NATIONAL TRANSPORTATION SAFETY BOARD

OFFICE OF RAILROAD, PIPELINE &

HAZARDOUS MATERIALS INVESTIGATIONS

Washington, D.C. 20594

RRD21FR009

Fatality to Railroad Employee During Switching Operations

BNSF Railway
Louisiana, Missouri
April 7, 2021

DRAFT IIC FACTUAL REPORT

Prepared by: Z. T. Zagata, IIC

Accident:

Event:	Fatality to a Railroad Employee During Switching Operations
Date:	April 7, 2021
Time:	3:25 p.m. CDT
Company:	BNSF Railway
Location:	Louisiana, MO
Train Number:	BNSF 8371
NTSB Number:	RRD21FR009

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Accident Summary:

SYNOPSIS

On April 7, 2021, at 3:25 p.m. local time, a BNSF Railway (BNSF) conductor was killed while dropping off and picking up cars in an industry facility outside of Louisiana, Missouri. The train, BNSF Local 8371, consisted of two locomotives, 20 cars. The train crew consisted of one engineer, one conductor, and one brakeman. Immediately before the accident, the engineer was moving the entire train southeast on a Dyno Nobel, Inc. industrial track at a speed less than 9 mph with the conductor controlling the movement with the engineer by radio while standing on the ground. The brakeman was riding the north side of the seventh railcar. During the movement, radio communication between the conductor and the locomotive engineer ceased. The engineer stopped the movement, at which point the brakeman observed the conductor lying on the ground outside of the rail on the south side between the seventh and eighth cars. **Figure 1** shows an illustration of the train cars in their resting location after the accident.

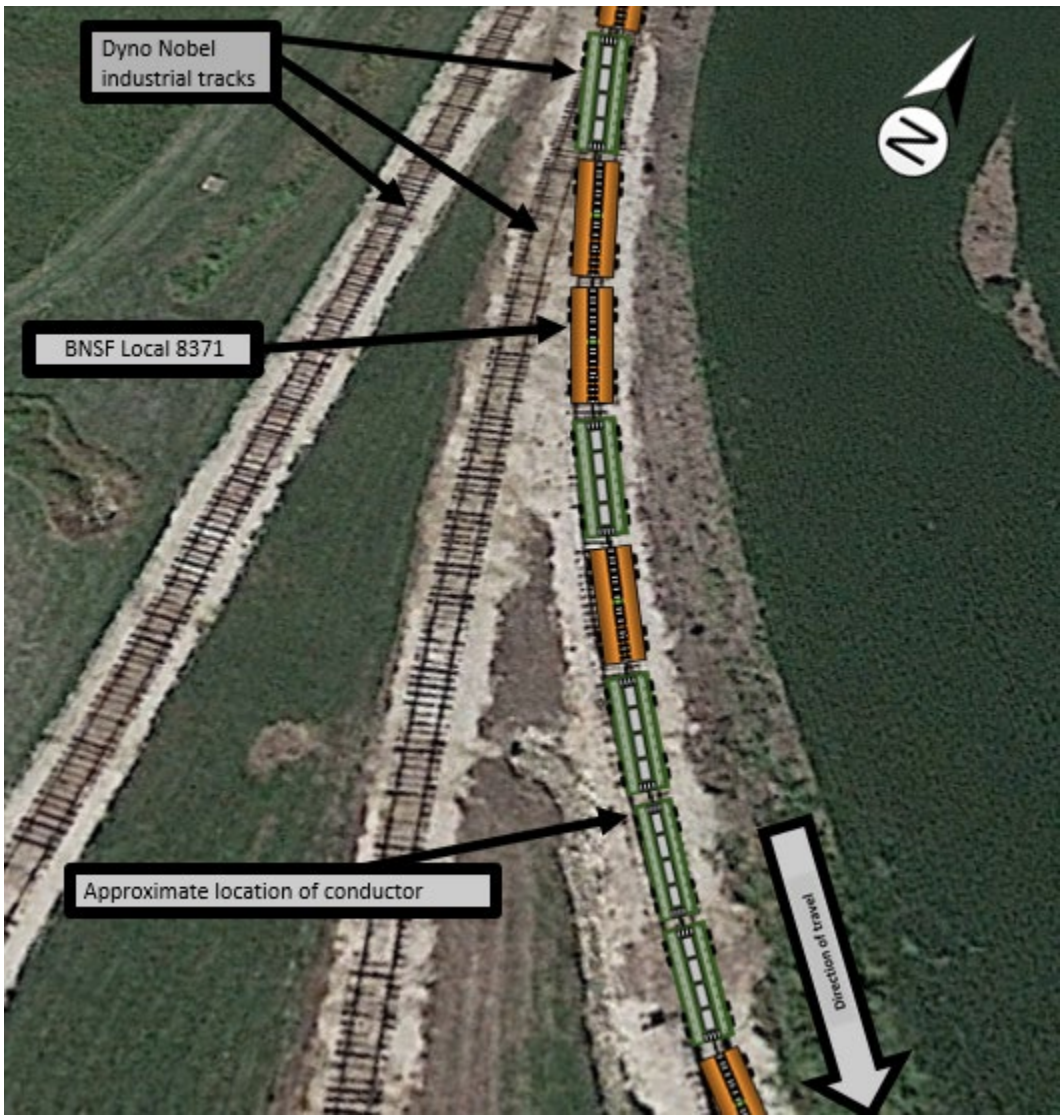

Figure 1: Illustration of the accident. (Photograph courtesy of Google Earth.)

[508 text: Illustration of accident shows BNSF local 8371 shoving southeast through the facility as well as the approximate location of the fatality injured employee.]

The Accident

According to NTSB interviews and crew work records, the train crewmembers went on duty at 11:00 a.m. on Wednesday, April 7, 2021. This was the regular assignment for the conductor and engineer. The brakeman was not regularly assigned to this job, but he had worked this assignment frequently. All three employees received more than the required statutory rest period prior to reporting for duty.[1] BNSF local 8371 is a local crew assignment that originates and terminates in West Quincy, MO. BNSF local 8371 is primarily responsible for dropping off and picking up cars at industries from West Quincy, MO to Louisiana, MO.

Upon going on duty at the West Quincy yard, the crew conducted a job briefing, coupled into their train, set out five cars, and performed an initial terminal train air brake test. The BNSF local 8371 departed West Quincy yard with two locomotives and 20 total cars, to include a modified flat car converted into a shove platform. They arrived at Louisiana, MO at approximately 3:05 p.m. local time. Upon arrival at Louisiana, the crew had to make a shoving movement[2] for approximately one mile to the Dyno Nobel facility. In order to make the shoving movement, the crew detached the power from the south end of their train, ran around the train, and attached the locomotives to the north end of their train. During the

[1] §228.5 Definitions - Statutory off-duty period means the period of 8 or 10 consecutive hours or more time, that is the minimum off-duty period required under the hours of service laws for a train employee or a signal employee to begin a new 24-hour period for the purposes of calculating his or her total time on duty.
[2] Shoving movement is the process of pushing a cut of cars or to push a train from the rear.

shove from Louisiana, MO to the Dyno Nobel plant, the conductor and brakeman rode on a flat car that was converted into a shoving platform for the crew. At MP 92.9, the brakeman dismounted the shove platform and lined the mainline switch from the BNSF mainline into Dyno Nobel. Once the switch was lined for the intended movement, the conductor protected the movement into the industry track.

At approximately 3:15 p.m. local time, the conductor stopped the movement, dismounted the shove platform, and operated the Dyno Nobel derail. At approximately 3:16 p.m. local time, the conductor reported that the Dyno Nobel derail is down and instructed the engineer to bring them back 20 cars. At approximately 3:19 p.m. local time, the conductor stopped the movement at the 6206 switch and the brakeman reported that the BNSF mainline switch had been restored. The conductor lined the 6206 switch to the Dyno Nobel facility, then proceeded to walk southeast to check the position of the 6212/6213 switch. As the conductor was lining the route for their intended movement, the brakeman had repositioned himself on the northside of the seventh car from the locomotive. After lining the route for their movement, the conductor walked on the southside toward the headend of the train.

At 3:24 p.m. local time, the conductor announced over the radio, “Conductor on the ground protecting, back 20 cars.” After approximately 10 car lengths, radio communication between the conductor and the locomotive engineer ceased. The engineer stopped the movement. It was then that the brakeman observed the conductor lying on the ground lying on the ground outside of the rail on the south side between the seventh and eighth cars. The

brakeman announced “Emergency” over the radio and the engineer dialed 911 on the locomotive radio.[3]

EMERGENCY RESPONSE

The accident site is located within Pike County, Louisiana, Missouri. The local emergency 911 public safety access point (PSAP) is the Pike County 911 Board located in Bowling Green, Missouri. The 911 center is responsible for dispatching law enforcement, fire department, and EMS services provided by the Pike County Memorial Hospital (PCMH). The lead law enforcement agency is the Pike County Sheriff’s Department. **Table 3** is an excerpt of the 911 emergency request and response to the accident.

Table 3 Emergency Response to the Accident

Time	Event	Remarks
3:25 p.m.	Accident occurred	*time approximated using BNSF audio logs
3:27:58	911 call received by Pike Co 911	
3:35:34	EMS ambulance dispatched to scene	Ambulance from PCMH

[3] The Emergency call-in code on locomotive radios is "911" throughout the entire BNSF system.

3:35:56	Buffalo Fire Department dispatched to assist	
3:36:23	EMS Supervisor dispatched to scene	
3:38:51	EMS Supervisor on the scene	
3:41 p.m.	Victim pronounced by PCMH medical supervisor on scene	
3:41:36	PCMH ambulance on scene	
3:45 p.m.	Coroner notified of accident	Initial notification made by the sheriff's office
3:43 p.m.	Deputy coroner notified by coroner	Both coroners responded to the scene together
3:45 p.m.	Sheriff's Office received call	Incident classified as a Death from traumatic injury. No sheriff office personnel responded

During an interview, the office manager for the sheriff's office told NTSB investigators that the sheriff's office did not respond to the incident, which was reported as a "Death-traumatic injury." The supervisor of Pike County 911 center confirmed during an interview that, due to the reported nature of the incident, the sheriff's office would not normally be dispatched for these types of incidents, though they were notified by the 911 center.

LOCATION OF THE ACCIDENT

The track at the location of the accident was maintained by the Dyno Nobel facility. The Dyno Nobel Plant facility is located at 11025 Highway D, Louisiana, Missouri. The facility manufactures industrial explosives. The main access to the plant is protected by security fencing that borders the parking lot area and the main roadway into the facility.

NTSB investigators took measurements and performed a post-accident walking inspection of the track in the area of the accident. **Table 1** contains the distance from the switch to the final rest position of the conductor as well as the distance from final rest to the area identified as the first harmful event by the coroner on the scene.

Table 1

	Distance
6212/6213 switch to final rest of conductor	31 feet
Final rest position of conductor to slide marks found by coroner	10 feet
Rail tie to aggregate (Rocks)	21 inches

Figure 3 and 4 are photographs taken at the scene of various points of reference and shows the position between each.

Figure 3 Looking southeast, in the direction of the shoving movement of the train, on the south side of the track. The red arrow indicates the location of the perpendicular slide marks found by the coroners. The black arrow indicates the location of the final rest position of the conductor. The switch is indicated by the blue circle.

During the inspection of the area, it was noted that large rocks were located on the south side of the track near a decline leading to a drainage ditch. The measurements taken revealed the distance from the end of the rail tie to the large rocks only allowed 21 inches of walking space.

Figure 4 the photo on the left shows the width of the walking space available between the edge of the railroad tie and the adjacent rocks at the location where the slide marks in the ballast were found. The photo on the right displays the available space.

METHOD OF OPERATION

BNSF local 8371 was operating under General Code of Operating Rules (GCOR) rules that governed movement on other than main track during its movements throughout the Dyno Nobel facility. Such movements are made at a speed which will permit stopping within one half the range of vision short of train, engine, railroad car men or equipment fouling the track, stop signal or derail or switch lined improperly. The industry owned track is single track, authorized maximum speed of 10 mph, with hand operated derails/switches, and no governing signals.

TRAIN INFORMATION

The BNSF Local 8371 was a mixed freight train consisting of two locomotives and 20 empty railcars of various types. The train with locomotives was 1,233 feet in length and weighed 845 tons. The BNSF 8371 is a local originating out of the BNSF yard in West Quincy, MO. It travels south on the Hannibal Subdivision, Heartland Division, servicing various industries, before it turns around and travels back north to terminate at West Quincy, MO.

PERSONNEL INFORMATION

The conductor was hired by BNSF on May 27, 1996 as a conductor.

A review of the conductor's training records indicated that he completed his last rules training on February 26, 2020.

A review of the conductor's discipline history indicated that the conductor had not been disciplined.

A review of the conductor's work history from 03/07/21 to 04/07/21 indicated that the conductor had worked a total of 11 times in the 30 days prior to the accident, with an average of 8 hours and 33 minutes a day.

MEDICAL AND PATHOLOGICAL INFORMATION

In accordance with federal regulations, following the accident, specimens obtained from the fatally injured conductor were tested for the presence of illicit drugs and alcohol. [placeholder for results]

1. On-scene Death Investigation by Pike County Coroner

The county coroner conducted an on-scene investigation and determined that the conductor had sustained injuries consistent with being struck by or impacting the train prior to receiving the fatal injury. The fatal injury sustained by the conductor was consistent with his head being trapped or pinned in a fix position, possibly against the rail, as the momentum of the southbound train, continued to carry his body causing the injury to the spinal column.

2. Office of the Chief Medical Examiner- Autopsy

At the time the decedent arrived at the Boone/Callaway County Office of the Chief Medical Examiner's Office, he was still wearing the clothes he was found in. This included a long sleeve, orange high visibility coat with a gray long-sleeve shirt underneath, blue jeans, and boots. The boots were examined and found not to contain any mud or show signs of excessive wear. The clothing was very damp, but this was attributed to the heavy rain

that passed through the area hours after the accident. Photographs and toxicological samples were taken by the medical examiner and additional samples were collected. The following injuries were documented by the NTSB investigator at the time of the autopsy.

a. Transection of the cervical spine between C-1 and C-2 (fatal)

b. Bilateral rib fractures with most of the fractures sustaining severe crushing on the left side. The rib fractures were noted underneath witness marks (parallel striations, abrasions, and contusions) visible on the chest.

c. Left side impact trauma to the skull with some internal hemorrhaging

d. Severe occlusion to the coronary arteries.

After the autopsy was completed, the investigator was able to interview the medical examiner to discuss his findings.

3. **Known Medical History**

The conductor had a known history of diabetes, hypertension, high cholesterol, peripheral neuropathy, osteo arthritis, coronary artery disease, sleep apnea, and a hernia.

MECHANICAL

FRA mechanical conducted an inspection of the two locomotives and the investigative team conducted a visual inspection of the railcars. The equipment was found to function as intended and did not contribute to the cause of the accident.

RAILROAD POST ACCIDENT ACTIONS:

Immediately after the accident, BNSF conducted safety briefings emphasizing certain General Code of Operating Rules (GCOR) and safety rules.

WALKWAY REGULATORY REQUIREMENTS

The Federal Railroad Administration (FRA) is the agency of the U.S. Department of Transportation (DOT) charged with carrying out the Federal railroad safety laws. These laws provide FRA, as the Secretary's delegate, with very broad authority over "every area of railroad safety." 49 U.S.C. 20103(a). In exercising that authority, the agency has issued a wide range of safety regulations, which cover such topics as track, passenger equipment, locomotives, freight cars, power brakes, locomotive event recorders, signal and train control systems, maintenance of active warning devices at highway-rail grade crossings, accident reporting, alcohol and drug testing, protection of roadway workers, operating rules and practices, locomotive engineer certification, positive train control, and use of train horns at grade crossings. FRA is responsible for the overall safety of railroad operation and equipment.

FRA does not have any federal regulatory requirements covering the construction,

reconstruction, and maintenance of walkways for railroad employees.

With the Occupational Safety and Health Act of 1970, Congress created the Occupational Safety and Health Administration (OSHA) to ensure safe and healthful working conditions for workers by setting and enforcing standards and by providing training, outreach, education, and assistance. The OSH Act covers most private sector employers and their workers, in addition to some public sector employers and workers in the 50 states and certain territories and jurisdictions under federal authority.

In an interpretation found on OSHA's website, OSHA states, "Section 4(b)(1) of the Occupational Safety and Health Act (OSH Act) provides that nothing in this Act shall apply to working conditions of employees with respect to which other Federal Agencies exercise statutory authority to prescribe or enforce standards or regulations affecting occupational safety and health. The purpose of this exemption is to avoid duplication in Federal regulation of safety and health conditions in the workplace. Once another Federal agency exercises its authority to regulate specific working conditions, OSHA cannot enforce regulations covering the same hazard against an employer who is regulated by the other Federal Agency. FRA is responsible for the overall safety of railroad operation and equipment. Since the FRA has regulations regarding railroad safety, OSHA would generally be precluded from regulating the safety conditions of operating railroad equipment."

OSHA does not have any federal regulatory requirements covering the construction,

reconstruction, and maintenance of walkways for railroad employees.

The Missouri Department of Transportation (MoDOT) is the state government organization in charge of maintaining public roadways of the U.S. state of Missouri under the guidance of the Missouri Highways and Transportation Commission. The state of Missouri regulatory requirements for the construction, reconstruction, and maintenance of walkways for railroad employees are stated in CSR 265-8.110.

CSR 265-8.110 WALKWAY SAFETY STANDARDS AT INDUSTRIAL TRACKS

This rule prescribes the minimum safety standards for the construction, reconstruction and maintenance of walkways adjacent to railroad industrial trackage within Missouri.

(1) For purposes of this rule, industrial railroad trackage means that trackage owned, leased or used by any person, firm or corporation, other than a railroad as defined by section 386.020, RSMo, which connects with the tracks of a railroad and on which a railroad switches or operates cars or locomotives within Missouri.

(2) Except in cases in which the division finds that construction or reconstruction is impracticable, unnecessary or where existing in structures or tracks prevent construction, walkways shall be constructed along each side of industrial railroad trackage a minimum of eight feet six inches (8'6") from the center of track measured at right angles to the center. Walkways shall be reasonably level with the top of the railroad ties and beginning

at the end of the railroad ties shall not exceed a drop of two inches (2") per foot to provide drainage and a surface reasonably level on which to walk as well as permit the safe performance of trackside duties, taking into consideration existing structures and tracks.

(3) Walkways along industrial railroad trackage shall be constructed of and maintained with materials that conform to the specifications of the railroad corporation which switches or operates cars or locomotives on and over the trackage; if no specifications are available, walkways shall be constructed of suitable chat or fines not to exceed one inch (1") in diameter.

(4) Walkways along industrial railroad trackage as well as the area between the rails shall be kept free of vegetation or debris that would interfere with the performance by railroad employees of normal trackside duties.

MANAGERIAL OVERSIGHT

BNSF periodically conducts tests and observations of its employees in accordance with federal regulations to determine their level of compliance with railroad operating

rules.[4] NTSB investigators reviewed BNSF's efficiency testing program and requested specific data regarding efficiency tests for the conductor, his managers, coworkers and the efficiency tests for specific operating and safety rules.

The BNSF program contains specific information for testing officers to be used when setting up and conducting tests. Federal regulations require that each test be described in the program including the means and methods used to conduct the tests. The BNSF has established a program of operational testing which contains the required information by regulation which is needed to maintain consistency among its testing officers.

A review of the efficiency testing results for the deceased conductor revealed that the conductor was operationally tested 14 times from November 23, 2020 through March 10, 2021 with 0 failures noted.

I have read and approve the report

Zachary Zagata
Investigator-in-Charge
National Transportation Safety Board

//s// Date: _____

[4] 49 CFR, Part 217. Also referred to throughout the industry as "Efficiency Tests".

Sheryl Harley

Rail Accident Investigator

National Transportation Safety Board

//s// Date: _____

Robert Pelletier, FRA Investigator-in-Charge

Federal Railroad Administration

//s// Date: _____

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Ryan Ringelman, BNSF System Safety

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END OF FACTUAL REPORT