barre, and the Town of Barre.

The first responders began arriving on scene at 10:31 a.m., or 9 minutes after the derailment. Immediately after the derailment, the crewmembers directed the passengers through the cars to an exit at the rear of the train. The firefighters and the law enforcement officers helped passengers climb up a hill onto a nearby residential property.

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Method of Operations

Train crews operating on the Roxbury Subdivision were governed by the *General Code of Operating Rules*³ (GCOR) and by the Roxbury Subdivision timetable specific instructions and Amtrak air brake train handling rules.⁴ The NECR's train dispatcher was at the St. Albans, Vermont, American Rail Dispatch Center (ARDC).

Typically for the subdivision, the NECR daily operated one freight train and one Amtrak train in each direction. On some days, when required, additional freight trains operated on the subdivision.

Track and Engineering: Derailment Site

The track prior to the point of the derailment had curves and straight track with alternate cuts and fills. This track had an ascending grade of 0.75 percent southward. At MP 66 South, the track had right-hand and left-hand reverse curves followed by a 0.3-mile tangent. The last curve prior to the derailment area beginning at MP 65.3 was a 3-degree, 21-minute right-hand curve with a super-elevation of 5 1/4 inches. A rock formation and trees with dense vegetation was to the right side of the track as seen from southbound direction. To the left side of the track, an 85-foot embankment was present.

Track Inspection

The subdivision was visually inspected twice per week by a qualified NECR track inspector in a hi-rail vehicle. This effort was supplemented by walking inspections that were completed at the discretion of the inspector. On October 2, 2015, a track inspector performed the last track inspection prior to the derailment. The inspection found no reportable track defects near MP 65.2.

Site Geology

Investigators met with Vermont geologists, who provided an overview of the rock formation at the accident site and in the vicinity. Geologists determined that the rock formation at the accident site is predominantly Harlow Bridge quartzite and rusty schist. However, multiple types of rock formations exist in the vicinity. Most of the rock structures in the area have steep slopes.

³ GCOR, 7th edition, effective April 1, 2015.

⁴ A timetable is a railroad publication with instructions on train, engine, or equipment movement.

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Environmental Hazard Mitigation

Although the NECR had a safety program at the time of the accident, the NECR did not have a formalized hazard management and assessment program that addressed rock slide risk management and mitigation. Although track inspectors could notate anomalies along the right-of-way, the NECR did not keep or maintain the historical data on rock slides. The NECR had neither a rockfall detection program nor a rock face program maintenance initiative prior to the accident. After the accident, geologists identified two additional NECR locations where rock slide mitigation was recommended. The NECR implemented speed restrictions for trains at these two locations.

Probable Cause

The National Transportation Safety Board determines that the probable cause of the accident was the collision of the train with debris from a rock slide that fouled the track.

For more details about this accident, visit www.nts.gov/investigations/dms.html and search for NTSB accident ID DCA16FR001.

Adopted: June 7, 2017

The NTSB has authority to investigate and establish the facts, circumstances, and cause or probable cause of a railroad accident in which there is a fatality or substantial property damage, or that involves a passenger train. (49 U.S. Code § 1131 - *General authority*)

The NTSB does not assign fault or blame for an accident or incident; rather, as specified by NTSB regulation, “accident/incident investigations are fact-finding proceedings with no formal issues and no adverse parties . . . and are not conducted for the purpose of determining the rights or liabilities of any person.” 49 *Code of Federal Regulations*, Section 831.4. Assignment of fault or legal liability is not relevant to the NTSB’s statutory mission to improve transportation safety by investigating accidents and incidents and issuing safety recommendations. In addition, statutory language prohibits the admission into evidence or use of any part of an NTSB report related to an accident in a civil action for damages resulting from a matter mentioned in the report. 49 *United States Code*, Section 1154(b).
