

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 FLORENCE, S. C., ON FEBRUARY 4, 1925.

March 20, 1925.

To the Commission.

On February 4, 1925, there was a derailment of a passenger train on the Atlantic Coast Line Railroad at Florence, S. C., which resulted in the death of one employee and the injury of one employee.

Location and method of operation.

The accident occurred at a double-slip switch located approximately 800 feet south of the station at Florence, within what is known as the passenger yard, which is a part of the First Division, extending between Florence and Richmond, Va. The movement of trains is governed by time-table rule 19, reading as follows. "Trains will note caution board just north and south of entrance to passenger yard, Florence, where trains must stop and flag into yard unless given signal by ground switchmen to proceed." Approaching the point of accident from the south there is a 5° 13' curve to the right 1,730 feet in length and then tangent track to the point of accident, 100 feet distant, and for a considerable distance beyond; the grade in this vicinity is practically level. The track is laid with 85-pound rails, 33 feet in length, with about 19 ties to the rail-length, tie-plated, single-spiked, and ballasted with gravel to a depth of about 12 inches. The track is maintained in good condition.

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

Description.

Northbound passenger train No. 86 consisted of two deadhead Pullman cars, one mail car, one express car, one baggage car, two coaches, six Pullman sleeping cars, one club car, and one private car, in the order named, hauled by engine 1545, and was in charge of Conductor Young and Engineman Cox. This train departed from Lanes, S. C., 48.4 miles from Florence, at 5.53 a.m., six hours and two minutes late, and was derailed at the double-slip switch at the entrance to the passenger yard at Florence at 7.07 a.m., while traveling at a speed estimated to have been from 25 to 30 miles an hour.

The engine, tender and first four cars were derailed, all of the equipment remaining upright, the engine stopping at a point about 425 feet beyond the double-slip switch. The tender came to rest at right angles to the track with one end against the boiler head. The employee killed was the fireman.

Summary of evidence.

Engineman Cox said the usual terminal air-brake test was made before his train departed from Savannah, Ga., the initial terminal on this district, and the brakes were reported in proper working order. Upon arriving at Charleston the engine was cut off and water was taken, and after coupling to the train the brakes were again tested. After leaving that point he made a running test and the brakes responded in the usual manner and worked properly in making the station stop at Lanes, S. C., the last stop made prior to the occurrence of the accident, while the last time the train brakes were used was in reducing speed between Salters and Kingstree, about 43 miles south of Florence, in compliance with a slow order. Engineman Cox stated that the engine was steaming poorly and at a point about 10 miles south of Florence the fireman raked the fire and shook the crates, this being the only time on the trip that this was done. The speed was reduced in passing from single to double track at Java, 6.6 miles from Florence, but on account of the engine steaming so poorly at this time he shut off steam and used only the engine brakes to check the speed of the train. He said he sounded the whistle signal for a crossing and also for the station when his train was about $\frac{1}{4}$ mile from Florence, the speed at the time being about 35 or 40 miles an hour, and as he approached Evans Street Tower, which is about 1,500 feet from the double-slip switch, he made the usual brake application preparatory to stopping at the switch unless a signal to proceed was received from the switch tender; he then discovered that the brakes were operative only on the engine. He said he at once told the fireman to look out for himself as they did not have any train brakes, opened the sanders and reversed the engine, at the same time noting that the air gauge indicated a full train line pressure. Engineman Cox said he then sounded the whistle in an effort to attract the attention of the train crew, thinking they might realize that something was wrong and apply the air brakes in emergency by using an emergency valve. He thought the speed of his train had been reduced to about 25 miles an hour at the time of encountering the double-slip switch. Engineman Cox further stated that since the occurrence of the accident he had been informed that five other enginemen had had a similar experience with a closed cut-out cock, one of which instances was on the day prior to the accident.

Conductor Young said he noticed nothing unusual in the operation of the train prior to the occurrence of the accident. The last time he felt the brakes applied was when speed was reduced before entering upon double track and he was not subsequently aware of the brakes being applied until the train came to a stop at the time of the derailment. Baggage-master Dority said he had thought that the speed was a little high when the train was entering Florence; he thought the brakes were applied and then released, shortly after which they were applied in emergency and the train came to a sudden stop. Flagman Goodwin said the train came to a stop without any perceptible shock.

Switch Tender Leviner, on duty at the double-slip switch, stated that after lining that switch for switch engine 131 to cross to track 4, and while waiting for that engine to return, his tour of duty ended and he was relieved by Switch Tender Shields. Switch Tender Leviner said he had been informed previously that train No. 86 would arrive at about 6 a.m., and as it was then 7 a.m. and that train had not arrived he told Switch Tender Shields to be on the lookout for it. Switch Tender Shields said the double-slip switch was lined as it had been last used by switch engine 131 when he reported for duty at 7 a.m. and as that engine was expected to return shortly he had not changed the routing of the switch when the telephone in the switchman's shanty nearby rang and he had started toward the shanty to answer the telephone when he heard train No. 86 approaching. He ran across the tracks ahead of the approaching train but the engine had passed before he could reach the switch and give the train the correct routing.

Engine Foreman Renfrow, of yard engine 131, stated that he was in the cab of engine 131 at the time train No. 86 approached and that he did not hear any whistle signals. He estimated the speed of that train to have been about 25 or 30 miles an hour at the time of the derailment. The statements of the other members of the yard engine and switching crew brought out no additional facts of importance.

Towerman Elliott, on duty at Evans Street Tower, stated that he heard train No. 86 sound the usual crossing and station signals as it approached Florence and that it passed the tower traveling at a speed he thought was about 20 miles an hour. He also stated that he heard the engineman of train No. 86 sound four blasts of the engine whistle which he thought was the signal for the double-slip switch.

Road Foreman of Engines Medlin stated that shortly after his arrival at the scene of the accident he heard Engineman Cox quoted as saying that he did not have any train brakes and that he could not stop for the double-slip switch. At that time there was so much steam escaping that it was impossible to get near the engine, but later they were able to open the blow-off cocks and the steam soon abated. He examined the angle cocks on the rear of the tender and the head end of the first car, both of which were open properly, and as soon as he was able to enter the engine cab he made a thorough examination of the air-brake appurtenances. He found that the cut-out cock under the brake valve was closed; the handle of this cock was about half way between its normal position when open and its perpendicular position when closed. He noted the position carefully, and then moved the handle up and down two or three times; he said it worked properly in that it took some effort to move it. After concluding his examination he returned the cut-out cock handle to the position in which he found it. Later in the day he and two other road foremen of engines took another engine of the same type and class of engine 1545 and with the brake-pipe pressure charged to 110 pounds and the main reservoir to 130 pounds tested the brakes with the cut-out cock handle placed in the same position as he had found the one on engine 1545. With the brake valve placed in the emergency position, the brake-cylinder pressure built up very slowly, and on opening the angle cock at the rear of the tender with the brake valve in the running position, the air would escape by the cut-out cock so slowly, that it would have been practically impossible for Engineman Cox to have obtained sufficient pressure to have had any braking effect. Road Foreman of Engines Medlin said the fact that these cut-out cocks might be closed by the grate shaker bar had never been brought to his attention until the occurrence of this accident.

Chief Car Inspector Bragdon, at Florence, stated that he was at the station waiting for train No. 86 to arrive and saw that train as it approached. He went to the scene of the accident immediately, and Engineman Cox said he did not have any air in the train line and could not stop for the double-slip switch; thinking that an angle cock had been turned on the train somewhere he immediately began an inspection but could find nothing wrong except that the brakes on one end of a double-braked car was cut out.

Foreman of Air Brake Inspectors Williams, who has general supervision of air-brake equipment on engines at Florence, said he had never known any case where the shaker bar fouled or struck the cut-out cock handle under the brake valve. Since the occurrence of this accident he had observed that this condition existed on three or four other engines, which statement was verified by Boiler Inspector Mims.

Conclusions.

This accident was caused by the cut-out cock under the brake valve on engine 1545 being partly closed, resulting in rendering the train brakes inoperative.

Investigation and test showed that when the shaker bar was used it was possible for it to be moved forward enough to come in contact with the handle of the cut-out cock, moving it enough to close the port in the cut-out cock, and in view of the fact that the fireman had shaken the grates at a point about 10 miles south of Florence it seems probable that this is when the cut-out cock became closed, the fact not being noticed until Engineman Cox tried to reduce the speed of the train as it was entering Florence.

It was developed that there were other engines in service on which the cut-out cock could be closed in the same manner, but apparently no one in authority, nor any one connected with the maintenance of the air-brake equipment, had realized that this could be done, although Assistant Round House Foreman Cooper stated that after the occurrence of the accident another engineman told him that the same thing had happened with engine 1638 on the day preceding the accident.

All of the employees involved were experienced men; at the time of the accident the employees involved had been on duty about 10½ hours, after 10 hours or more off duty.

Respectfully submitted,

W. P. BORLAND,

Director.