

## INTERSTATE COMMERCE COMMISSION

- - - - -

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE ATLANTIC COAST LINE RAILROAD AT HANAHAN, S. C., ON DECEMBER 9, 1922.

January 6, 1923.

To the Commission:

On December 9, 1922, there was a rear-end collision between two passenger trains on the Atlantic Coast Line Railroad at Hanahan, S. C., which resulted in the death of 1 passenger, and the injury of 17 passengers, 8 Pullman employees, 4 other persons and 7 employees of the railroad.

Location and method of operation:

This accident occurred on the Charleston District of the Second Division, extending between Florence and Charleston, S. C., a distance of 102 miles. In the vicinity of the point of 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 the station at Hanahan, approaching from the south the track is tangent for several miles, while the grade is from 0.6 to 0.7 per cent ascending for about 2,000 feet and then level for a few hundred feet to the point of accident.

The automatic signals are of the three-position, upper-quadrant type, displaying red, green and white, for stop, caution and proceed, respectively. Signal 3842 is located 416 feet south of the point of accident, while signal 3852 is 5206 feet south of signal 3842.

The weather was foggy at the time of the accident, which occurred at about 7.07 a.m.

Description

Northbound passenger train No. 52 consisted of one express car, one combination mail and baggage car, two coaches and one Pullman sleeping car, hauled by engine 363, and was in charge of Conductor Cannon and Engineer Smith. The first three cars were of wooden construction, the fourth had a steel underframe, and the fifth was of all-steel construction. This train passed North Wye Tower at 6.55 a.m., four minutes late, and stopped at Hanahan, 3.9 miles distant, at 7.03 a.m., six minutes behind its schedule leaving time. After being at the station a period estimated by the train crew to have been from three to five minutes the rear end of the train was struck by train second No. 80.

Northbound passenger train second No. 80 consisted of one deadhead coach, seven deadhead Pullman sleeping cars, six express cars and one coach, hauled by engine 482, and was in charge of Conductor Turner and Engineman Williams. The first 10 cars were of all-steel construction, 3 of the others had steel underframes, while the remaining 3 were of wooden construction. This train passed North Wye Tower at 6.59 a.m., 1 hour and 33 minutes late, and only four minutes behind train No. 52, passed signal 3842 in the stop position, and collided with train No. 52 while traveling at a speed estimated by the train crew to have been about 35 or 40 miles an hour.

The engine and first three cars of train No. 52 separated from the two rear cars and were driven ahead a total distance of 480 feet, while the two rear cars were forced ahead a distance of about 160 feet. The engine and first three cars were damaged, while the sleeping car telescoped the rear end of the coach ahead of it for a short distance. Engine 482, of train second No. 80, had only the forward pair of engine truck wheels derailed and its front end slightly damaged, the second car of this train telescoped the third car a distance of about 15 feet, while five other cars were slightly damaged.

#### Summary of evidence.

The forward truck wheels of the engine hauling train No. 52 had been renewed on the day previous to the accident and on arrival at Hanahan it was found that the left forward wheel was hot and needed repacking. While the fireman was obtaining the necessary supplies, Engineman Smith was engaged in removing the old packing, but inasmuch as he did not think his train would be stopped more than five minutes he did not sound the whistle signal for the flagman to protect the train. Fireman Lagree, however, stated that when on his way to the baggage car for the supplies he noticed the flagman going back. Conductor Cannon had given a proceed signal as soon as the station work had been done and when the train did not start went to the head end to see what was the trouble, and while at the engine saw the flagman going back to flag, the flagman then being about a car length from the rear of the train. Conductor Cannon then boarded the train and walked back through the cars and at about the time he reached the rear car heard the engine of train second No. 80. He ran to the rear of the car, saw the headlight of the engine through the open door, and was able to jump before the collision occurred. When the flagman returned after the accident, Conductor Cannon saw that he had a 10 minute red fusee in his hand, about three-fourths of which had been burned. Flagman Perry said he was in the forward end of the fourth car when the train stopped at Hanahan and as he was about to descend to the ground the train porter told him that they had a hot box, and he said that he then

ran back to the rear of the train and obtained two red fuses, at which time he heard train second No. 80 approaching and shortly afterwards saw the headlight of the engine. He said he ran back as fast as possible, giving stop signals with a lighted fusee, which signals were not acknowledged, and stepped from the track just before the engine reached him, this being at a point about 800 feet from the rear of his train, and he said he was opposite the rear car of train second No. 80 when it came to a stop. According to Flagman Perry, the fireman of train second No. 80 was in the tender cutting down coal, while he thought he saw the engineman standing on the running board with his back to him, apparently doing something with a whistle cord or around the dome of the engine, and he did not think that the engineman had seen either his stop signals, the stop indication of signal 3842, or the markers on the rear of the train, which were burning brightly. Flagman Perry thought that scarcely a minute had elapsed between the time his train stopped and the time he started back to flag, and that he had done all that was possible in the short time at his disposal.

Engineman Williams, of train second No. 80, said it was difficult to observe signal indications on account of the fog, but that after leaving North Wye Tower, he saw all signals up to signal 3852, they were working properly and displaying clear indications. He saw signal 3852 when it was about an engine length distant and thought it was displaying a clear indication, but said it was pumping and went from clear to caution, leading him to think there was something wrong with it; in fact, at one time he took it for a caution indication but then decided it was a clear indication. The speed of his train then increased on account of the descending grade north of the signal and his attention was given to turning on the lubricator feeds a little more, and then as there was considerable dust flying around in the cab on account of the fireman cutting down coal in the tender he started to open the front cab window, but found the window fastened tightly and had to use a wrench to open it, after which he began to look for the indication of signal 3842. According to his statement he observed this signal a few seconds afterwards, just ahead of the engine, displaying a stop indication. As he reached for the brake valve he saw the headlight reflecting on the rear end of train No. 52, and he said he went out through the side window of the cab and did not know whether or not he had applied the air brakes. Engineman Williams stated that he had not seen anything of a flagman or a fusee, and that he had not been out on the running board of the engine. Engineman Williams stated signal 3852 must have been displaying a caution indication if working properly and on account of the fog and his belief at the time of passing it that it was not working properly he might have been mistaken as to its correct indication. The cylinder packing on the left side of this engine had been blown

out at a point about 50 miles south of the point of accident, but outside of difficulties in starting the train and attaining schedule speed, Engineman Williams' statements indicate it was not giving him any trouble. The statements of the fireman added nothing of importance to those of Engineman Williams except that he said the engineman applied the air brakes, and he also verified Engineman Williams' statement about not having been out on the running board of the engine. The conductor and one of the brakemen of train second No. 80 were riding in the eighth car of the train, while Flagman Horn was riding in the rear car. None of these employees was able to say positively that there was any application of the air brakes prior to the collision. Flagman Horn said that immediately after the accident he saw Flagman Perry opposite the rear car of train second No. 80 on the engineman's side of the track.

The engineman of train No. 52 had noticed nothing wrong with the operation of the automatic signals as his train approached Hanahan, while the engineman of train No. 338, which was closely following train second No. 80, said he had no difficulty observing signal indications and that all the signals approaching the point of accident were working properly, signal 3852 then being in the stop position on account of the rear end of train second No. 80 being within the limits of the block section. As soon as the rear end of this train was removed from the circuit the signal assumed the caution position. Supervisor of Signals Partridge said these signals were among those tested by him on December 6th at which time they worked properly and were in perfect condition. Observation of the performance of the signals on the day of the accident, and tests made on the following day, failed to develop anything to indicate that they were not working properly at the time of the accident.

#### Conclusions.

This accident was caused by the failure of Engineman Williams, of train second No. 80, properly to observe and obey automatic block-signal indications.

Engineman Williams' statements indicate that there was a doubt in his mind concerning the indication of signal 3852 and that he thought it might have been out of order. Under these circumstances he should have been governed by rule 27, of the Rules for the Government of the Transportation Department, which provides that a signal imperfectly displayed must be regarded as a stop signal. As a matter of fact, this signal was working properly immediately before and after the accident, and subsequent observation and test failed to disclose that there was anything improper in its operation, and it is believed that it was displaying a caution indication at the time train second No. 80 approached and that Engineman Williams failed properly to observe this indication.

This accident again calls attention to the necessity of automatic train control. The engineman was in doubt as to the indication of a caution signal and permitted his train to pass it without reducing speed or taking any measures toward being able to bring the train to a stop should the home signal be found in the stop position. Had an adequate train-control system been in use, train second No. 80 would have been brought to a stop before passing the home signal and this accident would not have occurred.

Engineman Williams was employed as an engineman in 1905, after several years previous experience on another railroad. At the time of the accident the crew of train No. 52 had been on duty about one hour and the crew of train second No. 80 about six hours, previous to which these employees had been off duty from eight and one-half hours to several days.

Respectfully submitted,

W. P. BORLAND,

Director.