INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 2997

NORFOLK AND WESTERN RAILWAY COMPANY

REPORT IN RE ACCIDENT

AT POWHATAN, W. VA., ON

JUNE 12, 1946

SUMMARY

Railroad:	Norfolk and Western
Date:	June 12, 1946
Location:	Powhatan, W. Va.
Kind of accident:	Derailment
Train involved:	Passenger
Train number:	26
Engine number:	604
Consist:	7 cars
Estimated speed:	Approximately 55 m. p. h.
Operation:	Timetable, train orders and automatic block-signal system
Track:	Double; 12°54' curve; 1.254 percent ascending grade eastward
Weather:	Raining
Time:	3:18 p. m.
Casualties:	2 killed; 27 injured
Cause:	Excessive speed on curve

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2997

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

NORFOLK AND WESTERN RAILWAY COMPANY

July 31, 1946.

Accident at Powhatan, W. Va., on June 12, 1946, caused by excessive speed on a curve.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On June 12, 1946, there was a derailment of a passenger train on the Norfolk and Western Railway at Powhatan, W. Va., which resulted in the death of 2 train-service employees, and the injury of 23 passengers, 3 dining-car employees and 1 train-service employee.

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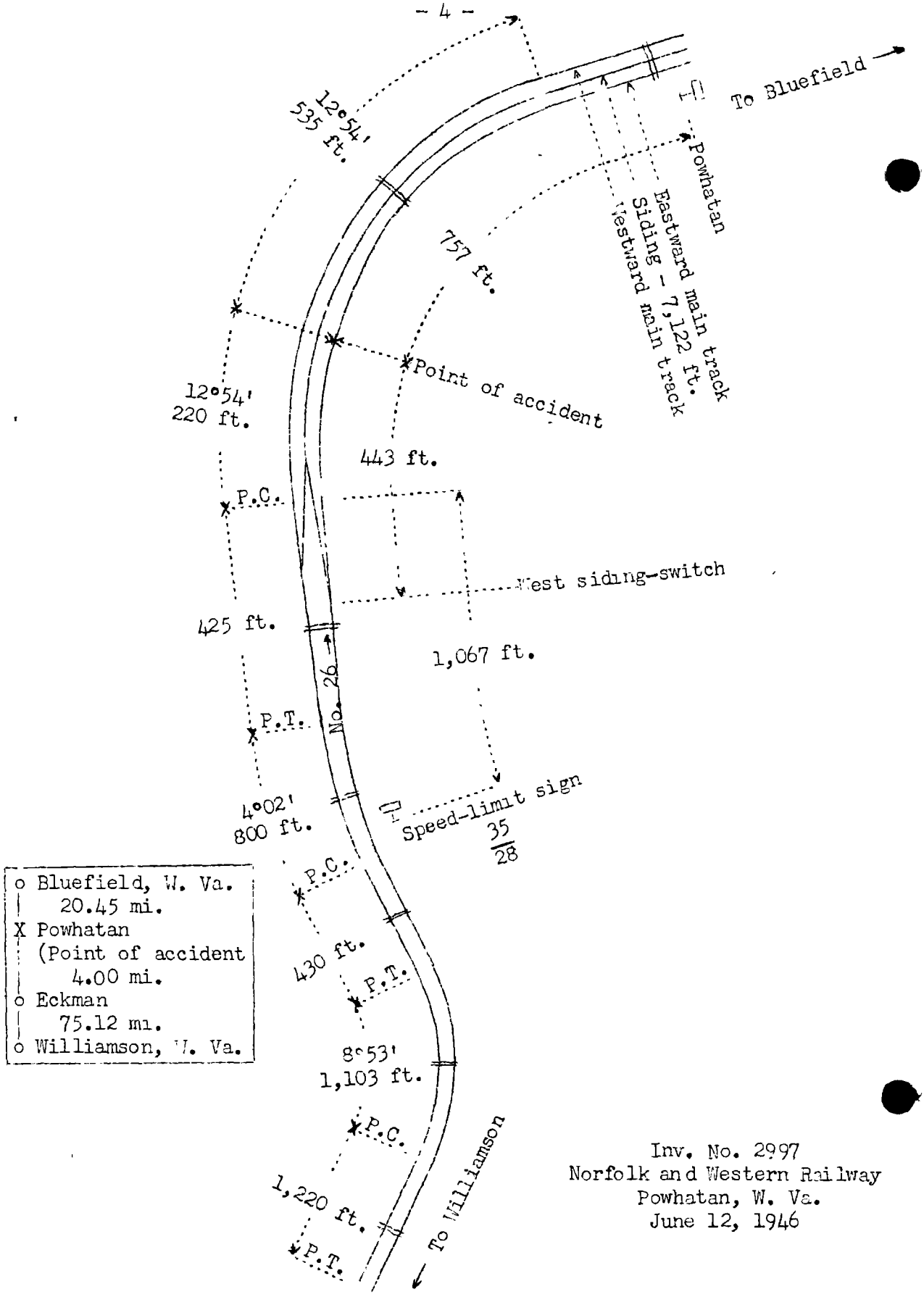
[1]Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Inv. No. 2997
Norfolk and Western Railway
Powhatan, W. Va.
June 12, 1946

Location of Accident and Method of Operation

This accident occurred on that part of the Pocahontas Division extending between Williamson and Bluefield, W. Va., 99.57 miles, a double-track line, equipped with an overhead catenary system for the electric propulsion of trains. In the vicinity of the point of accident trains moving with the current of traffic are operated by timetable, train orders and an automatic block-signal system. The accident occurred on the eastward main track 79.12 miles east of Williamson, at a point 757 feet west of the station at Powhatan. From the west there are, in succession, a tangent 1,220 feet in length, an 8°53' curve to the left 1,103 feet, a tangent 430 feet, a 4°02' curve to the right 800 feet, a tangent 425 feet and a 12°54' curve to the right 220 feet to the point of accident and 535 feet eastward. The grade for east-bound trains varies between 1.175 percent and 1.036 percent ascending 4,000 feet, then it is, successively, practically level 800 feet, 1.325 percent ascending 800 feet and 1.254 percent ascending 1,093 feet to the point of accident and 200 feet eastward. In the vicinity of the point of accident a siding lies between the main tracks. The west siding-switch is 443 feet east of the point of derailment.

On the curve on which the accident occurred, the track structure consists of 131-pound rail, 39 feet in length, laid new in 1944 on an average of 22 treated ties to the rail length. It is fully tieplated with double shoulder tie-plates, double spiked, provided with 6-hole angle bars equipped with joint springs, and an average of 9 rail anchors per rail length, and is ballasted with crushed stone to a depth of 24 inches. The maximum superelevation on the curve was 5 inches, and the gage varied between 4 feet 8-1/2 inches and 4 feet 8-7/8 inches. At the point of derailment the superelevation was 5 inches and the gage was 4 feet 8-3/4 inches.

The maximum authorized speed for passenger trains on the curve involved is 35 miles per hour. A speed-limit sign bearing the numerals $\frac{35}{28}$ is located immediately south of the south rail of the eastward main track, at a point 1,067 feet west of the west end of this curve. On tangent track the maximum authorized speed for passenger trains is 40 miles per hour.

Description of Accident

No. 26, an east-bound first-class passenger train, consisted of steam engine 604, a 4-8-4 type, three coaches, one dining car, and three coaches, in the order named. All cars were of steel construction. This train passed Eckman, the last open office, 4 miles west of Powhatan, at 3:12 p. m., 9 minutes late, and while it was moving at a speed estimated to have been approximately 55 miles per hour the engine and the first two cars were derailed.

The engine and tender stopped on their left sides on the westward main track and practically in line with it, with the front end of the engine 373 feet east of the point of derailment.

The first car became detached from the tender and stopped with the front end against the rear end of the tender, and leaned to the north at an angle of about 45°. The second car, remaining coupled to the first and third cars, stopped practically upright on the roadbed and at an angle of about 15 degrees to the track. The engine and tender were badly damaged, and the first two cars were considerably damaged.

It was raining at the time of the accident, which occurred about 3:12 p. m.

The engineer and the fireman were killed, and the conductor was injured.

The total weight of engine 304 in working order is 494,000 pounds, distributed as follows: Engine truck, 101,600 pounds; driving wheels, 288,000 pounds; and trailer truck, 104,400 pounds. The specified diameters of the engine-truck wheels, the driving wheels and the trailer-truck wheels are, respectively, 33, 70, and 42 inches. The rigid wheelbase of the engine is 18 feet 9 inches long, the total length of the engine wheelbase is 47 feet 3-1/2 inches, and the total length of the engine and tender is 109 feet 2-1/4 inches. The tender is rectangular in shape, and is equipped with two 6-wheel trucks. Its capacity is 20,000 gallons of water and 35 tons of coal. The weight of the tender loaded is 378,600 pounds. The center of gravity of the engine is 77 inches above the tops of the rails and the center of gravity of the tender when fully loaded is 79 inches above the tops of the rails. The engine is provided with No. 8-ET brake equipment and a speedometer. The journals of the engine and tender and the cars of No. 26 are provided with roller bearings. The cars of No. 26 are provided with tightlock couplers. The tender was equipped at its rear end with a type E coupler.

Discussion

No. 26 was moving on a 12°54' curve to the right when the engine and the first two cars were derailed. The engine overturned to the left and stopped 373 feet beyond the point of derailment. The maximum authorized speed for this train in the territory immediately west of this curve was 40 miles per hour, and on the curve it was 35 miles per hour.

There was no defective condition of the engine prior to the accident. There was no indication of dragging equipment, defective track, or of any obstruction having been on the track. Examination of the engine after the accident disclosed that the automatic and independent brake valves were in running position, the throttle lever was in closed position, and the reverse lever was latched on the quadrant in about 25 percent cut-off position for forward motion. There was no condition found that would prevent proper application of the train brakes.

As the train was approaching the point where the derailment occurred, the members of the train crew were in various locations throughout the cars of the train. These employees said

that the cars had been riding smoothly, and they were not aware of anything being wrong until the derailment occurred. They were unable to give an accurate estimate of the speed of the train, or to give definite information as to whether a service application of the brakes was made to control the speed immediately prior to the derailment. The engineer and the fireman were killed.

The surface, alinement and gage of the track on the curve are well maintained for the maximum authorized speed of 35 miles per hour. There were no wheel marks between the rails at the point of derailment. At the point of derailment there was a flange mark which extended across the head of the high rail a distance of 6-1/2 feet. This mark probably was made by the tender when it was pulled from the track by the engine. There were numerous flange marks eastward from the point of derailment, caused by the derailment of the cars.

The road foreman of engines said that it is customary to control the speed of passenger trains on the ascending grade in the territory involved by easing off on the throttle rather than by the use of the automatic brake system. It was his opinion that when No. 36 was approaching the curve involved the throttle was open to the extent that the train was moving at a speed somewhat in excess of the maximum authorized speed for the curve, that as the engine entered the curve the engineer suddenly moved the throttle to closed position and that, since the cars were provided with tightlock couplers and the journals of the equipment were provided with roller bearings, a sudden run-in of the slack occurred between the tender and the following cars, which resulted in an increase in the speed sufficient to cause the engine to overturn on the curve. The theoretical overturning speed at the point of derailment for engine 604 was 56 miles per hour. The engine was equipped with a speedometer but no speed recording device. It appears that the train was moving at overturning speed, as the engine overturned to the outside of the curve without marking the rails, and slid on its left side to the point where it stopped. However, a speed somewhat less than 56 miles per hour combined with a run-in of slack between the tender and the cars could have caused the engine to overturn.

Cause

It is found that this accident was caused by excessive speed on a curve.

Dated at Washington, D. C., this thirty-first day of July, 1946.

By the Commission, Commissioner Patterson.

W. P. BARTEL,
Secretary.

(SEAL)