

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3569
THE PENNSYLVANIA RAILROAD COMPANY
IN RE ACCIDENT
NEAR COSHOCTON, OHIO, ON
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SUMMARY

Date: April 13, 1954

Railroad: Pennsylvania

Location: Coshocton, Ohio

Kind of accident: Derailment and collision

Trains involved: Freight : Freight

Train numbers: Extra 9462 East : Extra 9465 West

Engine numbers: Diesel-electric units 9462A, 9467B, and 9457A : Diesel-electric units 9465A, 9460B, and 9476A

Consists: 48 cars, caboose : Caboose

Estimated speeds: 38 m. p. h. : 50 m. p. h.

Operation: Signal indications

Tracks: Double; tangent; level

Weather: Clear

Time: 9:40 p. m.

Casualties: 5 injured

Cause: Broken truck side-frame, and derailed cars obstructing an adjacent main track

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3569

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

THE PENNSYLVANIA RAILROAD COMPANY

June 15, 1954

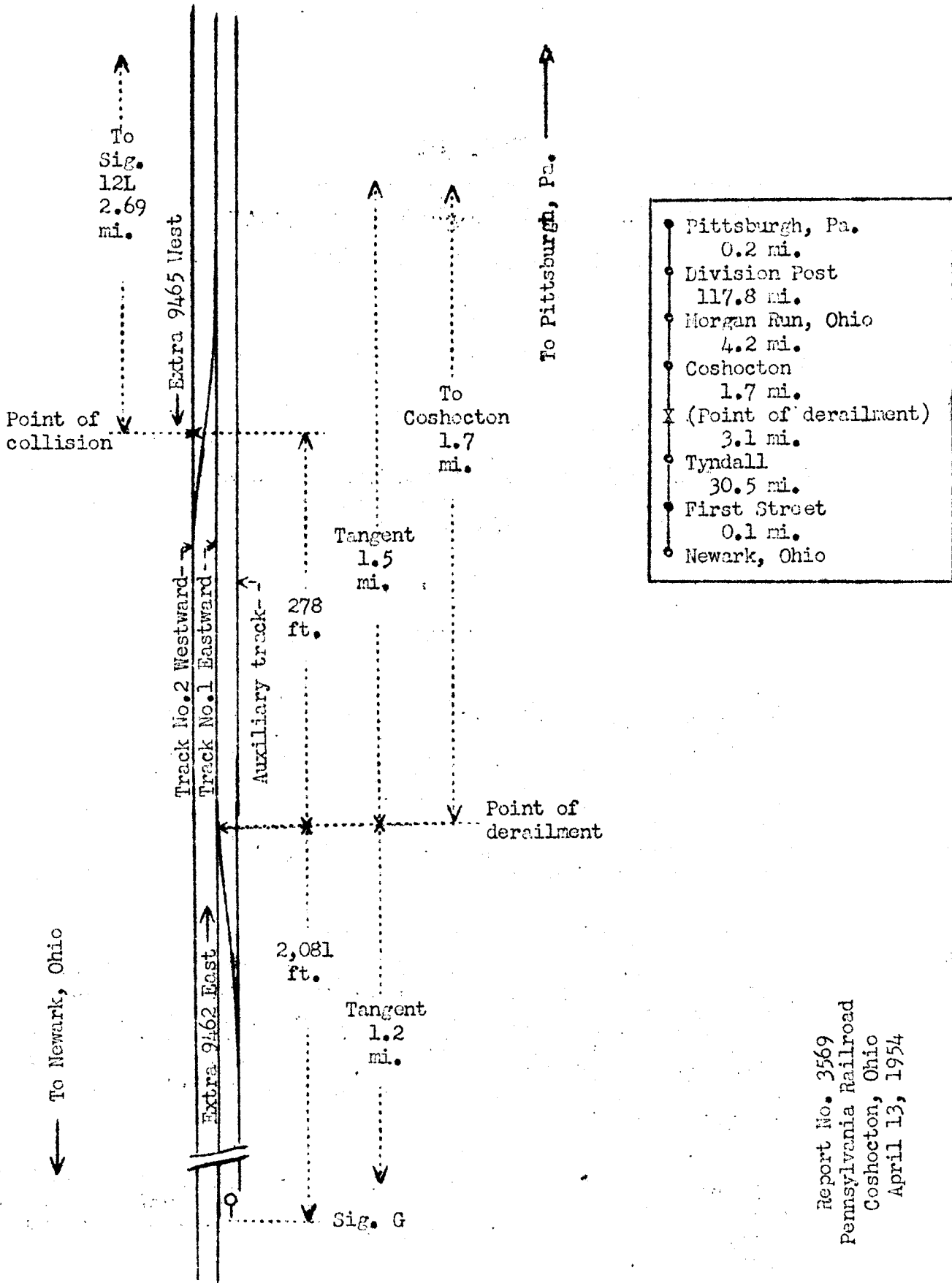
Accident near Coshocton, Ohio, on April 13, 1954, caused
by a broken truck side-frame, and derailed cars
obstructing an adjacent main track.

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REPORT OF THE COMMISSION

CLARKE, Commissioner:

On April 13, 1954, there was a derailment of a freight train on the Pennsylvania Railroad near Coshocton, Ohio, and a collision between a freight train moving on an adjacent main track and the derailed cars, which resulted in the injury of five employees. This accident was investigated in conjunction with a representative of the Public Utilities Commission of Ohio.

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



Report No. 3569
 Pennsylvania Railroad
 Coshocton, Ohio
 April 13, 1954

Location of Accident and Method of Operation

This accident occurred on that part of the Panhandle Division extending between First Street, Newark, Ohio, and Division Post, near Pittsburgh, Pa., 157.3 miles. In the vicinity of the point of accident this is a double-track line, over which trains moving with the current of traffic are operated by automatic block-signal and cab-signal indications. The main tracks from south to north are designated as No. 1, eastward, and No. 2, westward. At a point 33.6 miles east of First Street, Newark, and 1.7 miles west of the station at Coshocton, Ohio, a crossover connects track No. 1 with an auxiliary track which parallels track No. 1 on the south. This crossover is trailing-point for east-bound movements on track No. 1. The derailment occurred on track No. 1 at the east turnout of the crossover. The collision occurred on track No. 2 at a point 278 feet east of the point of derailment. The main tracks are tangent throughout a distance of 1.2 miles immediately east of the point of derailment and 1.5 miles westward. The grade is level.

The structure of track No. 1 consists of 140-pound rail, 39 feet in length, laid new in 1951 on an average of 24 treated hardwood ties to the rail length. It is fully tieplated with double-shoulder tieplates and is spiked with two rail-holding spikes and two plate-holding spikes per tieplate. It is provided with six-hole joint bars and an average of eight rail anchors per rail. The main tracks are ballasted with crushed trap rock to a depth of 20 inches below the bottoms of the ties on a gravel sub-base. The distance between the centers of the main tracks is 13 feet 3 inches. The crossover between track No. 1 and the auxiliary track is 200 feet in length and is provided with No. 10 rigid frogs. In the vicinity of the point of accident the tracks are laid on a 10-foot gravel fill.

Semi-automatic signal G, governing east-bound movements on track No. 1, and semi-automatic signal 12L, governing west-bound movements on track No. 2, are located, respectively, 2,081 feet west of the point of derailment and 2.69 miles east of the point of collision.

A dragging-equipment detector is located in track No. 1 at a point 1.91 miles west of the point of derailment.

This carrier's operating rules read in part as follows:

76. * * *

Engine and train crews as frequently as opportunity permits must observe engines and cars in their train, moving and standing, to detect any conditions that might interfere with the safe movement of trains.

* * *

77. So far as practicable and other duties permit, employes will observe passing trains for defects and should there be any indication of conditions endangering the train they must take necessary measures for its protection.

Train and engine crews on moving trains will be on the lookout for signals when passing other trains and while passing stations * * * and points where * * * other employes are working and when practicable exchange hand signals with them.

A train must be stopped when it is observed with any of the following defects * * *

* * *

Defective Truck

* * *

The maximum authorized speed for freight trains in the vicinity of the point of accident is 50 miles per hour.

Description of Accident

Extra 9462 East, an east-bound freight train, consisted of Diesel-electric units 9462A, 9476B, and 9457A, coupled in multiple-unit control, 48 cars, and a caboose. This train departed from Columbus, Ohio, 33.1 miles west of Newark, at 7:45 p. m. and entered the Panhandle Division at First Street, Newark. It passed Tyndall, 3.1 miles west of the point of accident and the last open office, at 9:35 p. m., passed signal G, which indicated Proceed, and while it was moving on track No. 1 at an estimated speed of 38 miles per hour the rear truck of the fourth car and the fifth to the twenty-eighth cars, inclusive, were derailed at the east turnout

of the crossover which connects track No. 1 with the auxiliary track at a point 1.7 miles west of the station at Coshocton. Derailed equipment obstructed track No. 2, and Extra 9465 West which was closely approaching collided with the derailed cars at a point 278 feet east of the point of derailment.

Extra 9465 West, a west-bound freight train, consisted of Diesel-electric units 9465A, 9460B, and 9476A, coupled in multiple-unit control, and a caboose. This train passed Morgan Run, the last open office, at 9:28 p. m., passed signal 12L, which indicated Approach, and while moving on track No. 2 at a speed of 50 miles per hour, as indicated by the tape of the speed recording device, it collided with derailed equipment of Extra 9462 East. The locomotive and the caboose were derailed.

The derailed cars of Extra 9462 East stopped in various positions on or near both main tracks and the adjacent auxiliary track. The rear truck of the fourth car was displaced, and the locomotive and the first four cars remained coupled and stopped with the front end 1,988 feet east of the point of derailment. Seven of the derailed cars were destroyed. The other derailed cars were badly damaged.

The locomotive and the caboose of Extra 9465 West were derailed to the north. A separation occurred between the first and second Diesel-electric units. The first unit stopped on its right side, north of track No. 2 and parallel to it, with the front end approximately 300 feet west of the point of collision. The other Diesel-electric units and the caboose stopped approximately in line with and immediately east of the first unit. They leaned toward the north at an angle of about 45 degrees. The first Diesel-electric unit and the caboose were badly damaged. The other Diesel-electric units were somewhat damaged.

The engineer, the fireman, the conductor, the front brakeman, and the flagman of Extra 9465 West were injured.

The weather was clear at the time of the accident, which occurred about 9:40 p. m.

P.R.R. 192571, the fourth car of Extra 9462 East, is an all-steel hopper car, built in November 1915. It is 42 feet long over the end sills, 10 feet 2-1/4 inches wide, and 10 feet 6-1/2 inches high. Its light weight and nominal capacity are, respectively, 50,500 pounds and 140,000 pounds. The load limit is 159,500 pounds. At the time of the accident the lading consisted of crushed limestone. The total weight

of the car and the lading was 189,700 pounds. The trucks are of the four-wheel type. They are equipped with 6-inch by 11-inch journals, steel wheels, and cast-steel side frames with separate journal boxes.

Discussion

When the derailment occurred Extra 9462 East was moving on track No. 1 at a speed of 38 miles per hour, as estimated by the engineer, in territory where the maximum authorized speed for this train was 50 miles per hour. As this train was approaching the point where the accident occurred the engineer and the fireman were maintaining a lookout ahead from the control compartment at the front of the locomotive. The front brakeman was in the rear unit of the locomotive. The conductor and the flagman were in the caboose. The headlight was dimmed because of the approaching train on track No. 2. The engineer said that signal G first indicated Approach and that the indication changed to Proceed as his locomotive closely approached it. He had initiated a service brake application to reduce speed in compliance with the signal indication, and when the indication of the signal changed he made a further brake-pipe reduction preparatory to releasing the brakes. Immediately afterward the brakes were applied in emergency as a result of the derailment. The engineer partially released the brakes of the locomotive by use of the independent brake valve in order to prevent the rear portion of the train from overtaking the forward portion. The forward portion stopped with the front end 1,988 feet east of the point of derailment. The enginemen said that Extra 9465 West was passing their locomotive at the time the brakes became applied in emergency.

When Extra 9465 West passed signal 12L, this signal indicated Approach. A few seconds later the indication of the cab signal of the locomotive changed from Approach to Proceed. The speed of the train was then increased to 50 miles per hour. As this train was approaching the point where the accident occurred the enginemen were maintaining a lookout ahead from the control compartment at the front of the locomotive. The fireman, a qualified engineer, was operating the locomotive. The members of the train crew were in the caboose. The brakes of the train had been tested and had functioned properly when used en route. The fireman dimmed the headlight when he observed Extra 9462 East approaching on track No. 1. He said that he moved the headlight switch from dim to bright position as his locomotive was passing the locomotive of Extra 9462 East and at the same time he observed sparks flying from the cars of that train. He immediately made an emergency application of the brakes and closed the throttle. The collision occurred before the speed

of the train had been reduced. The engineer said that he was standing in the center of the control compartment in position to inspect the train of Extra 9462 East. He first observed sparks flying from the cars of that train immediately before the collision occurred.

Examination of the track after the accident occurred disclosed no condition which could have caused or contributed to the cause of the derailment. The first mark on the track structure was a scraping mark which was found near the outer edge of the head of the south rail of track No. 1 at a point 2,591 feet west of the point of derailment. The bolts of the joint bar on the south side of the east end of this rail were battered and the bond wires were sheared off. Other scraping marks were found on the track structure on the south side of the south rail at irregular intervals between this point and the point of derailment. Planking south of the south rail at a highway grade crossing 366 feet west of the point of derailment was torn out. The heel of the frog at the east end of the crossover had been struck a heavy blow, and marks on the ties indicated that wheels had become derailed to the north immediately east of the frog. Both main tracks were destroyed throughout a considerable distance east of the turnout.

Examination of the equipment of Extra 9462 East after the accident occurred disclosed that the right side-frame of the rear truck of the fourth car, P.R.R. 192571, was broken through both the tension and the compression members. The primary fracture occurred in the tension member at a point 11-1/2 inches inward from the center-line of the journal at location R-2. About 50 percent of this fracture was an old break in the front wall of the U-section of the side frame. The remainder of the fracture was new. The fracture in the compression member occurred 17-1/2 inches inward from the center-line of the journal at location R-2. This fracture was new. After the failure of the side frame, the truck was permitted to come in contact with the track structure. The marks on the track structure indicate that the truck became derailed when the side frame came in contact with the frog at the east end of the crossover.

P.R.R. 192571 last received classified repairs at the Pitcairn Shops of the carrier at Pitcairn, Pa., during April 1950, and the truck side-frame involved was applied to the car at that time. This side frame was manufactured by the Scullin Steel Company in December 1916. It bore the markings "PRR V-7808 12-16 SS 3597 Journal 6 x 11 2." Laboratory

analysis of the metal disclosed that it met the chemical requirements of the Association of American Railroads specifications. The nominal thickness of the U-section of 1 1/16 inch had not been appreciably reduced by rust or corrosion. However, the primary fracture showed approximately 30 percent blow holes in the front wall with detailed fracture through the thin walls between the holes and progressing over practically 50 percent of the entire cross section. Apparently the failure was due to the excessive porosity of the casting, in conjunction with fatigue.

P.R.R. 192571 was loaded with crushed limestone at Marble Cliff Quarries, near Columbus, Ohio, and was destined to Follansbee, W. Va. It was moved by a yard crew from the loading point to Grandview Yard, Columbus, April 12, 1954, and was assembled in the train of Extra 9462 East on April 13. No exception was taken when this car was inspected by members of the mechanical force at Grandview Yard. However, it is not known whether the defective condition of the truck side-frame could have been detected by a routine visual inspection. The members of the crew of Extra 9462 East said that they made frequent observations of their train throughout the trip and observed no defective condition. The dragging-equipment detector in track No. 1 west of the point of accident was not actuated by the passage of this train, and members of the crew were unaware of anything being wrong with the equipment of their train before the derailment occurred.

Cause

This accident was caused by a broken truck side-frame, and derailed cars obstructing an adjacent main track.

Dated at Washington, D. C., this fifteenth day of June, 1954.

By the Commission, Commissioner Clarke.

(SEAL)

GEORGE W. LAIRD,
Secretary.