National Transportation Safety Board

Railroad Accident Brief

National Passenger Rail Corporation Maintenance-of-Way Employee Fatality

Accident No.:	DCA14FR003
Location:	Clermont, New York
Date:	October 29, 2014
Time:	10:56 a.m. eastern daylight time
Train:	Amtrak A280
Railroad:	National Passenger Rail Corporation (Amtrak)
Injuries:	0
Fatalities:	1
Type of Accident:	Employee fatality

The Accident

On October 29, 2014, at 10:56 a.m. eastern daylight time, National Railroad Passenger Corporation (Amtrak) train A280 struck and killed an Amtrak signal helper. Earlier that morning, the Amtrak employee had provided protection for a contractor who was installing cable earlier near milepost 100.9 in Clermont, New York.[1] At the time of the accident, the sky was overcast with occasional rain; the temperature was 58° F. There were 128 passengers on board the train. An engineer and an engineer who was qualifying for a new territory were in the locomotive cab; a conductor and an assistant conductor were in the passenger cars. No one on the train was injured.

Train A280 left from Niagara Falls, New York, at 9:06 a.m. and was bound for Penn Station in New York City, New York. The crew boarded the train in Albany, New York, leaving the station at 10:20 a.m. In the area of the accident, Amtrak maintains and operates two main tracks, main track 1 and main track 2. The maximum authorized operating speed for both tracks is 90 mph. A review of the event recorder data showed train A280 was operating at 83.6 mph before the engineer began emergency braking.

Train A280 consisted of one locomotive and five passenger coaches. As the southbound train was rounding a 1-degree curve, the engineer said he observed two orange objects in the distance at the far end of the curve where the track was straight. (See figure 1.) He thought they were workers and immediately began sounding the horn to alert them. The audio and video from the outward-facing camera and the data from the event recorder confirmed the horn sounded at 10:55:20 a.m.

[1] Train A280 is Amtrak's timetable designation for this train.
All times in this brief are eastern daylight time.
In this report, all train movements and track references will refer to timetable direction.

Figure 1. Recreation showing point where worker likely became visible to train crew—1,540 feet.

The video shows the signal helper, wearing an orange coat with a hood over her head, walking south between the rails of main track 1 with her back to the approaching train. According to the event recorder data, the horn was sounded continuously from 10:55:20 a.m. to 10:55:36 a.m. The engineer said he saw the signal helper raise her right arm and wave her hand as she continued to walk with her back to the train. He said maintenance employees make the gesture to acknowledge the presence of a train, though usually in conjunction with turning to visually confirm the train's location. Although the video did not clearly show the employee waving, it did confirm her presence between the rails of main track 1.

The engineer activated the emergency air brakes at 10:55:28 a.m., as the signal helper continued walking between the rails. He said her hands were below her shoulders, moving back and forth as she walked. The video clearly shows the signal helper did not turn around to observe the approaching train; her gait did not change nor did she exhibit a startle response, which suggests she was unaware the train was on the track where she was walking. [2] Event recorder data indicate the train had slowed to about 73 mph at impact. The employee was struck 16 seconds after the horn first sounded.

When the train came to a stop, the engineer immediately radioed the dispatcher that an employee had been struck by the train. Columbia County Emergency Medical Services and two

[2] A startle response is an automatic human reaction to the sudden onset or detection of a stimulus. A startle response often is protective or defensive in nature, occurring without control or moderation by the person affected by a threatening or surprising stimulus.

area fire departments were dispatched to the scene. The Columbia County Sheriff's Office and Columbia County Office of the Coroner also responded.

The signal helper died instantly. The autopsy report stated no drugs or alcohol were in her system.

A relief crew arrived on the scene and operated the A280 train to Albany, New York; the engineers involved in the accident gave written statements to Amtrak officials and were taken to a clinic for toxicological testing. The test results were negative for drugs and alcohol for both engineers.[3]

NTSB Investigation

The day of the accident the Amtrak signal helper reported to work in Hudson, New York, at 6:00 a.m. The employee-in-charge (EIC) told NTSB investigators he had conducted a job briefing about on-track safety with 25 or 26 employees that morning.[4] The EIC told the group main track 2 would be out-of-service and main track 1 would be in service. The signal helper was not present, so the EIC said he asked another employee to conduct a job briefing with the signal helper and give her the same information that was presented in the initial briefing. The signal helper signed the same document the other employees signed confirming she had attended the job briefing. The employee who briefed the signal helper told NTSB investigators he emphasized that main track 2 was out of service. As shown in the following table (Table 1), track 2 was out of service three days the signal helper worked in early October; main track 1 was out of service for the 10 days the signal helper worked prior to the accident. The day of the accident, the out-of-service track was main track 2.

[3] The Federal Railroad Administration only requires testing for certain drugs.

[4] According to Amtrak's*Roadway Worker Protection Manual*, **a** job briefing is a meeting conducted before going to work. During the job briefing, the work unit meets to discuss all aspects of the work to be performed and any safety concerns. Anyone can conduct a job briefing.

On-track safety is a state of being free from the danger of being struck by a moving railroad train or other railroad equipment. It is achieved by adhering to operating and safety rules that govern track occupancy by personnel, trains, and on-track equipment.

Table 1. Calendar showing out-of-service tracks and signal helper's work days during October.

October 2014						
			1 Track 1 Out of Service SH* on Duty	**2** Track 1 Out of Service SH on Duty	**3** Track 1 Out of Service SH on Duty	**4**
5	**6** Track 1- Out of Service SH on Duty	**7** Track 2 Out of Service SH on Duty	**8** Track 1 Out of Service SH on Duty	**9** Track 2 Out of Service SH on Duty	**10** Track 2 Out of Service SH on Duty	**11**
12	**13** Track 1 Out of Service	**14** Track 1 Out of Service SH on Duty	**15** Track 1 Out of Service SH on Duty	**16** Track 1 Out of Service SH on Duty	**17** Track 1 Out of Service SH on Duty	**18** SH on Duty
19	**20** Track 1 Out of Service SH on Duty	**21** Track 1 Out of Service SH on Duty	**22** Track 1 Out of Service SH on Duty	**23** Track 1 Out of Service SH on Duty	**24** Track 1 Out of Service SH on Duty	**25**
26	**27** Track 1 Out of Service SH on Duty	**28** Track 2 Out of Service** SH on Duty	**29**	**30**	**31**	

*Signal helper
**Day of accident

The signal helper's first assignment on the day of the accident was to transport the train crew from their lodging to the train. Her second assignment was to provide on-track safety for the contractor, which means she would ask the dispatcher to keep trains and equipment from using the track in the area where they were working.[5] A post accident review showed she helped the contractor cross track 1 to get to the work area, radioing the dispatcher on two occasions to ensure there would be no movement of trains or equipment at specific points on main track 1. The last time she talked to the dispatcher—about 42 minutes before the accident—she told him they were no longer working on or near the track.

Investigators interviewed the contractor, who was the last person to talk to the signal helper before the accident. He recalled that after they finished working near the tracks, she went to her truck for a while. Later, she approached him and said she was going to stretch her legs. After their brief conversation, the contractor resumed his off-track work, standing up as train A280 passed. He said he knew something unusual had happened when the train came to a stop. Investigators inspected the signal helper's truck and found a cell phone. A review of the cell phone and text message data did not reveal anything unusual. No prohibited electronic devices were available to her while she was on main track 1 at the time of the accident.

[5] According to Amtrak's *Roadway Worker Protection Manual*, foul time **is** a method of establishing working limits on controlled track in which a roadway worker is notified by the train dispatcher or control operator that no trains will operate within a specific segment of controlled track until the roadway worker reports clear of the track.

Personnel Information

The signal helper was 41 years old. She went to work for Amtrak on September 3, 2013, and received two weeks of employee safety training. This initial training qualified her to become a roadway worker. She qualified as a watchman on May 15, 2014, and qualified on Northeast Operating Rules Advisory Committee rules on August 14, 2014.[6] She had held the signal helper position since August 4, 2014. She was qualified to provide on-track protection for herself and others. Records showed she had no previous injuries.

The signal helper's last physical examination was on August 7, 2013. Her vision and hearing were normal.

An Amtrak supervisor performed 30 safety observations on the signal helper during her tenure. No instances of non-compliance were recorded. She was last observed 8 days before the accident.

Roadway Worker Safety Rules

Amtrak rules prohibit employees from being on or near a track, which is known as "fouling" a track. Amtrak's *Roadway Worker Protection Manual* rule 313 states:

> Each roadway worker is responsible for following the Amtrak on-track safety program when working on Amtrak owned or leased property. A roadway worker will not foul a track except when necessary for the performance of duty. Each roadway worker is responsible to ascertain that on-track safety is being provided before fouling a track.

In addition, Title 49 Code of Federal Regulations Section 214.313 (b) states:

> A roadway worker shall not foul a track except when necessary for the performance of duty.

Postaccident Actions

Amtrak immediately began communicating with employees about the accident, taking the following actions:

- Amtrak's president and chief executive officer informed all employees about the incident via e-mail. He went to the scene and talked personally with the employees who were directly involved in the accident and the aftermath, including the train crew, maintenance-of-way employees, and the contractor. The day after the accident, Amtrak

[6] Amtrak requires employees to receive instruction and pass an annual operating rules test to maintain their qualifications for certain positions.

initiated a Safety Stand Down across the system, emphasizing on-track safety procedures[7]

- Supervisors and managers discussed roadway worker protection (RWP) with all engineering department personnel

- Amtrak developed and distributed a safety alert on November 10, 2014, emphasizing on-track safety principles

- Amtrak's Engineering Department held RWP training (annual refresher camps), which included in-depth discussions about on-track safety procedures led by senior managers

- Amtrak's engineering department safety team issued its Weekly Safety Focus for November 17—23, 2014, prominently displaying the following:

> It is prohibited to wear anything under or over hard hats or on the body that compromises the peripheral vision of a roadway worker.

- Amtrak initiated the development of an individual briefing log. When implemented, each employee will be required to fill out the form while receiving the briefing from the EIC. Amtrak believes this will increase employee participation and individual attention during the briefing and be a reference for the employee on the protection being provided.

Prior NTSB Safety Actions

Since 2008 the NTSB has issued many safety recommendations addressing the safety of roadway workers on or near the tracks. These recommendations address a wide range of issues, including:

- Enhanced job briefings before each shift (for example, increased hazard recognition and risk mitigation)

- Implementation of technology to alert roadway workers of the presence of trains

- Evaluation of dispatching systems and the addition of safety redundancies to those systems

- Providing redundant signal protection, such as shunting[8]

[7] A "safety stand down" is a focused effort by a railroad to communicate the details of a recent incident to employees and outline the measures the railroad is taking to prevent a re-occurrence. Typically, a review of appropriate safety rules or guidelines is emphasized.

[8] Shunting involves making an electrical connection between the two rails to simulate the presence of a train, typically with a cable. Shunting causes the signal system to display stop indications to trains approaching the area where shunts are applied.

- Promotion of awareness and prevention of alcohol and drug abuse by roadway workers
- Revisions to roadway worker protection procedures on freight and transit lines

In 2013, 11 railroad roadway workers died while working on the nation's railroads doing their jobs—the largest number killed on duty since 1995 when 12 died. Also in 2013, four rail transit roadway workers died. These deaths prompted the NTSB to issue a special investigation report on railroad and rail transit roadway worker deaths in September 2014.[9] The report detailed the circumstances of these deaths, which included falls from bridges, incidents involving bucket lifts, strikes by moving equipment, and natural hazards that included a mudslide. The report also identified the following recurring safety issues: inadequate job briefings, regulation and safety oversight, and safety culture and safety management systems.

The NTSB Special Investigation Report on Railroad and Rail Transit Roadway Worker Protection confirmed that being on or near tracks is hazardous, and employees should expect train movement on any track, at any time, in any direction. When a train is approaching an employee who is on or near the track, a member of the train crew is required to sound an audible warning; maintenance-of-way employees should be made aware that visual verification of a train's location is vital to their safety.

Probable Cause

The National Transportation Safety Board determines the probable cause of the accident was that the signal helper was occupying main track 1 without securing on-track protection.
For more details about this accident, visit www.ntsb.gov/investigations/dms.html and search for NTSB accident ID DCA14FR003.

Adopted: August 7, 2015

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

[9] National Transportation Safety Board, *Special Investigation Report on Railroad and Rail Transit Roadway Worker Protection*, SIR-14/03 (Washington, DC: National Transportation Safety Board, 2014).

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).