

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE SOUTHERN RAILWAY NEAR CLEVELAND, TENN., ON SEPTEMBER 28, 1923.

November 6, 1923.

To the Commission:

On September 28, 1923, there was a head-end collision between a passenger train and a freight train on the Southern Railway near Cleveland, Tenn., which resulted in the death of 1 employee, and the injury of 16 passengers and 10 employees.

Location and Method of Operation.

This accident occurred on the Knoxville division, a single-track line extending between Knoxville and Chattanooga, Tenn., a distance of 110.8 miles, over which trains are operated by time-table, train orders, and a manual block-signal system. The point of collision was within yard limits at Cleveland, approximately $1\frac{1}{2}$ miles west of the passenger station. Beginning at the passenger station, which is also the block station, and proceeding westward toward the point of accident, the track consists of several short curves and tangents extending through the freight yard a distance of approximately 4,514 feet to a switch, designated in the time-table as Cleveland Yard at which inferior eastbound trains regularly take siding. From this switch westward there is a 4-degree curve to the right 1,363 feet in length, and a tangent 1,481 feet in length followed by a 4-degree 6-minute compound curve to the left extending to the point of accident, 1,052 feet distant, this curve extends through a cut, the high banks on either side restricting the view of the track ahead to a distance of about 200 feet. Approaching the point of accident from the east the grade for 1,891 feet is descending, varying from 0.34 to 0.81 per cent, being 0.81 per cent at the point of accident. Approaching the point of accident from the west the track is tangent for a distance of nearly 2 miles, while the grade is descending for a distance of 3,500 feet, varying from 0.72 to 0.85 per cent, level for 500 feet, and is then 0.38 to 0.81 per cent ascending 1,709 feet to the point of accident.

The weather was clear at the time of the accident, which occurred at about 4.45 p.m.

Description.

Westbound passenger train No. 41 consisted of two mail cars, one express car, one combination baggage and passenger car, two coaches, four Pullman sleeping cars, and one dining car, in the order named, all of all-steel construction, hauled by engine 1354, and was in charge of Conductor Henry and Engineman Gentry. This train arrived at Cleveland at 4.33 p.m.,

where train order No. 352, Form 31, was received, reading as follows.

"No 41 forty one Eng 1354 wait at Cleveland yard until 4.40 four forty p.m. for No 84 Eighty Four Eng 4530."

A clearance card, Form 603, was also received, reading "Block is clear on arrival of 84 eng 4530." This train left Cleveland station, according to the train sheet, at 1.38 p.m., three minutes late, proceeded at a moderate rate of speed, passed Cleveland Yard about 4.12 p.m., and while traveling at a speed estimated to have been about 15 miles an hour collided with freight train No. 84 at a point approximately 4,000 feet beyond Cleveland Yard.

Eastbound second-class freight train No. 84, consisting of 37 cars and a caboose, hauled by engine 4530, in charge of Conductor Lane and Engineman Yarnell, arrived at McDonald, 7.9 miles west of Cleveland Yard, at 4.07 p.m., where train order No. 352, Form 12, previously quoted, was received. This train departed from that point, according to the train sheet, at 4.31 p.m., five hours and one minute late, was delayed several minutes en route by an air hose breaking, and at about 4.45 p.m., while traveling at a speed estimated to have been about 12 miles an hour, collided with train No. 41.

Both engines were derailed, but remained upright with their front ends badly damaged. The front end of the first mail car was damaged, while none of the other cars in train No. 41 was derailed or materially damaged. The first five cars in train No. 84 were derailed to the right and were practically demolished, the sixth car was also derailed, but remained upright. The employee killed was the engineman of train No. 41.

Summary of evidence.

Conductor Henry, of train No. 41, stated that upon receiving train order No. 352 and the block clearance card at Cleveland, he did not personally deliver them to Engineman Gentry but permitted Road Foreman of Engines Phillips, who was present and volunteered to oblige him, to deliver them to the engineman. After conversing a minute or two with the operator, purposely to delay the departure of his train until 4.40 p.m., he went to the train, gave a proceed signal and the train departed. Conductor Henry said that although he registered out of Cleveland at 4.38 p.m., it was his belief that train No. 41 did not leave the station until 4.40 p.m. He further stated that it is well understood that a conductor can not personally attend to all of the duties assigned to him, and in this instance, as in other similar cases, he had delegated to the train porter the duty of ascertaining whether or not train No. 84 had arrived at Cleveland Yard. About the time

his train passed Cleveland Yard he was engaged in collecting transportation, and did not ascertain whether or not train No. 84 had arrived. He did not notice any application of the air brakes prior to the collision, which he thought occurred about 4.45 p.m., as he looked at his watch a minute or two after the train had stopped and it was then 4.47 p.m. He said that although the entrance to the block is at the passenger station, and according to the rules train No. 84 should have been in to clear before train No. 41 entered the block, it was customary, in cases similar to this, for trains to proceed to Cleveland Yard and at that point await the arrival of the train named in the clearance card.

Fireman Carpenter, of train No. 41, said that Road Foreman of Engines Phillips brought train order No. 352 to the engine, handed it to him, and that he read the order but did not notice the clearance card. He looked at his watch and noted that it was 4.40 p.m. at the time his train left the station. Approaching Cleveland Yard, he looked for the engine specified in the order, but could not locate it and took it for granted that train No. 84 had arrived and was at some place in the yards. After passing this point the speed was gradually increased to 25 or 30 miles an hour until just as his train was coming out of the curve, which extends through a cut with high embankments on both sides, he saw train No. 84 approaching, about 75 or 100 feet distant, he yelled twice to Engineman Gentry and jumped from the left side of the engine just before the collision.

Train Porter Hall, of train No. 41, said Conductor Henry directed him to watch for engine 4530, saying that they had a wait order for that train until 4.40 p.m. and that there would be several engines in the yard and to be certain to locate engine 4530, he did not locate engine 4530 but as it was 4.44 p.m. when his train passed the west yard, he thought they could proceed. He had not seen the orders, and did not know the block would be clear only on the arrival of train No. 84.

Conductor Lane, of train No. 84, said that after receiving train order No. 352, Form 19, at McDonald, the train departed from that point at 4.18 p.m., at which time he was riding at about the middle of the train, and although the schedule time of his train between McDonald and Cleveland Yard is 20 minutes, he thought his train had time to get in to clear at Cleveland Yard. When about two miles from Cleveland Yard the train was stopped by the bursting of an air hose on the head end of the caboose, he estimated this occasioned a delay of about five minutes, including stopping and starting. The train started and had proceeded but a short distance when he looked at his watch and noted that it was then 4.40 p.m., realized that his train was then on the time of train No. 41, and that he was, in his own words, "taking a chance", but said he relied on the block-signal system to hold train No. 41 at Cleveland Yard until the arrival of his train. Had his train reached Cleve-

lard, he had intended reading in at what is known as the high switch, which is about 2,800 feet west of Cleveland Yard.

Engineman Yarnell, of train No. 84, said that after the delay due to the broken air hose the proper thing to have done would have been to protect his train, and after starting the train he discussed with the fireman the advisability of flagging to Cleveland. Conductor Lane came to the engine about that time and said that No. 84 could proceed, saying that in any case the absolute block would protect them. As train No. 41 came into sight, he applied the brakes in emergency, which he said did not materially reduce the speed, which at that time was about 12 miles an hour. The statements of the fireman practically corroborated those of the engineman.

Chief Dispatcher Craig said that trains are admitted to occupied blocks by authority of the train dispatcher and that it was not necessary for the train dispatcher to consult any higher authority before permitting train No. 41 to occupy the block at Cleveland. Dispatcher Hudson said he issued order No. 352 to train No. 41 at Cleveland and to train No. 84 at McDonald. He instructed the operator at Cleveland to tell the conductor that several engines were in the west yard and to be certain that engine #530 was in. He said the wait order was issued so as to give train No. 84 clearance time on train No. 41. Dispatcher Hudson said he authorized the operator at Cleveland to issue clearance card, Form 603, to train No. 41 at Cleveland. Operator Rymer, at Cleveland, said this form of order and clearance card is frequently used at Cleveland, although some of the employees have questioned this form of clearance and think it safer to remain at the block office until the inferior train clears the block. Operator Rymer expressed the belief that it was practicable to hold passenger trains at the block station until the block is clear, although westbound trains would be subjected to delays if this were practiced.

Conclusions.

This accident was caused by train No. 41 entering an occupied block without proper authority, and by train No. 84 being operated on short time without flag protection.

Only the conductor and engineman of train No. 41 had seen the train order and clearance card received at Cleveland, and while the engineman apparently read the order, there is nothing to indicate that he read the clearance card or was acquainted with its contents. The conductor, however, delegated to the train porter the duty of ascertaining whether or not the opposing train had arrived, and the porter, apparently in ignorance of the instructions contained in the clearance card, supposed that all his train had to do was to wait at Cleveland Yard until 4.40 p.m. Rule 210, of the Rules of the Operating Department, requires that train orders on Form 31 shall be

delivered personally by the conductor to the engineman, the conductor taking the engineman's receipt therefor, the road foreman of engines and conductor are at fault for failure to obey this rule, while the conductor is also at fault for failure to show the orders to any member of the train crew and for leaving to the train porter the duty of ascertaining whether or not the opposing train had arrived. This was his own most important duty. It was incumbent on him personally to know that the opposing train had arrived before his own train could proceed in safety.

The evidence indicates that it is a question whether the crew of train No. 84, at the time their train left McDonald, had sufficient time to reach Cleveland Yard and be into clear by 4.35 p.m., thus complying with the rule which provides that trains of an inferior class shall clear the superior train at least five minutes. After the delay occasioned by the broken air hose, however, it was clearly apparent to the crew that they could not reach Cleveland Yard in time, and while they realized that they were on the time of train No. 41, they depended on the block system for protection, as the conductor expressed it, they decided to take a chance.

The practice of permitting trains to pass a block station and proceed to some outlying switch, there to await the arrival of an opposing train, is usually for the purpose of saving the delay of a few minutes which would result were the train to wait at the entrance to the block. It is obvious, however, that this removes the benefit of block signal protection and leaves to the employees the proper observance of orders and instructions which have been issued to them. Several accidents in block signal territory which the Commission has investigated have resulted from the existence of such a practice, and the officials of this railway, as well as those of other railways upon whose lines such conditions exist, should take immediate steps looking toward a proper observance and use of the block signal system.

The crew of train No. 41 had been on duty from 4 to 8 hours, after having been off duty 12 hours or more, the crew of train No. 84 had been on duty 2 hours and 15 minutes, after nearly 10 hours off duty.

Respectfully submitted,

W. P. BORLAND,

Director.