

## INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE NORFOLK AND WESTERN RAILWAY AT BRISTOL, VA., ON OCTOBER 27, 1923.

January 11, 1924.

To the Commission:

On October 27, 1923, there was a collision between a passenger train and a cut of standing cars on the Norfolk and Western Railway at Bristol, Va., which resulted in the death of an employee of the Southern Railway and the injury of four passengers and three employees.

Location and method of operation.

That part of the Radford Division on which this accident occurred extends between East Radford and Bristol, Va., a distance of 107.7 miles, and is a single-track line over which trains are operated by time-table, train orders and an automatic block signal system. This accident occurred within yard limits on a siding known as the "Tennessee Track" which is south of and parallel to the main track in front of the station, the collision occurring at a point 162 feet from the main track switch, approaching the point of accident from the east there is a 3 degree curve to the right, 725 feet in length, followed by a tangent, 1,750 feet long and several short curves to the right and left, the maximum curvature being 4 degrees for a distance of about 1,400 feet then followed by a tangent of 375 feet to the point of accident. The Tennessee Track switch, located about 50 feet east of the east end of the station platform is a No. 20 Ramapo ground switch of the "throw over" type, the target being about 2 feet above the ground, its main track indication being yellow and the diverging route indication red.

Automatic block signal B-4075 is located about 4,450 feet east of the station at the end of automatic block signal territory; it is a two-position, upper-quadrant signal and controls train movements from the signal to the station. When the arm is in the horizontal position its indication is "stop and proceed with caution", and when the arm is in a position 45 degrees above the horizontal the indication is "proceed with caution". Between the signal and the station there are 10 main track switches which are electrically connected with signal B-4075, and the setting of any of these switches for a diverging route from the main track automatically places signal B-4075 in the "stop and proceed with caution" position.

The weather was clear at the time of the accident which occurred about 10.22 a.m.

Description.

The train involved was westbound passenger train No 41. It consisted of 1 express car, 1 combination mail and baggage car, 2 express cars, 1 combination baggage and passenger car, 1 coach, 1 dining car and 5 Pullman sleeping cars, all of all-steel construction, hauled by engine 129 and was in charge of Conductor Flanagan and Engineman Bourne. This train passed Wallace, 5.6 miles from Bristol, at 10.13 a.m., 27 minutes late, stopped at block signal 3-4075, and then proceeded towards the station and entered the Tennessee Track switch while running at a speed estimated to have been between 5 and 25 miles an hour and collided with a cut of standing cars on that track.

The impact of the collision drove the cars ahead a distance of about 80 feet. The rear coach of the cut was badly damaged and the second coach slightly damaged. Engine 129 was slightly damaged and the coupler at the rear of the tender was broken as was the forward coupler of the first car which was slightly damaged. None of the equipment was derailed. A Southern Railway conductor who had left his caboose on the second track south of the Tennessee Track was walking around the west end of the cut when the collision occurred and was thrown to the ground and fatally injured.

Summary of evidence.

Switch Tender DuFrese said that after opening the east switch of the Tennessee Track for train No. 37 he went to the west end of the station, upon the arrival of that train he assisted in uncoupling the engine, and while riding the rear tender step on the engineman's side directed the movement of the engine through the crossover at the west end of the station and back down the main track to the spark track located east of the station. Approaching the Tennessee Track switch he received a back-up signal from an employee who had thrown the switch and the spark track switch and seeing that both were properly lined he signalled the engineman to proceed to the spark track. After the engine was placed on the spark track, he threw the spark track switch to normal, walked back towards the station, and when passing the Tennessee Track switch noticed that it was set for the main track and latched. He was watching train No. 41 approach and saw it enter the Tennessee Track and collide with the coaches which had comprised the equipment of train No. 37. He examined the switch after the accident and found it set for the Tennessee Track and latched. Switch Tender DuFrese was positive and emphatic in his statement that the switch was lined for the main track when he passed it.

Engineman Meredith of train No. 37 said Switch Tender DuFrese rode the engine to the spark track and approaching the Tennessee Track switch he received a back-up signal and saw that the switch was lined for the main track; after the engine was placed on the spark track he saw the switch tender throw the spark track switch but did not see him after that.

Yard Conductor Vance said he had been relieved from duty on the morning of the accident and had returned to the yard on an errand and was passing the Tennessee Track switch when he noticed the engine of train No. 37 approaching and being familiar with the movement he threw the switch and the spark track switch and gave a back-up signal. He said he latched both switches and did not again throw the switches after the engine had passed.

Engineman Bourne of train No. 41 said that signal B-4075 was at stop, he brought the train to a stop at that signal and then proceeded at a speed of about 5 miles an hour, making several light applications of the air brakes to control the speed of the train on the descending grade from the signal to the station. When at a point about opposite the water tank east of the station he had his first view of the main track switches which appeared to be properly lined for the main track and after applying the brakes preparatory to making the station stop he was looking at the people on the station platform and did not notice that the Tennessee Track switch was open until the engine entered the switch, at which time he saw the equipment standing on that track and made an emergency application of the air brakes, the engine broke away from the cars of the train and collided with the coaches. Engineman Bourne said the brakes seemed to take hold on the cars more quickly than on the engine, he was of the opinion that for this reason the engine broke from the train and that had it not been for that fact the train would have been stopped with but little if any damage resulting.

Fireman Garrett said he was ringing the engine bell approaching the station at which time the speed was not in excess of 10 miles an hour, as the switches appeared to be properly lined for the main track he began watching for people crossing the tracks and did not notice that the switch to the Tennessee Track was open until the engine headed into it and he shouted to the engineman who applied the brakes in emergency at about the same time. Fireman Garrett was of the opinion that the engine broke loose from the train after the collision.

Conductor Flanagan said his first intimation of the accident was when the brakes were applied in emergency followed a short time later by the collision at which time the speed was about 10 miles an hour. He examined the switch after the accident and found it set for the Tennessee Track and latched. Brakeman Cook and Stump corroborated the statement of Conductor Flanagan.

Pump Repairman Sutherland said that after loading some material on a truck he was standing on the north side of the main track about opposite the Tennessee Track switch when the engine of train No. 37 passed the switch. Before crossing the main track with his truck he waited to see if a yard engine was going to use the switch, and a man whom he did not recognize came from the direction of the spark track and threw the Tennessee Track switch for that track and then passed around the end and along the south side of the coaches in a westerly direction. As there was no yard engine approaching he proceeded across the main track, and he was positive that the switch was open as when he moved the truck over the switch one of the wheels dropped between the switch point and south rail of the track. He didn't call anyone's attention to the open switch as he thought it had been opened preparatory to switching the cars of train 37. He also said that he paid out little attention to the man whom he supposed was a member of a yard crew about to use the track nor was he able to describe him with any degree of certainty.

Car Foreman Warren and Car Inspectors Dettor, Dunlap, Keesee and Witt described their movements prior to the accident and according to their statements none of them had handled the switch. Car Inspectors Keesee and Witt estimated the speed of train No. 41 to have been 15 and 10 miles an hour, respectively. Assistant Yardmaster Harkleroad accounted for the members of a yard crew working east of the station.

#### Conclusions.

This accident was caused by the failure of Engineman Bourne of train No. 41 to operate his train under control as required by the signal indication he had received. A contributing cause was the failure of Fireman Garrett to observe the position of the switch.

With signal B-4075 displaying a stop indication, Engineman Bourne knew that the track ahead was occupied or obstructed and that he must run cautiously expecting to find a train, open switch, broken rail or other obstruction in the block. Tests conducted with an engine of the same type as that involved in this accident developed that the open switch could have been seen from the fireman's side for a distance of 400 feet, and from the engineman's side for a distance of 300 feet. Neither Engineman Bourne nor Fireman Garrett was able to account for failing to see the open switch. Had either Fireman Garrett or Engineman Bourne discovered the open switch when it came within their range of vision, this accident could have been averted.

The testimony of witnesses was to the effect that the speed was considerably in excess of that claimed by the engine man and is borne out by the fact that both couplers between the engine and first car of Train No. 41 were broken and that notwithstanding the fact that the air brakes were set on the coaches a short time prior to the collision, the impact was sufficient to drive them ahead a distance of about 80 feet. The distance from the open switch to the standing cars was 162 feet; had train No. 41 been operated under control as required by the signal indication, or in accordance with time table rule, which prescribes a maximum speed limit of 8 miles per hour within the corporate limits of Bristol, Engineman Bourne could no doubt have stopped his train in time to avert the accident after he discovered it was entering the open switch.

It was not developed who opened this switch. To prevent unauthorized persons operating this main track switch and to preclude the recurrence of such an accident it is believed that this switch should be locked when not under the direct observation of a switch tender.

All of the employees involved were experienced men. At the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

W. P. BORLAND

Director.