

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE DELAWARE, LACKAWANNA & WESTERN RAILROAD NEAR HACKETTSTOWN, N. J., ON JUNE 16, 1925.

July 11, 1925.

To the Commission:

On June 16, 1925, there was a derailment of a passenger train on the Delaware, Lackawanna & Western Railroad near Hackettstown, N. J., which resulted in the death of 45 passengers, 1 Pullman porter, and 1 employee of the railroad, and the injury of 25 passengers. This accident was investigated in conjunction with representatives of the New Jersey Board of Public Utility Commissioners.

Location and method of operation

This accident occurred on that part of the Morris and Essex Division extending between Hoboken and Washington, N.J., a distance of 66.6 miles. In the vicinity of the point of the accident this is a double-track line over which trains are operated by time-table, train orders, and an automatic block-signal system. The point of accident was at a highway crossing known as Rockport crossing, located about $3\frac{1}{2}$ miles west of the passenger station at Hackettstown. The track is tangent in both directions from the crossing for a distance of about $1\frac{1}{2}$ miles, while the grade is varying, being 0.97 per cent descending for a distance of about 2,500 feet approaching the point of accident from the west. Immediately east of Rockport crossing is a crossover connecting the two main tracks, the switches being trailing switches for movements with the current of traffic. The distance between the east end of the crossing planks and the guard rail of the frog of the switch in the eastbound track is 198 feet.

The track is laid with 90-pound rails, 35 feet in length with about 19 oak and pine ties to the rail-length, ballasted with about 2 feet of cinders; tie-plates and screw spikes are used. The track is well maintained. Under the rules the speed of passenger trains is restricted to 70 miles an hour.

The weather was cloudy at the time of the accident, which occurred at about 2.25 a.m.

Description

Eastbound passenger train extra 1104 consisted of two coaches and five Pullman sleeping cars, all of steel construction, hauled by engine 1104 and was in charge of Conductor Banker and Engineer Loomis. It passed Washington, the initial station on the Morris and Essex Division, about 6 miles from the point of accident, at 2.17 a.m. and was derailed while travelling at a speed estimated to have been about 50 miles an hour.

Engine 1104 came to rest on its left side parallel with and across the right rail of the eastbound main track, with the head end of the engine being about 450 feet beyond the crossing. The tender frame was just east of the engine, while the tender cistern was across the westbound main track and at right angles to the same. The first coach came to rest on its right side with its head end across the tender cistern and the rear end across the engine. The second car came to rest in an upright position nearly at right angles to the track with its head end resting on the embankment, which is about 12 or 15 feet in height at this point, and the center of the car practically over the extreme rear end of the engine. Both of these cars were so badly damaged as to be practically a total loss. The third car came to rest in an upright position diagonally across both tracks, the head end of the car being close to the rear of the engine and against the rear end of the second car. The fourth car also remained upright, with its head end against the embankment on the right side of the track. The forward track of the fifth car was also derailed.

The employees killed were the engineer, fireman, conductor and head brakeman, the only surviving member of the train crew being the flagman.

Summary of evidence

On account of heavy rains in the immediate vicinity of Rockport crossing a considerable quantity of dirt and small stones had been washed on the crossing, covering the rails. An examination of the track showed that the lead pair of engine-truck wheels after encountering this debris became derailed at the eastern end of the crossing and then ran on the ties close to the rails for a distance of about 198 feet to the point where the left wheel came in contact with the crossover frog, causing the engine truck to be diverted to the right and the engine to be entirely derailed. Beyond this point the track was torn up for a considerable distance.

Flagman Judge said it was raining very hard at Binghamton, about 131 miles from the point of accident, but that the train passed out of the rain at New Milford, 20.07 miles east of Binghamton, and that he did not notice any more rain, although as the train passed Washington, at which point he threw off a register card, he noticed lightning in the distance. He said his train passed this point at 2.17 a.m. and that it was derailed at 2.24 a.m. Flagman Judge is inexperienced in fast passenger-train service and at first he estimated that the accident occurred while the train was traveling at a speed of about 70 miles an hour, but he subsequently revised this estimate to about 50 miles an hour. He did not think that the engineman applied the brakes at the time of the accident. On returning to the scene of the accident after being relieved of flagging he noticed several inches of rocks and dirt on the crossing.

The statements of the Pullman porters of the four rear cars indicated that there had been considerable rain after the train left Binghamton and that it did not stop until about an hour before the occurrence of the accident. They estimated the speed to have been about 45 miles an hour when the accident occurred.

Joseph Snyder, who lives near the scene of the accident and who witnessed its occurrence, said there had been a very heavy electrical storm and after lightning had struck a lumber yard at Rockport he sat up watching the blaze. He was about to retire when extra 1104 approached and was watching it when

the tender seemed to be derailed as the train passed over the crossing at a speed he estimated to have been about 50 miles an hour. Mr. Snyder further stated that for a part of the time the rain had been as heavy as a cloudburst and he estimated that about 20 minutes elapsed between the time at which the storm passed and the time at which the accident occurred. After the accident he looked at the crossing and saw 5 or 6 inches of dirt over the rails.

The highway at this point crosses the tracks at an angle of about 90°. It is a country road constructed of material obtained in the immediate locality, in which there is a considerable amount of stones varying in size from 1/4 to 7 inches in diameter. The grade of the highway when approaching the tracks from the south is descending for a considerable distance, being about 9 percent for a distance of 100 feet south of the eastbound track with about 4 feet of level road immediately adjacent to the crossing planks. The space between the rails of both tracks is planked, these planks, which are 3 inches in thickness, being nearly level with the tops of the rails. A flangeway 2 1/2 inches in width is provided on the gauge side of each rail.

Section Foreman Smith reached the scene of the accident about 8 a.m., at which time he cleaned the dirt and rocks from the crossing. He thought there were 5 or 6 inches of this material on the eastbound track, with a smaller amount on the westbound track. There was no indication that the pilot of engine 1104 had encountered any of the debris, but the flangeways had been cleared by the wheels of the derailed train. Section Foreman Smith further stated that at Fort Murray, where he lives, about 3 miles from the point of accident, there was considerable rain, the heaviest being at about 1 a.m., but that he did not consider it heavy enough to warrant patrolling the track. The section foreman and also the track walker had last passed this point at about 4 p.m. on the preceding day at which time nothing wrong was noted.

Roadmaster Sexton did not think that there had been any heavy rain at Fort Murray but on reaching the scene of the accident he found the gravel and dirt on the crossing as previously described, apparently washed down by a very heavy rain. He also examined the ditches along the side of the highway and found evidence of very large quantities of water having passed through them. Roadmaster Sexton had been in this territory about 25 years and he said this was

the first time any difficulty of this nature had been experienced at Rockport crossing, the drainage facilities provided having been ample to take care of surface water. It also appeared from Mr. Sexton's statements that no similar trouble was experienced on the night of the accident at another crossing only 600 feet west of Rockport crossing, at which point there is also a descending grade on the highway as it approaches the railroad tracks.

Principal Assistant Engineer Neafie said the debris had been removed from the crossing when he arrived on the scene, but from his examination he was of the opinion that this material came from the highway itself rather than from the ditches paralleling the highway. He also found that a heavy rain had cut small gullies along the side of the highway while in corn fields adjoining the highway there were indications of a large amount of surface water having been accumulated. Mr. Neafie also saw the marks where the first wheels became derailed, as previously described, and said that there was nothing about the track west of the crossing to make it unsafe to operate trains at the maximum speed of 70 miles an hour. His statements concerning the indications of heavy rains in the immediate vicinity of the crossing having washed dirt and gravel down on the crossing were corroborated by the statements of Vice President and General Manager Rino.

Road Foreman of Engines Brophy and Master Mechanic Root also saw the wheel marks previously described and Mr. Root added that there was an indentation on the left front driving wheel about 1 inch in depth and 4 inches in length where the wheel apparently had come in contact with the frog. He said that practically all the appurtenances on the top of the boiler had been torn off, allowing the steam to escape freely immediately after the occurrence of the accident, but that there was nothing to indicate that the boiler had exploded. Mr. Root's examination of the engine after it had been removed from the scene did not disclose anything which could have contributed to the cause of the accident.

Operator Linnsberry, on duty at Washington when extra 1104 passed that point, said the headlight was burning properly. He also stated that it began to rain at Washington at about 11 p.m. and that it was still raining when extra 1104 passed. He did not, however, consider it to be a storm of sufficient intensity to warrant issuing slow orders.

Night Chief Dispatcher Crusier said that on account of trains already en route over that portion of the road known as the cut-off, and the further fact that two other trains were reported to arrive ahead of extra 1104, it was arranged to run extra 1104 on the old main line, on which the accident occurred. He also stated that passenger trains were often handled in this manner.

Conclusions

This accident was caused by earth and rocks being washed on the tracks at a point where they are crossed by a public highway.

The evidence indicated that there had been an unusually heavy rain in the immediate vicinity of Rockport crossing and that earth and rocks had been washed down from the travelled part of the highway to the tracks of the railroad, filling the flangeways between the crossing planks and the rails and also covering the rails to a depth of several inches, and this condition caused the forward pair of engine truck wheels to become derailed at the eastern end of the crossing. This pair of wheels then ran along the ties, close to the rails, until they reached the east switch of the crossover connecting the two main tracks, at which point the engine became entirely derailed, tearing up the track and resulting in the general derailment. No difficulty had been experienced at this crossing over a period of 25 years or more and it did not appear that any one connected with the railroad knew that in the immediate vicinity of the crossing there had been a storm of sufficient severity to endanger the safe passage of trains.

One of the cars came to rest across the boiler of engine 1104 while a second car came to rest across the rear of the boiler; practically all of the appurtenances and fittings were torn from the boiler as a result of the accident, thus permitting steam and hot water to escape into these two cars, and undoubtedly this fact accounted for a great many of the fatalities which resulted from this accident.

The employees involved were experienced men. At the time of the accident the engine crew had been on duty about 3 hours and the train crew about 4½ hours, previous to which they had been off duty for periods varying from 16 to 30 hours.

Respectfully submitted,

W. P. BORLAND,

Director,
Bureau of Safety.