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Railroad Investigation Report: RIR-22/01

Housatonic Railroad Company

Employee Fatality

North Canaan, Connecticut

October 14, 2020

1. Factual Information

1.1 The Accident

On October 14, 2020, about 2:50 p.m. local time, a Housatonic Railroad Company (HRRC) employee working as the roadway worker-in-charge (RWIC) of a group of track workers was struck and killed by a rail-mounted track excavator that was traveling on an out-of-service track in North Canaan, Connecticut.¹ Figure 1 shows the accident scene.

¹ (a) Visit [nts.gov](https://www.nts.gov) to find additional information in the [public docket](#) for this National Transportation Safety Board (NTSB) accident investigation (case number RRD21LR002). Use the [CAROL Query](#) to search safety recommendations and investigations. (b) *Rail-mounted* means that the machine was mounted and traveling on railroad tracks. (c) A *tracked excavator* is a machine with a digging bucket used to move and grade dirt and gravel.

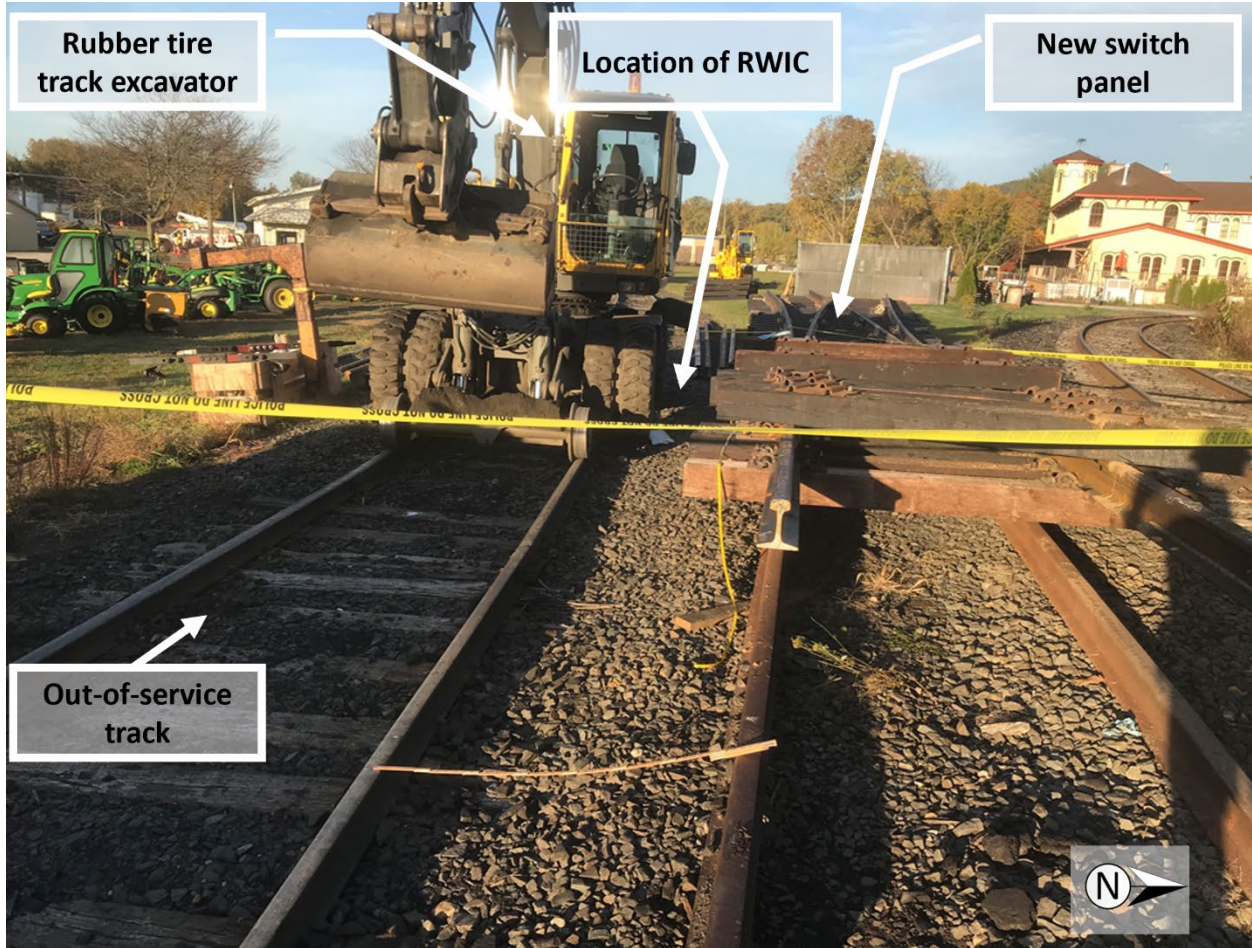


Figure 1. Photograph of the accident scene. (Photograph courtesy of the Federal Railroad Administration.)

The RWIC and a track worker were working on the out-of-service track and had recently completed measurements of a new switch panel that was located along the north side of the out-of-service track. The new switch panel was scheduled for installation the next day. The RWIC was standing clear of the out-of-service track at the west end of the new switch panel when the track excavator operator moved the excavator near the RWIC's location to discuss the measurement. After the conversation, the track excavator operator moved the machine forward (east). Based on evidence recovered from the accident scene and unbeknownst to the track excavator operator, as the machine was moving forward, the RWIC began rolling up his measuring tape while walking along the left side of the out-of-service track, placing himself between the new switch panel and the moving track excavator. The clearance between the new switch panel and the track excavator gradually reduced to about 2 feet as the track excavator continued to move. Eventually, the track excavator's rubber tire struck the RWIC, causing fatal injuries.

In an interview with investigators from the National Transportation Safety Board (NTSB) and the Federal Railroad Administration (FRA), the track excavator operator said that he glimpsed movement behind him and slightly to his left in the seconds prior to the

accident.² Investigators interviewed the three other HRRC employees who were part of the track work group at the time of the accident; however, none of them witnessed the accident. There was no video footage available from the track excavator or from surrounding facilities that captured the accident.

1.2 Before the Accident

The other track workers of the HRRC work group told NTSB and FRA investigators that on the morning of the accident prior to beginning work, around 6:30 a.m., they met for the federally mandated job briefing led by the RWIC.³ The plan was to remove the existing switch, excavate the area, and prepare the new switch panels for replacement the next day. At 8:01 a.m., the RWIC placed the track out of service so that work could resume. In interviews with investigators, the other track workers in the work group said that they went about their work assignments prior to the accident and described the RWIC as being alert, engaged, and behaving normally.

1.3 Equipment

The track excavator, a 2002 Volvo EW170, was equipped to operate railroad tracks. The operating cab was designed for a single occupant and was off-set to the left of the machine, to allow for better vision from the rear. The track excavator could rotate 180° and was mounted with a two-piece extendable boom. Following the accident, FRA investigators inspected the track excavator and found no safety or mechanical defects. The track excavator was 8 feet-wide and the clearance between the outside rubber tire and the track ballast was between 3 to 4 inches.

1.4 HRRC System Safety Program

Records show that HRRC had in place a training and efficiency testing program to determine compliance with on-track safety rules and procedures. The program, approved by the FRA in 2014, was based on Title 49 *Code of Federal Regulations (CFR)* Part 214 "Railroad Workplace Safety" and Northeast Operating Railroad Advisory

² In an interview with NTSB and FRA investigators the track excavator operator said, "I would describe him as being at my 7:00, 12:00 being straight ahead, you know, 6:00 being the extreme behind my 7:00."

³ Title 49 *Code of Federal Regulations (CFR)* 214.315 requires that when employees are asked to work within 4 feet of a rail, a RWIC should provide the employee with an on-track safety job briefing that includes: (a) information on the means by which on-track safety is to be provided; (b) information on each on-track safety procedure to be followed; (c) information on any adjacent tracks, on-track safety for those tracks, and information on any roadway maintenance machines that would be on those tracks; (d) a discussion of the work to be performed and characteristics of the work location; and (e) information on the accessibility of the RWIC and alternative procedures should the RWIC be unavailable.

Committee (NORAC) rules and procedures.⁴ NTSB investigators reviewed the program and found no issues of concern.

1.5 Personnel Information

1.5.1 RWIC

The RWIC had been employed by HRRC for more than 20 years. A review of his training records showed that his training qualifications were current for training on the railroad’s timetables, NORAC operating rules, roadway worker protection procedures, and physical characteristics.⁵ NTSB reviewed the RWIC’s work history for the 10 days leading up to the accident, as shown in table 1.

Table 1. HRRC RWIC work history from October 5 through October 14, 2020.

Date	Start Time	End Time	Total Hours
October 5, 2020	6:30 a.m.	5:30 p.m.	11.00
October 6, 2020	6:30 a.m.	5:30 p.m.	11.00
October 7, 2020	6:30 a.m.	9:30 p.m.	15.00
October 8, 2020	6:30 a.m.	6:30 p.m.	12.00
October 9, 2020	7.00 a.m.	12:00 p.m.	5.00
October 10, 2020	Day off		
October 11, 2020	Day off		
October 12, 2020	6:30 a.m.	6:00 p.m.	11.50
October 13, 2020	6:30 a.m.	5:00 p.m.	10.50
October 14, 2020	6:30 a.m.	2:45 p.m.	8:25

Postaccident toxicology testing on the RWIC for alcohol and other drugs was conducted in accordance with FRA regulations.⁶ The results were negative for the presence of these drugs. The autopsy report from the State of Connecticut Office of the Chief Medical Examiner determined the cause of death to be blunt force trauma.

⁴ The *Northeast Operating Railroad Advisory Committee* is a body of railroads, primarily in the northeastern United States, that established a set of operating rules for its member railroads.

⁵ The physical characteristics training included knowledge of the timetable and the physical layout of the railroad property.

⁶ The testing screened for substances including amphetamines, barbiturates, benzodiazepines, cocaine, alcohol and cannabis metabolites, methadone, methaqualone, MDA-analogues, opiates, 6-acetylmorphine, oxycodone, opiates, phencyclidine, and propoxyphene.

1.5.2 Track Excavator Operator

The track excavator operator had also been employed by HRRC for more than 20 years. Although his official job title was project engineer, he continued to perform multiple operational duties, including operating the track excavator. A review of his training records showed that his training qualifications were current for training on the railroad’s timetables, NORAC operating rules, roadway worker protection procedures, and physical characteristics. Although HRRC could not produce training records showing employee certifications and qualifications on operating roadway maintenance equipment, including the track excavator, the track excavator operator said in an interview that he believed that he had adequate experience operating the machine. NTSB reviewed the track excavator operator’s work history for the 10 days leading up to the accident, as illustrated in table 2.

Table 2. HRRC track excavator operator work history from October 5 through October 14, 2020.

Date	Start Time	End Time	Total Hours
October 5, 2020	7:00 a.m.	4:00 p.m.	9.00
October 6, 2020	7:00 a.m.	4:00 p.m.	9.00
October 7, 2020	7:00 a.m.	10:00 p.m.	15.00
October 8, 2020	7:00 a.m.	5:00 p.m.	10.00
October 9, 2020	8:00 a.m.	2:00 p.m.	6.00
October 10, 2020	Day off		
October 11, 2020	Day off		
October 12, 2020	7:00 a.m.	4:00 p.m.	9.00
October 13, 2020	7:00 a.m.	4:00 p.m.	9.00
October 14, 2020	7:00 a.m.	2:45 p.m.	7:75

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1.6 Postaccident Actions

Since the October 14, 2020, accident, HRRC has made the following training and policy revisions:

- Revised its *On-Track Safety* manual to resemble that of the American Short Line and Regional Railroad Association's (ASLRRRA) *On-Track Safety* manual for 49 *CFR* Part 214 "Railroad Workplace Safety."
- Developed, in consultation with the FRA, special instructions to its current *On-Track Safety* manual to be used in the interim while awaiting FRA approval of the new manual.
- Required all HRRC roadway workers to be retrained in roadway worker protection, with particular emphasis on the updated and revised rules.
- Adopted the ASLRRRA's training programs for both new and existing employees on the following topics:
 - Title 49 *CFR* Part 209 "Railroad Safety Enforcement Procedures"
 - Title 49 *CFR* Part 213 "Track Safety Standards"
 - Title 49 *CFR* Part 214 "Railroad Workplace Safety"
 - Title 49 *CFR* 214.357 "Training and Qualification for Operators of Roadway Maintenance Machines Equipped with a Crane"
 - Title 49 *CFR* Part 217 "Railroad Operating Rules"
- Updated the qualification and remedial training on all roadway maintenance machines and adopted improved protocols for recordkeeping.
- Planned a training session to specifically address the RWIC's actions on the day of the accident, with particular emphasis on being aware of close clearances.

2. Analysis

On the afternoon of the accident, the RWIC was taking measurements in the clear of an out-of-service track for the anticipated installation of a new switch panel. Following a conversation with the operator of the track excavator regarding the planned work, the track excavator began moving east and the RWIC began walking in the same direction to roll up his measuring tape, placing him in a close-clearance location. He had not informed the track excavator operator of his intended movement. Because of the height of the track excavator the operator was unable to see the RWIC in his line of sight resulting in the RWIC being struck by the track excavator.

3. Probable Cause

The National Transportation Safety Board determines that the probable cause of the roadway worker-in-charge's fatal injuries was his walking into a close-clearance location between the switch panel and the moving track excavator where he was struck.

The National Transportation Safety Board (NTSB) is an independent federal agency dedicated to promoting aviation, railroad, highway, marine, and pipeline safety. Established in 1967, the agency is mandated by Congress through the Independent Safety Board Act of 1974, to investigate transportation accidents, determine the probable causes of the accidents, issue safety recommendations, study transportation safety issues, and evaluate the safety effectiveness of government agencies involved in transportation. The NTSB makes public its actions and decisions through accident reports, safety studies, special investigation reports, safety recommendations, and statistical reviews.

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" (Title 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 (Title 49 *United States Code* section 1154(b)).

For more detailed background information on this report, visit the NTSB investigations website and search for NTSB accident ID RRD21LR002. Recent publications are available in their entirety on the NTSB website. Other information about available publications also may be obtained from the website or by contacting—

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