INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3464

THE VIRGINIAN RAILWAY COMPANY

IN RE ACCIDENT

NEAR MADA, W. VA., ON

MAY 17, 1952

SUMMARY

Date:	May 17, 1952
Railroad:	Virginian
Location:	Mada, W. Va.
Kind of accident:	Derailment
Train involved:	Freight
Train number:	Extra 702 East
Engine number:	702
Consist:	27 cars, caboose
Estimated speed:	25 m. p. h.
Operation:	Timetable and train orders
Track:	Single; spiral; 0.13 percent ascending grade eastward
Weather:	Clear
Time:	7:15 p. m.
Casualties:	1 killed; 2 injured
Cause:	Insecure condition of track

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3464

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

THE VIRGINIAN RAILWAY COMPANY

June 30, 1952

Accident near Mada, W. Va., on May 17, 1952, caused by insecure condition of the track.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On May 17, 1952, there was a derailment of a freight train on the Virginian Railway near Mada, W. Va., which resulted in the death of one employee, and the injury of two employees.

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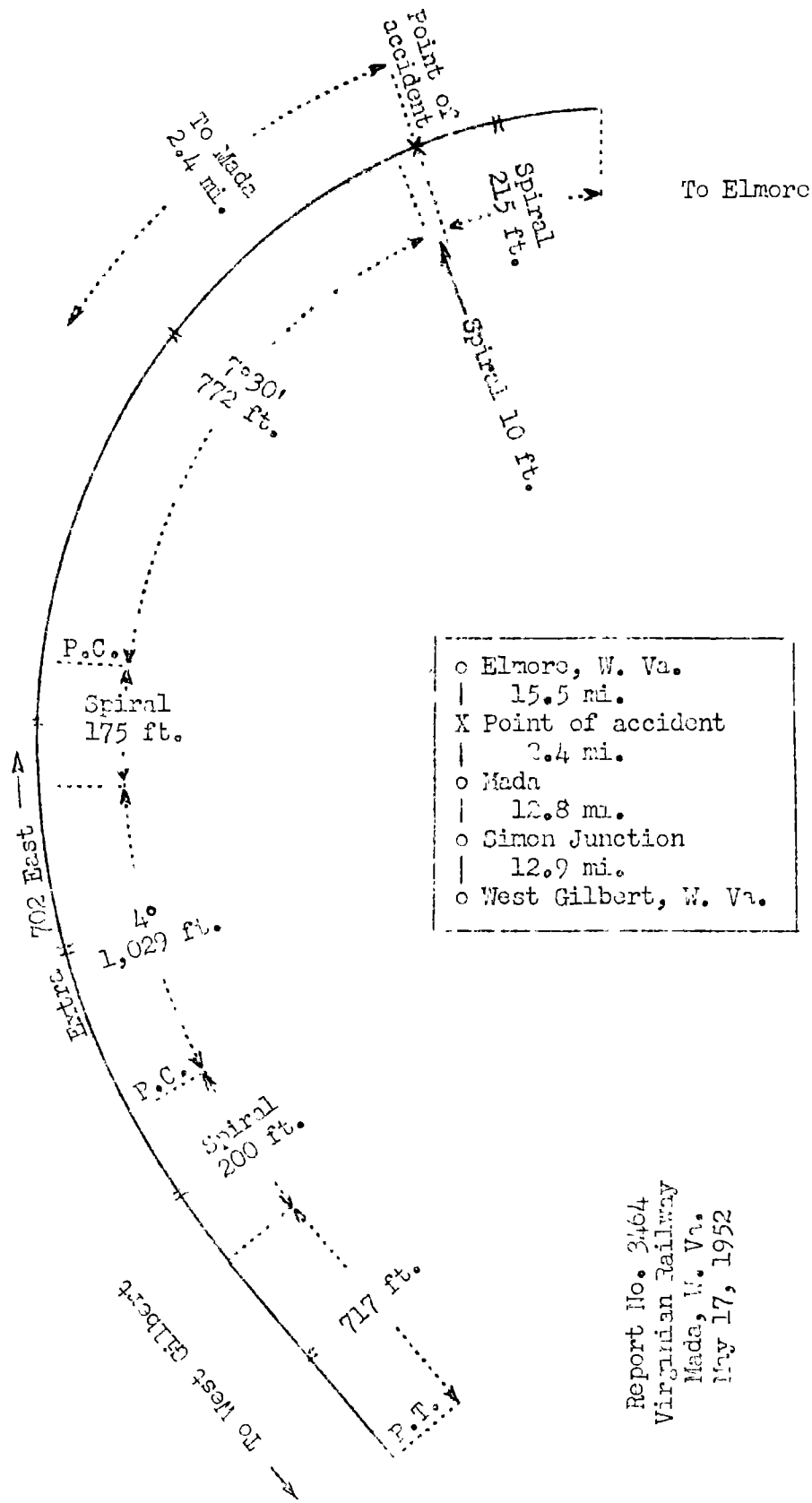
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Report No. 3464
Virginian Railway
Mada, W. Va.
May 17, 1952

Location of Accident and Method of Operation

This accident occurred on that part of the New River Division extending between West Gilbert and Elmore, W. Va., 43.6 miles, a single-track line, over which trains are operated by timetable and train orders. There is no block system in use. The accident occurred on the main track at a point 28.1 miles east of West Gilbert and 2.4 miles east of the station at Mada. From the west there are, in succession, a tangent 717 feet in length, a spiral 200 feet, a 4° curve to the right 1,029 feet, a spiral 175 feet, a 7°30' curve to the right 772 feet, and a spiral about 10 feet to the point of accident and 215 feet eastward. The grade for east-bound trains is 0.13 percent ascending at the point of accident.

In the vicinity of the point of accident the track structure consists of 130-pound rail, 39 feet in length, re-laid in its present location in 1946 on an average of 22 treated hardwood ties to the rail length. It is fully tieplated with single-shoulder tieplates, single-spiked, and is provided with 4-hole 24-inch joint bars and an average of 12 rail anchors per rail. It is ballasted with crushed stone to a depth of approximately 12 inches below the bottoms of the ties. On the 7°30' curve immediately west of the point of accident the specified superelevation is 3-3/4 inches.

The maximum authorized speed is 25 miles per hour.

Description of Accident

Extra 702 East, an east-bound freight train, consisted of engine 702, 27 cars and a caboose. This train departed from Simon Junction, 15.2 miles west of the point of accident and the last open office, at 6:10 p. m., departed from Mada at 7:05 p. m., and while it was moving at an estimated speed of 25 miles per hour the engine and tender, the first seven cars, and the front truck of the eighth car were derailed at a point 2.4 miles east of Mada.

The engine stopped on its left side, with the front end 26 feet south of the track and about 240 feet east of the point of derailment and the rear end 18 feet north of the track. The tender stopped on its left side. It remained coupled to the engine. The derailed cars stopped in various positions on or near the track. The engine, the tender, and the first five cars were badly damaged. The sixth and the seventh cars were somewhat damaged.

The fireman was killed, and the engineer and the front brakeman were injured.

The weather was clear at the time of the accident, which occurred at 7:15 p. m.

Engine 702 is of the 2-8-8-2 Mallet type. The total weight in working order is 533,800 pounds, distributed as follows: engine truck, 29,400 pounds, driving wheels, 479,200 pounds; and trailing truck, 25,200 pounds. The specified diameters of the engine-truck wheels, the driving wheels, and the trailing-truck wheels are, respectively, 30 inches, 57 inches, and 30 inches. The driving wheelbase of both the low-pressure engine and the high-pressure engine is 15 feet 9 inches long. The total driving wheelbase is 42 feet 4 inches long, and the total wheelbase is 58 feet long. The total length of the engine and tender, coupled, is 106 feet. The tender is rectangular in shape and is equipped with two four-wheel trucks. Its capacity is 12,000 gallons of water and 16 tons of coal. The accumulated mileage of the engine since class repairs was 5,365. The last trip inspection and repairs were completed at Elmore on the day of the accident. The theoretical equilibrium and safe speeds of engine 702 moving on a 7°30' curve having a superelevation of 3-3/4 inches are, respectively, 28 miles per hour and 42 miles per hour.

Discussion

As Extra 702 East was approaching the point where the accident occurred the speed was about 25 miles per hour. The enginemen and the front brakeman were maintaining a lookout ahead from their positions in the cab of the engine. The conductor and the flagman were in the caboose. The engineer said that he had noticed nothing unusual in the operation of the engine during the trip. As the engine was closely approaching the point where the accident occurred the engineer observed the low-pressure engine lurch from side to side. He immediately closed the throttle and initiated an emergency application of the brakes. He then observed that the track ahead of the engine was shifting laterally. He thought that the engine did not become derailed until after he saw the track shifting. The front brakeman was unable to see the track ahead from his position on the left side of the engine. He said that he felt the engine lurch to the left immediately before the engineer applied the brakes. The engine became derailed several seconds later.

Examination of the engine after the accident occurred did not disclose any condition which could have caused or contributed to the cause of the accident. The engine-truck assembly, driving-wheel assembly, and trailing-truck assembly were in good condition. The flanges and treads of all wheels were of full contour. There was no appreciable flange or tread wear. All wheel centers were tight on their axles. All tires were tight on their wheel centers and were parallel to their companion tires. The lateral motion of each pair of wheels was in accordance with the requirements of the carrier. The spring arrangements were maintained in good alinement and there was no indication of binding. The boiler-bearing assembly was in good condition. The boiler-bearing wearing plate and shoe showed no indication of wear or galling. The surfaces were well lubricated. The chafing castings between the engine and the tender were in good condition and well lubricated. Except for ballast markings, there were no marks on the flanges or treads of the wheels to indicate abnormal contact with the track structure.

Examination of the track structure throughout a distance of 2 miles west of the point of derailment disclosed no indication of dragging equipment nor of an obstruction having been on the track. Throughout a distance of about 185 feet immediately west of the point of derailment the track had been displaced from normal alinement. The west portion of the displaced section of track was shifted to the north. The maximum northward displacement was 14 inches at a point 90 feet east of the west end of the displaced section. The east portion of the displaced section was shifted toward the south. The maximum southward displacement was 30 inches in the immediate vicinity of the point of derailment. The track was destroyed between this point and the point at which the engine stopped. Most of the rails which had been in this section of the track were bent and twisted. No marks were found on any of them which could be identified as having been caused by a flange crossing the head of a rail or running on the web of a rail. One rail, which had been in the south side of the track, was broken at a point 6 feet 4 inches east of the receiving end. Both pieces were found near the point at which the engine stopped. The section of rail east of the break was slightly battered at the broken end. There were no batter marks on the ends of any of the other rails. There were no broken joint bars. Most of the ties which had been in this section of the track were badly splintered. Several ties bore heavy flange marks, but their positions in the track structure before the accident occurred could not be determined. The exact point at which the engine became derailed could not be determined.

In preparation for laying new rail in the vicinity of the point of accident the track was surfaced and raised and defective ties were replaced about 8 weeks before the accident occurred. On the curve on which the accident occurred the track was raised approximately 4 inches, and an average of four ties per rail length were replaced. Some additional ballast had been added, but most of the cribs were only partially filled. Apparently, after the track was raised and the ties were renewed, the ballast did not provide normal resistance against lateral forces exerted against the track structure, because the engineer saw the track in front of the engine shift laterally, and after the accident occurred the track was found to be shifted a maximum distance of 30 inches from normal alinement. Evidently the lateral force exerted by the engine of Extra 702 East shifted the track and damaged it sufficiently to cause the derailment of the engine. There was no indication that the rails had been creeping excessively or that the joints in the vicinity of the point of accident had been excessively tight before the derailment occurred. This track was last inspected on the day before the accident occurred. A west-bound freight train consisting of an engine and a caboose passed the point of accident at a speed of about 20 miles per hour about 1 hour 30 minutes before the accident occurred. The engineer of this train said that he did not notice any unusual condition.

Cause

It is found that this accident was caused by insecure condition of the track.

Dated at Washington, D. C., this thirtieth day of June, 1952.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.