

National Transportation Safety Board

Office of Railroad, Pipeline and Hazardous Materials

Washington, DC 20594



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MECHANICAL

Group Chair's Factual Report

February 9, 2024

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A ACCIDENT

Location: Pueblo, Colorado
Date: October 15, 2023
Time: 3:30 p.m. Local Time
Train: C-ATMCRD-0-31D

B MECHANICAL GROUP

Group Chair Matt Thompson
National Transportation Safety Board

Group Member Ken Johnson
Federal Railroad Administration

Group Member Bret Bridges
BNSF Railway

Group Member Darren Treiber
Brotherhood of Railway Carmen (TCU)

C SYNOPSIS

On October 15, 2023, at approximately 3:30 pm, BNSF Railway (BNSF) coal train C-ATMCRD-0-31D derailed in Pueblo, Colorado. The derailment resulted in 30 loaded coal hopper rail cars¹, lines 5-35 to derail on a bridge over the I-25 freeway. Lines 3 and 4 tipped over that evening. The derailment occurred at Milepost 109.6. The derailment occurred on BNSF's Pikes Peak Subdivision. The train consisted of 2 head end locomotives, and 124 loaded cars and three rear Distributed power units (DPU)² locomotives. The train was 6584 feet long and weighed approximately 17719 tons.

¹ A hopper car is a type of railroad freight car used to transport loose bulk commodities such as coal, ore, grain, and track ballast.

² A locomotive set capable of remote-control operation in conjunction with locomotive units at the train's head end. DPUs are placed in the middle or at the rear of heavy trains (such as coal, grain, soda ash and even manifest) to help climb steep grades, particularly in the West.

D DETAILS OF THE INVESTIGATION

1.0 Train Consist Information

BNSF Railway train C-ATMCRD -0-31D consisted of 124 loaded hopper cars and five locomotives, two on the head end and three on the rear DPU. The 124 hopper cars were loaded with coal.

The lead set of locomotives (BNSF 9015 built in 2013, BNSF 9231 built in 2008) were EMD SD70Ace locomotives. Both locomotives were 73'3" feet in length, 16'1" tall, weighing 432,000 pounds and have a 16-cylinder 710-G3C-T2 4300 horsepower (hp) engine.

The rear set of locomotives were BNSF 5682, BNSF 5753 and BNSF 8487. BNSF 5682, a GE AC4400CW, was built in 2004, is 73'2" feet in length, 15'6" feet in height, weighing 426,000 pounds with a 7FDL, 16 cylinder, 4400 hp engine. BNSF 5753 a GE Evolution series ES44AC, built in 2005, 74'6" feet in length, 15'5" in height, weighing 432,000 pounds with a GEVO,12 cylinder, 4400 hp engine. BNSF 8487 a EMD SD70Ace, built in 2014, 74'3" feet in length, 15'11" in height, weighing 408,000 pounds with a 16 cylinder, 710-G3C-T2, 4300 hp engine.

2.0 Train Inspection Information

The BNSF Railway provided pre-departure inspection records for train number C-ATMCRD-0-31D. BNSF records exhibited that the railroad conducted pre-departure and initial terminal brake test inspections pursuant to 49 Code of Federal Regulations (CFR) Part 215 Railroad Freight Car Safety Standards and CFR Part 232 Brake System Safety Standards for Freight. The locomotives had a daily inspection pursuant to 49 CFR Part 229 Locomotive Safety Standards at 08:45 a.m.³ in Antelope, Wyoming, on October 14, 2023. The train inspection records indicated that all pre-departure inspections were completed on October 13, 2023, at 1:25 p.m. at Alliance, Nebraska, by qualified mechanical inspectors (QMI)⁴.

3.0 Post Derailment Equipment Examination

The derailment occurred at Milepost 109.6, on BNSF's Pikes Peak Subdivision. It resulted in the derailment of 30 loaded coal hopper railcars of the 124 railcar train, lines 5-35 derailed on a bridge over the I-25 freeway. Lines 3 and 4 tipped over that evening. Inspected freight cars and the two lead locomotives and found no defective

³ All times in this report are local time.

⁴ Qualified mechanical inspector means a qualified person who has received, as a part of the training, qualification, and designation program required under CFR § 232.203, instruction and training that includes "hands-on" experience (under appropriate supervision or apprenticeship) in one or more of the following functions: troubleshooting, inspection, testing, maintenance or repair of the specific train brake components and systems for which the person is assigned responsibility.

conditions that would have contributed to the accident. Inspected point of derailment.



Figure 1 - Photo BNSF 651350 first car to derail on Train C-ATMCRD 0-31D Near MP 109.6



Figure 2 - Wheel from one of the railcars that passed over the broken rail with rail impact indentation.

Observed BNSF Railway employees conduct air test of the lead locomotives, BNSF 9015, BNSF 9231 then the rear DPU locomotives; BNSF 5682, BNSF 5753 and BNSF 8487.

The air test consisted of:

Release automatic and independent.

Automatic -- 10 psi brake pipe reduction

Cut - out brake pipe.

Brake pipe leakage must not exceed 5 psi/minute.

Actuate (4 sec/unit)

Automatic -- Full Service (26) or 10 psi brake pipe reduction (6)

Release Automatic

Independent Full Application -- release hand brake

Post accident locomotive consist air brake test passed and functioned as intended. Inspected wheel sets from first car derailed BNSF 651350 and all wheel sets passed the point of derailment. Observed indentations from the broken rail on several wheel sets. Inspected railcars, defects were noted but did not contribute to the derailment.

Estimated rolling stock damages are \$1,550,000.

Submitted by:

Matt C. Thompson

Railroad Accident Investigator