

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3661
THE PENNSYLVANIA RAILROAD COMPANY
IN RE ACCIDENT
NEAR EDGEWOOD, MD., ON
OCTOBER 23, 1955

SUMMARY

Date: October 23, 1955
Railroad: Pennsylvania
Location: Edgewood, Md.
Kind of accident: Derailment
Train involved: Passenger
Train number: 107
Locomotive number: Electric locomotive 4936
Consist: 21 cars
Speed: 80 m. p. h.
Operation: Signal indications
Tracks: Double; tangent; level
Weather: Misty
Time: 5:17 a. m.
Casualties: 54 injured
Cause: Broken rail

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3661

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

THE PENNSYLVANIA RAILROAD COMPANY

December 15, 1955.

Accident near Edgewood, Md., on October 23, 1955 caused
by a broken rail.

REPORT OF THE COMMISSION¹

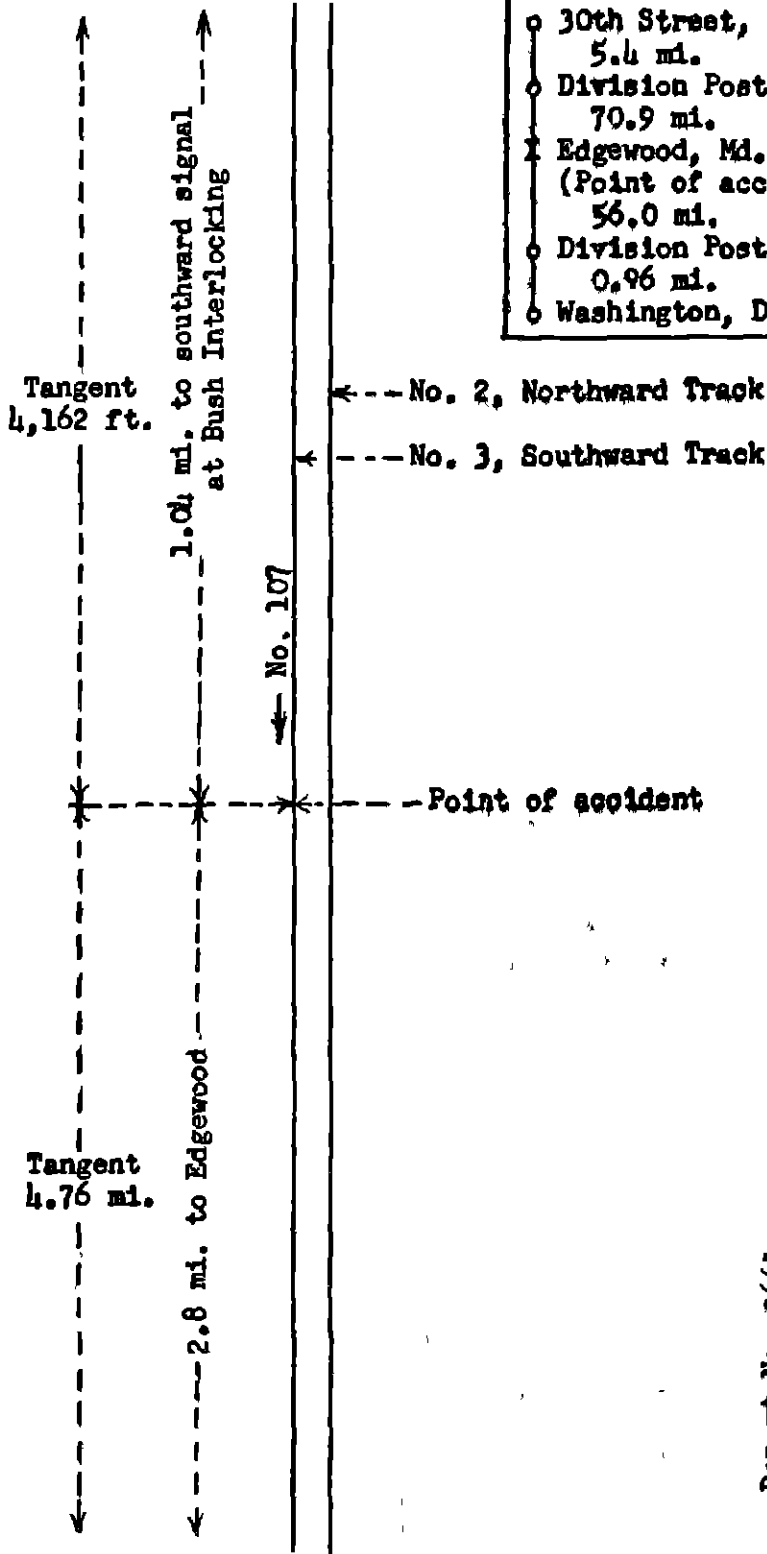
CLARKE, Commissioner:

On October 23, 1955, there was a derailment of a
passenger train on the Pennsylvania Railroad near Edgewood,
Md., which resulted in the injury of 53 passengers and 1
train-service employee.

¹
Under authority of section 17 (2) of the Interstate Com-
merce Act the above-entitled proceeding was referred by the
Commission to Commissioner Clarke for consideration and
disposition.

To Philadelphia →

← To Washington



○	30th Street, Philadelphia, Pa.	5.4 mi.
○	Division Post, Pa.	70.9 mi.
⊥	Edgewood, Md.	(Point of accident)
		56.0 mi.
○	Division Post, D. C.	0.96 mi.
○	Washington, D. C.	

Report No. 3661
 Pennsylvania Railroad
 Edgewood, Md.
 October 23, 1955

Location of Accident and Method of Operation

This accident occurred on that part of the Maryland Division extending between Division Post, near 30th St., Philadelphia, Pa., and Division Post, near Washington, D. C., 126.9 miles. In the vicinity of the point of accident this is a double-track line, over which trains moving in either direction on either track are operated by automatic block-signal and cab-signal indications. A catenary system is provided for the electric propulsion of trains. From east to west the main tracks are designated as No. 2, northward, and No. 3, southward. The accident occurred on track No. 3 at a point 70.9 miles south of 30th St., Philadelphia, and 2.8 miles north of the station at Edgewood, Md. From the north track No. 3 is tangent throughout a distance of 4,162 feet to the point of accident and 4.76 miles southward. The grade is level at the point of accident.

The track structure consists of 155-pound rail, 39 feet in length, laid new in August 1953 on an average of 23 treated ties to the rail length. It is fully tieplated with double-shoulder canted tie plates, spiked with two rail-holding spikes and two plate-holding spikes per tie plate, and is provided with 6-hole 38-1/2-inch joint bars and an average of 12 rail anchors per rail. It is ballasted with crushed stone to a depth of 30 inches below the bottoms of the ties.

A semi-automatic signal, governing south-bound movements on track No. 3, is located at Bush Interlocking, 1.04 miles north of the point of accident. Bush Interlocking is controlled from an interlocking station at Edgewood.

The maximum authorized speed for passenger trains in the vicinity of the point of accident is 80 miles per hour.

Description of Accident

No. 107, a south-bound first-class passenger train, consisted of electric locomotive 4936, one refrigerator express car, one baggage-express car, one refrigerator express car, one baggage-express car, one refrigerator express car, one baggage-mail car, one mail car, two baggage cars, three coaches,

four baggage-express cars, one refrigerator express car, one baggage-express car, one refrigerator express car, one coach, and one refrigerator express car, in the order named. All cars were of conventional all-steel construction except the seventeenth car, which was of steel-underframe construction. The third, tenth, eleventh, twelfth, and twenty-first cars were equipped with tightlock couplers. This train departed from 30th St. Station, Philadelphia, at 3:19 a. m., on time, departed from Perryville, 12.9 miles north of the point of accident and the last open office, at 4:56 a. m., 7 minutes late, passed the southward semi-automatic signal at Bush, which indicated Proceed, and while it was moving on track No. 3 at an estimated speed of 80 miles per hour the rear 14 cars were derailed at a point 2.8 miles north of the station at Edgewood.

Separations occurred between the tenth and eleventh cars, and at each end of the thirteenth to the seventeenth cars, inclusive. The forward portion of the train stopped with the front end of the locomotive 3,098 feet south of the point of accident. The eighth, ninth, and tenth cars remained upright and approximately in line with the track. The other derailed cars stopped in various positions within a distance of 613 feet immediately south of the point of accident and between track No. 3 and a point 78 feet west of the track. The eleventh, twelfth, thirteenth, fourteenth, and sixteenth cars were overturned. The tenth to the seventeenth cars, inclusive were badly damaged; the eighth, ninth, eighteenth, and twentieth cars were somewhat damaged; and the other derailed cars were slightly damaged.

The flagman was injured.

The weather was misty at the time of the accident, which occurred about 5:17 a. m.

Discussion

As No. 107 was approaching the point where the accident occurred the speed was about 80 miles per hour. The engineer and the fireman were maintaining a lookout ahead from their respective positions in the front control compartment of the locomotive. The flagman was in the twentieth car, and the

other members of the train crew were in the tenth car. The headlight was lighted brightly. The brakes of this train had been tested and had functioned properly when used en route. The enginemen said that the locomotive had been riding smoothly and there was no indication of defective track or equipment until the train reached a point approximately 1 mile south of Bush Interlocking. They said that at this point there was an irregular movement which they thought was caused by wheels of the locomotive running over several pieces of ballast, small stones, or a metallic object which had been placed on the rails. A few seconds later the brakes became applied in emergency as a result of the derailment. Members of the train crew said that the cars had been riding smoothly and they were unaware of anything being wrong until the brakes became applied in emergency at the time the derailment occurred. Railway mail clerks working in the sixth and seventh cars of the train said their cars moved irregularly and they heard objects strike against the underside of the cars immediately before the brakes became applied in emergency.

Examination of the locomotive and cars after the accident occurred disclosed no condition of this equipment which could have caused or contributed to the cause of the accident. Examination of the track disclosed no indication of dragging equipment nor of an obstruction having been on the track.

After the accident occurred a broken rail was found in the west side of track No. 3. This rail was broken into many pieces. The first four breaks occurred at points, respectively, 13 feet 10 inches, 16 feet, 16 feet 6-3/4 inches, and 17 feet 8-3/4 inches south of the receiving end of the rail. South of the latter break the rail was shattered throughout a distance of about 15 feet. The fragments varied in length from 4 inches to 2 feet. The receiving end of the rail remained attached to the leaving end of the adjacent rail. The end of the portion of rail immediately south of the first break, and also the north ends of several other fragments, were battered. Apparently after the first break occurred the broken end was struck with sufficient force to cause other breaks, and the derailment occurred when a portion of the rail was dislodged from the track.

This rail was manufactured by the Bethlehem Steel Company in July 1953 and bore heat and ingot No. 89341-E-47. It was laid in the track at the point of accident in August 1953. Laboratory analysis of the rail by the carrier after the accident occurred disclosed that the first four breaks south of the receiving end of the rail showed transverse internal progressive fatigue fractures involving 85 percent, 80 percent, 80 percent, and 30 percent, respectively, of the cross-sectional area of the head. The first three fractures were oxidized, indicating contact with the atmosphere. According to the report of the engineer of tests of the carrier, the results of the chemical analysis indicated that the rail met the chemical requirements of the carrier for 155-pound carbon steel rails. According to this report the failure is classified as caused by transverse vertical internal detail developments, originating at the location of hot torn steel cavities. Fragmentation of approximately 15 feet adjoining the internal development area is of a secondary nature, resulting from heavy impact.

The investigation disclosed that about 4 hours 30 minutes before the accident occurred the operator at Edgewood had reported to the train dispatcher that a visual indicator in the interlocking station indicated track occupancy of track No. 3 between Bush Interlocking and Edgewood. A section foreman and two signal department employees were then called and instructed to inspect that track. About 2:40 a. m., while this inspection was in progress a south-bound freight train, which consisted of a two-unit electric locomotive, 70 cars, and a caboose, passed over the point where the derailment occurred. The engineer said that he received a Stop-and-proceed indication at the southward signal at Bush Interlocking, and that while the locomotive was moving in the vicinity of the point where the accident occurred the indication of the cab signal changed from Restricting to Clear. Members of the crew of this train said that the equipment rode smoothly and they observed no defective condition of the track in this vicinity. The signal department employees said that tests which they made indicated that there was a defective impedance bond at a cut section located approximately 125 feet north of the point at which the derailment occurred.

After they made temporary repairs to the bond and replaced a blown fuse in a nearby relay case, the signal system functioned as intended. The operator at Edgewood said that about 3:12 a. m., when the signal department employees reported completion of temporary repairs, he observed that the track occupancy indicator light was extinguished. The section foreman said that he inspected the track between Edgewood and the cut section north of the point of accident and that he observed no defective condition. He remained at the latter point to assist the signal department employees, who were preparing to install a new impedance bond. He said that when No. 107 passed he saw fire flying from beneath the locomotive immediately before the derailment occurred.

The track in the vicinity of the point of accident was regularly patrolled in an alternate direction each day by a trackwalker. It was inspected by the section foreman four days before the accident occurred, and by the track supervisor, who rode over it, two days prior to the accident. No defective condition was reported after these inspections. The rail involved was laid in August 1953. A rail-defect detector car had not been operated over the section of track where the accident occurred since that time.

Cause

This accident was caused by a broken rail.

Dated at Washington, D. C., this fifteenth day of December, 1955.

By the Commission, Commissioner Clarke.

(SEAL)

HAROLD D. McCOY,
Secretary.