COMMISSIONER Meyer

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IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE WEST SHORE RAILROAD AT JERSEY CITY, N. J., ON FEBRUARY 8, 1919.

March 15, 1919.

On February 8, 1919, there was a derailment of a Lehigh Valley train on the tracks of the West Shore Railroad at National Junction in Jersey City, N. J., which resulted in the death of 3 employees. After investigation of this accident, the Chief of the Bureau of Safety submits the following report.

Transfer movements between Claremont and Weehawken are handled over a double-track line which is confined solely to freight interchange and switch operations. Approaching Weehawken from Claremont, a double-track line of the Pennsylvania Railroad connects with this double-track switch line at a point just beyond National Junction tower. The double-track switch line is maintained by the Lehigh Valley and West Shore Railroads, the Lehigh Valley being in charge of that part extending from Claremont to a point nearly opposite the tower, and the West Shore being in charge from that point on to Weehawken. Approaching National Junction, the road is known as the National Docks Branch of the Lehigh Valley, while beyond the junction of the Pennsylvania tracks, it is known as the New Jersey Junction Railroad, which in reality is a part of the River Division of the West Shore Railroad. On account of this being a line used solely for switching and interchange purposes, there are no time-table movements of any kind. Between National Junction and Weehawken, there is a manual block signal system in use,

the block stations being located at National Junction, Willow Avenue and Weehawken. There is no interlocking plant at National Junction, the switches being operated by hand. Operators ascertain the condition of the block by means of the telephone and then give either a clear block or a caution card according to the circumstances. The actual point of derailment was about 100 feet beyond the end of the Lehigh Valley part of the track. Trains bound from Claremont to Weehawken are eastbound while on the Lehigh Valley tracks, and westbound after reaching the West Shore tracks. Approaching the point of derailment, Lehigh Valley trains are run on a viaduct and then down into a tunnel, known as Waldo Avenue tunnel. This tunnel is 439 feet long and contains a reverse curve, the track first curving to the right and then to the left, both curves being nearly 8 degrees and about 130 feet in length. The speed of trains through this tunnel is restricted to 10 miles an hour. Leaving this tunnel, there is about 150 feet of practically tangent track, a 3-degree curve to the right about 275 feet in length, 35 feet of tangent and a curve to the left, the last mentioned curve starting at 3° 35', and according to measurements made by the division engineer's office, increasing to 12° at the point of derailment, a distance of 150 feet from the start of the curve. This curve extends through the switches where the tracks of the Pennsylvania Railroad connect, these switches being trailing point switches for movements going toward Weehawken. Starting on the viaduct at Montgomery Street, the grade is 2% descending for about 600 feet,

1.67% descending for 400 feet and .295% descending for about 300 feet. It is then practically level for about 125 feet or nearly to the point of derailment. Beyond this point, there is about 500 feet of 1.42% descending grade and then 1000 feet of 1.86% ascending grade. It is customary for transfer trains to stop on the viaduct and for the engine to proceed light to the tower for the purpose of seeing the block and getting a clearance card if necessary. This signal has no distant signal connected with it.

The train involved in this accident was a transfer train of 20 loaded cars hauled by Lehigh Valley engine 3143, in charge of Conductor Ahern and Engineman Crocheron, employees of the Lehigh Valley Railroad, and was en route from Claremont, N. J., to Weehawken, N. J. The train was brought to a stop on the viaduct with the engine about 1800 feet from National Junction. The engine then proceeded light to the Junction, arriving there at about 5.40 p.m. The crew waited until 6.20 p.m. before obtaining a caution card, and then returned to the train, coupled up, made an air-brake test, and departed at about 6.31 p.m., being derailed at a point just beyond National Junction tower at about 6.35 p.m. while traveling at a speed estimated to have been about 20 miles an hour.

The engine and first four cars of the transfer train were entirely derailed and badly damaged. The engine collided with other cars standing on a side track, five of these being more or less badly damaged.

Conductor Lee of the New York Central Railroad, who was outside of the tower at National Junction at the time of the accident, stated that the engine began to work steam as soon as it got out of the tunnel. He thought the speed was about 18 or 20 miles an hour at the connection, and said that he thought about half the train had passed the connection before the air brakes were applied. The statements of other members of Conductor Lee's crew added nothing to those of the conductor.

Fireman Paulson stated that after the clearance card had been obtained and the engine returned to the train, the train line was pumped up, a period of 5 or 10 minutes passing before the train started. The train drifted through the tunnel, the engineman starting to work steam as soon as it got outside. He thought the speed crossing the P.R.R. connection was about 20 miles an hour. He said he was standing in the tender and that the accident happened so quickly that he did not know anything about it until he picked himself up afterwards.

Middle Brakeman Duffy stated that when the engine returned to the train after getting a clearance card, the air hose was coupled and an air-brake test made. The usual practice was to have one man on each side of the train walk from the head end to the rear and then notify the engineman. On this occasion, there were no brakes cut out, and the engineman was notified that the brakes were all right. Going down the grade approaching the tunnel, the speed was about 10 miles an hour, being about 18 or 20 miles an hour when the train had

passed the tunnel. Brakeman Duffy afterwards changed this to the extent of saying that the speed coming out of the tunnel was about 10 miles an hour and about 18 or 20 miles an hour at the P.R.R. connection.

Flagman Dolan stated that before leaving Claremont he assisted in making an air-brake test and that before starting from the viaduct on Montgomery Street, another test was made, the air brakes applying on the rear car. At the time of the accident, he thought an air hose had burst. He estimated the speed to have been 8 or 10 miles an hour coming through the tunnel and said that it was about 19 or 20 miles an hour at the time of the accident.

Train Master Curry of the Lehigh Valley Railroad stated that in movements of this character it was the custom to leave the train on the viaduct and proceed light to the tower and obtain a clearance; the towerman would then hold the block while the light engine backed up, coupled to its train, made an air-brake test and returned. On account of the ascending grade on the West Shore Railroad, it was customary to get a start on the descending grade on the Lehigh Valley Railroad. The speed on the Lehigh Valley track, however, was restricted to 10 miles an hour by bulletin notice issued in March, 1918. This restriction applied as far as the end of the tunnel. He further stated that both the conductor and engineman were qualified to run over the tracks of the West Shore Railroad. The reason the home signal at National Junction

does not have a distant signal connected with it is to have the crews leave their trains on the viaduct until they ascertain the position of the signal. Otherwise, if the train pulled down to the signal and then had to stop, sometimes for long periods of time, switch engines would not be able to work at the private industries along the track.

Train Master Wright of the New York Central Railroad stated that the conductor in charge of extra 3143 was the only man in that crew who had been examined and was qualified to pilot or take charge of trains on the Lehigh Valley Railroad running over this part of the West Shore Railroad, although the other members of the crew had run over it quite frequently. He also stated that there were marks on the diamond which indicated that something had been dragging over it, as well as marks on the guard rail.

Careful examination of engine 3143 was made by various officials of the Lehigh Valley and West Shore Railroads, both immediately after the accident and after the engine had been removed from the scene of the accident. These examinations developed nothing about the engine which could have caused the accident. This engine was a switch engine of the 0-8-0 type, with a total weight on the drivers of 170,550 pounds. It had been out of the shops about two weeks after having received general repairs.

Assistant Road Foreman of Engines Galvin of the Lehigh Valley Railroad stated that he had ridden on engine 3143 over the same part of the road between 1.00 and 2.00 p.m. on the day

of the accident. It had very little lateral motion and rode very steadily for an engine of that class. He thought the speed on the trip made by him was about 10 miles an hour when coming out of the tunnel and a little more than that when passing over the Pennsylvania connection. He said the general practice after leaving the tunnel was to work an engine hard in order to get over the grade on the West Shore tracks, and that a speed of 20 miles an hour might be reached between the end of the tunnel and the foot of the grade. He stated that he arrived at the scene of the accident about 2 hours after its occurrence and found all wheels and flanges to be in good condition. There were naturally many broken parts, but he found nothing which could have caused the accident. In company with an official of the New York Central Railroad, he looked over the track approaching the point of derailment and found a broken cellar and the pieces of a cellar pin. The cellar was found in the middle of the track and the breaks were clean. In all, there were one large and two or three small pieces.

Superintendent of Motive Power Hibbits and Assistant Superintendent of Motive Power McGill, both of the Lehigh Valley Railroad, made careful examination of engine 3143 after it had been picked up and found nothing which could have contributed to the derailment.

Road Foreman of Engines Umpleby of the New York Central Railroad stated that he did not find anything about the locomotive which could have caused the accident. In looking over

the track, he found at a point about 27 feet from an overhead bridge of the Pennsylvania Railroad, which is just beyond the connection, the remains of a cellar pin, the pieces being about 4 or 5 feet apart, but he said he thought the breaking of the cellar box was due to the derailment and that it occurred after the driving wheels left the track.

Master Mechanic Strauss and Assistant Superintendent of Motive Power Brown, both of the New York Central Railroad, stated that they had carefully examined the engine after it had been picked up and removed from the scene of the accident, but did not find anything which they thought could have contributed to the derailment.

Examination of the track showed the first marks of the derailment were flange marks on a guard rail 37 feet beyond the eastern end of the Lehigh Valley track at a point opposite a frog. The first wheels to leave the track apparently were the forward driving wheels. After traveling a distance of about 280 feet, the derailed wheels came in contact with a crossover connecting the east and westbound tracks, the engine and cars piling up at that point.

Division Engineer King of the Lehigh Valley Railroad stated that careful measurements were made of the track approaching the point of derailment and that nothing was found which could have caused it. There was no elevation on the curve, but he said that it was not possible to have any elevation on a curve at a crossing of this character. Considering all of the conditions existing at this point, he thought a speed of 20 miles an hour was safe.

Supervisor of Track Sheehan of the Lehigh Valley Railroad stated that the frog at the P.R.R. connection was a little low, but not enough to do any harm. He considered that there was nothing in connection with the track which could have caused the derailment.

Section Foreman Hoyd of the West Shore Railroad stated that he had never had any trouble at the crossover and that to the best of his knowledge, it was in good condition. The only marks he found on the track were slight marks on the frog at the center as if something had dragged across the top of it.

Track Supervisor Johnson of the West Shore Railroad stated that he found where something had been dragged over the frog and also marks on the guard rail where something had ridden the top of the guard rail outside of the lead rail. A wheel had passed over the rail and gotten in between the switch point and the stock rail. There were then occasional marks down to where the wheels encountered the crossover, at which point the track was torn up. He examined the frog and track at the P.R.R. connection and found everything to be in good condition.

Division Engineer Thompson of the New York Central Railroad stated that the degree of curvature at the connection was about 11 degrees. Under the conditions existing at that point, and with average speeds of 15 or 20 miles an hour, a safe elevation for such a curvature would be about 3 inches. He did not say, however, that it would be unsafe without any elevation if particular care was taken in the construction of

the track to prevent the rail from turning over. He said the rail at this point was 105-pound rail with extra heavy switch timbers, about 20 ties to the rail, tie-plated and double-spiked. He thought a safe speed would be not over 25 miles an hour. He said that nothing was found about the track which could have caused the accident.

The cause o this accident was not definitely ascertained. It is possible that it may have been due to a combination of speed, a little stiffness of the engine due to recent general repairs, and a sharp curve with no superelevation, but this is only an assumption which can not be proved, for all the evidence indicates the speed to have been not over 20 miles an hour, that such speeds were customary, and that the curve was entirely safe for such speeds. It is also possible that there was something dragging under the engine, but careful examinations made by mechanical officials of both of the roads involved, and by the Commission's inspectors, failed to disclose anything of this nature.

Engineman Crocheron was employed as a trainman in 1883, made a fireman in 1884, and in 1889 was promoted to engineman. Conductor Ahern was employed as a switchman in 1900, trainman in 1901, conductor in 1909, and assistant yardmaster in 1910, returning to the position of conductor in 1916. The records of all the employees on extra 3143 were good. All of them had been on duty about 9 hours, after having been off duty about 16 hours.

G.V.L.