INTERSTATE COMMERCE COMMISSION

WASHINGTON

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INVESTIGATION NO. 2730

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

REPORT IN RE ACCIDENT

NEAR SHADWELL, VA., ON

SEPTEMBER 26, 1943

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SUMMARY

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| Railroad: | Chesapeake and Ohio |
| Date: | September 26, 1943 |
| Location: | Shadwell, Va. |
| Kind of accident: | Derailment |
| Train involved: | Passenger |
| Train number: | Extra 483 West |
| Engine number: | 483 |
| Consist: | 11 cars |
| Estimated speed: | 45-50 m. p. h. |
| Operation: | Timetable, train orders, automatic block-signal and automatic train-stop system |
| Track: | Single; $7^{\circ}30'$ curve; 0.85 percent descending grade westward |
| Weather: | Clear |
| Time: | About 10 a. m. |
| Casualties: | 2 killed; 18 injured |
| Cause: | Excessive speed on sharp curve |

INTERSTATE COMMERCE COMMISSION

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INVESTIGATION NO. 2730

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

THE CHESAPEAKE AND OHIO RAILWAY COMPANY

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November 15, 1943.

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Accident near Shadwell, Va., on September 26, 1943, caused by excessive speed on sharp curve.

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REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On September 26, 1943, there was a derailment of a passenger train on the Chesapeake and Ohio Railway near Shadwell, Va., which resulted in the death of 2 train-service employees, and the injury of 14 passengers, 2 Pullman employees, 1 train-service employee on duty and 1 train-service employee off duty.

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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-2730
Chesapeake and Ohio Railway
Shadwell, Va.
September 26, 1943

## Location of Accident and Method of Operation

This accident occurred on that part of the Richmond Division extending between Richmond and Charlottesville, Va., 98.8 miles. In the vicinity of the point of accident this was a single-track line over which trains were operated by timetable, train orders and an automatic block-signal and automatic train-stop system. The accident occurred 0.87 mile west of the station at Shadwell. From the east there were, in succession, a tangent 1,537 feet, a 1°06' curve to the left 1,325 feet, a tangent 144 feet, a No. 10 turnout to the left 64.5 feet, the curvature of which was 7°21', a tangent frog 16.5 feet, and a 7°30' curve to the right 96 feet to the point of derailment and 17 feet beyond. The grade for west-bound trains was 0.85 percent descending 4,746 feet to the point of accident and 1,234 feet beyond.

The track was laid on a hillside cut. The track structure consisted of 112-pound R. E. rail, 39 feet in length, laid new in 1937 on 22 to 23 treated hardwood ties to the rail length. It was fully tieplated, single-spiked, provided with 6-hole angle bars and an average of 6 rail anchors per rail length, and was ballasted with crushed stone to a depth of 12 inches. At the point of derailment there was no superelevation.

A new main track beginning about 177 feet east of the point of accident and extending 1.49 miles westward had been built north of the old main track. Arrangements had been made to begin to use the new main track on September 27. In order to connect the old and the new tracks, a facing-point turnout to the left for west-bound movements had been installed 4,390 feet west of Shadwell and 177 feet east of the point of derailment. From a point 39 feet east of the switch to a point 39 feet west of the frog, the track was constructed of 131-pound rail.

Automatic signal 176.5, which governed west-bound movements, was 3,434 feet east of the point of accident.

The maximum authorized speed for the train involved was 50 miles per hour. At the time of the accident the speed of all trains was restricted to 15 miles per hour at the switch involved.

## Description of Accident

Extra 483 West, a west-bound passenger train, consisted of engine 483, of the 4-6-2 type, one express car, one Pullman observation car, three coaches, one baggage car, one tourist-sleeping car, three coaches and one tourist-sleeping car, in the order named. The eighth to tenth cars, inclusive, were of steel-underframe construction and the remainder were of all-steel construction. At Richmond, 93.7 miles east of Shadwell,

a terminal air-brake test was made, the brakes were used to control the speed at various points en route and they functioned properly. This train departed from Richmond at 6:58 a. m. At Gordonsville, 15.9 miles east of Shadwell, the crew received a clearance card and, among others, train order No. 1, Form 19, reading as follows:

> Effective 700 Am today
> Sep 26th all trains reduce
> speed to 15 miles per hour
> over switch to east end
> New track Massie located
> 500 feet west of mile post 177

Extra 483 departed from Gordonsville at 9:36 a. m., passed Keswick, 2.2 miles east of Shadwell and the last open office, at 9:57 a. m., passed signal 176.5, and while moving at a speed estimated to have been between 45 and 50 miles per hour the engine and first eight cars were derailed on the old main line at a point 177 feet west of the switch.

Engine 483 was derailed to the south and stopped on its left side down the embankment, headed northeast, with the front end 279 feet west of the point of derailment and 21 feet south of the old main line. The rear end was 61 feet south of the old main line. The cab was demolished, and the left water-glass was broken off at the boiler. A rail punctured the inner and outer sheets of the back head. The tire of the left No. 2 driving wheel was forced inward on its wheel-center 1-1/8 inches. The retaining-segment rivets of the left trailer wheel were sheared off. The tender, remaining coupled to the engine, stopped on its left side practically parallel to the engine. Both trucks of the tender were detached. The first car stopped on its left side, practically parallel to the old main line and about 30 feet south of it. The second car stopped on its left side, about 15 feet south of the old main line and at an angle of 70 degrees to it. The third, fourth and fifth cars stopped upright and practically at right angles to the track. These cars were badly damaged. The sixth and seventh cars were derailed and stopped upright on the roadbed and in line with the track. The front truck of the eighth car was derailed.

It was clear at the time of the accident, which occurred about 10 a. m.

The engineer and the fireman were killed. The conductor and a brakeman off duty were injured.

After the accident an inspection of engine 483 disclosed that the throttle valve was closed, and the reverse lever was in position for forward motion. There was no indication of any defective condition having existed prior to the accident.

Measurements of the track east of the point of accident disclosed it to be in good surface and alinement.

According to data furnished by the carrier, the maximum safe speed on a 7°30' curve having no superelevation was about 30 miles per hour for the engine involved.

## Discussion

Extra 483 West entered the old main track at a turnout to the left, then entered a 7°30' curve to the right, and the engine and first eight cars were derailed to the left 96 feet west of the east end of the curve. The track on the curve had no superelevation, and the maximum safe speed for engine 483 was about 30 miles per hour. There was considerable variation in the estimates of the speed at the time of derailment, but the preponderance of evidence indicated that the speed was 45 or 50 miles per hour. Prior to the accident, there was no defective condition of the engine, and there was no indication of dragging equipment, defective track, or of any obstruction having been on the track. The first mark on the track structure was on the gage side of the head of the outside rail. This mark started about 92 feet from the east end of the curve and extended 4 feet, and was caused by compression of flanges against the head of the rail. Immediately beyond the west end of this mark, a flange mark extended diagonally 11-1/2 inches to the outer side of the head. Another diagonal flange mark began 2 feet 9-3/4 inches beyond the first diagonal mark and extended 13-1/2 inches across the rail.

The curve on which the derailment occurred was formed during the construction of a new main track immediately north of the old main track. To connect the old and the new tracks, a switch was installed, and its normal position was for movement on the old main track. A train order restricting the speed over the switch to 15 miles per hour was delivered to the crew of Extra 483 West 24 minutes before the accident occurred. Why the speed was not reduced at the switch in compliance with the requirement of the train order is not known, as the enginemen were killed in the accident.

## Cause

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

Dated at Washington, D. C., this fifteenth day of November, 1943.

By the Commission, Commissioner Patterson.

W. P. BARTEL,

(SEAL)

Secretary.