

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE
INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON
THE CENTRAL OF GEORGIA RAILWAY AT ECHECONNEE,
GA., ON APRIL 3, 1927.

April 30, 1927.

To the Commission:

On April 3, 1927, there was a head-end collision between a passenger train and a freight train on the Central of Georgia Railway at Echeconnee, Ga., which resulted in the death of 1 employee, and the injury of 14 passengers, 5 persons carried under contract and 1 employee.

Location and method of operation

This accident occurred on the Albany District of the Southwestern Division, which extends between Macon and Albany, Ga., a distance of 106.3 miles. In the vicinity of the point of accident this is a single-track line; the automatic block-signal system which had been in use was in process of being changed to the extent of installing semiautomatic signals at stations and side tracks, eliminating superiority of trains by class or direction and also eliminating the use of train orders. The new arrangement had been placed in service between Terra Cotta, near Macon, and Echeconnee, 9.1 miles west of Terra Cotta, the operator at Terra Cotta having control over all signals between the two points except so far as the intermediate signals are concerned; these are of the usual automatic stop-and-proceed type, and operate in harmony with the semiautomatic signals.

The plant at Terra Cotta consists of an eight-lever machine, with time locks to prevent the changing of a signal at the instant a train enters on a circuit. Levers 1, 2, 4 and 8 when thrown to the left give a clear route for westbound trains from Terra Cotta to Echeconnee; when on center, all semiautomatic signals are displayed at stop, the normal position, and when the levers are thrown to the right a clear route is given eastbound trains from Echeconnee to Terra Cotta. The fouling of a circuit causes the signals to operate automatically and they can not then be changed by the operator. Levers 3, 5, 6 and 7 control signals indicating when it is desired to have a train enter or leave a passing track.

At the time of the accident the signal layout west of Echeconnee was being changed so as to be similar to that east of Echeconnee, and under date of March 28 a bulletin was issued stating that the automatic signals at Echeconnee were out of service with the exception of eastbound signal H-202.4; this bulletin also stated that this signal was under the control of the operator at Terra Cotta and that on account of the fact that the preceding eastbound signal, at the station at Echeconnee, was out of service it would be necessary for eastbound trains to approach signal H-202.4 under control. Under the arrangement in effect, had signal H-202.4 been left in the clear position by the operator it would have assumed the stop position automatically as soon as an opposing westbound train entered the block at Rutland, 3.9 miles east of Echeconnee.

The accident occurred on a trestle, at a point 538 feet east of signal H-202.4, which in turn is located 205 feet west of the east switch of the westbound passing track. Approaching the point of accident from the west the track is tangent for a distance of more than 1 mile, followed by a compound curve to the left which is 3,064 feet in length, this is a 50-minute curve except for a short distance at its leaving end where the curvature is $1^{\circ} 45'$. The track is then tangent to the point of accident, 141 feet beyond the end of the curve. Approaching from the east there is a long tangent and then a compound curve to the right 1,401 feet in length, followed by 755 feet of tangent extending to the point of accident. The grade is descending from each direction until the trestle is reached, the maximum grade for eastbound trains being 1.15 per cent while that for westbound trains is 0.89 per cent.

The weather was clear at the time of the accident, which occurred at 1.23 a.m.

Description

Westbound freight train extra 367 consisted of 40 cars and a caboose, hauled by engine 667, and was in charge of Conductor Smith and Engineman Gates. This train left West Yard, at Macon, at 1 a.m., passed Terra Cotta, 0.9 mile beyond, at 1.03 a.m., passed Rutland, and on arrival at Echeconnee was brought to a stop on the main track about 335 feet east of the east switch of the westbound passing track, it being intended to head in for train No. 12, but the extra was struck by train No. 12 before the movement could be made.

Eastbound passenger train No. 12 consisted of four express cars, one combination baggage and mail car, one combination baggage and express car, two coaches, two Pullman sleeping cars, and one official car, in the order named, hauled by engine 419, and was in charge of Conductor Darnell and Engineman Seaborn. The first and third cars in the train were of steel-underframe construction and the second car was of wooden construction, the remainder being of all-steel construction. This train left Byron, 5 miles west of Echeconnee, at 1.15 a.m., 52 minutes late, passed signal H-202.4, which was displaying a stop indication, and collided with extra 667 while traveling at a speed estimated to have been between 40 and 45 miles per hour.

Both engines remained upright on the trestle, locked together and badly damaged. The second car in train No. 12 was demolished, while the first, third and fourth cars were more or less damaged. The first two cars in extra 667 were thrown from the trestle to the north and came to rest in the creek bed; the third car was demolished, while the fourth car was derailed but not materially damaged. The employee killed was the fireman of the passenger train.

Summary of evidence

Engineman Seaborn, of train No. 12, stated that he made a 10-pound brake-pipe reduction as his train approached Echeconnee, just before it reached the long tangent, and he estimated the speed of his train to have been about 50 or 55 miles per hour when it was in the vicinity of the whistle board for the road crossing, which crossing is located 2,970 feet west of signal H-202.4. He then sounded a road-crossing whistle signal and at about the same time made another 10-pound brake-pipe reduction, after which the brakes were held applied until the fireman could see signal H-202.4 across the inside of the curve. Finally the fireman called "clear board", at the same time giving him a hand signal, and he then got down from his seat box to put in a fire. Engineman Seaborn released the brakes, at which time the speed was about 30 miles per hour, and began to work steam, and after this had been done he leaned out of the cab window as far as possible, without raising off the seat box, in order personally to observe the indication of the signal and when it came within his range of vision, about 10 car-lengths distant, he saw that it was displaying a stop indication and at the same time he saw the headlight of extra 667. He immediately placed the brake valve in the emergency position

and sounded the engine whistle, the accident occurring very shortly afterwards; he did not think an emergency effect was obtained from the brake application, owing to the previous applications. Engineman Seaborn further stated that there was nothing confusing to him about the new signal arrangement placed in service between Terra Cotta and Echeconnee and that he had received a copy of the bulletin relative to approaching signal H-202.4 under control, that he had the train under control but was depending on the fireman to call the signal indication properly, and he expressed the opinion that had he not been misled by the fireman's action in calling the signal indication improperly he could have brought his train to a stop before reaching the signal location. Engineman Seaborn thought it possible the fireman had confused the switch light with the signal light, but said he had his regular fireman and felt he could depend upon him as he had never previously miscalled a signal.

Conductor Darnell, of train No. 12, who was riding in the ninth car of the train, said he heard the road-crossing whistle signal sounded and felt a service application of the air brakes made in the vicinity of the road crossing, at which time according to his estimate the speed of the train was between 50 and 55 miles per hour; he did not think the speed at this point was excessive, in view of the distance between the road crossing and the signal. The first he knew of anything wrong was when the air brakes were applied in emergency, at which time he thought the speed was about 40 or 45 miles per hour, and he said that the emergency application checked the speed to some extent before the collision occurred. The statements of Baggage master Pickard, Flagman Spear and Brakeman Aiken, all of train No. 12, were practically the same as those of Conductor Darnell.

Engineman Gates, of extra 667, stated that he had his train under control preparatory to heading in at the east switch of the westbound passing track for train No. 12. When the speed had been reduced to about 3 miles per hour he released the train brakes and kept the train bunched with the independent engine brake. At this time he saw the headlight of train No. 12 coming around the curve, east of the road crossing, and he told Brakeman Arnold and Fireman Williams that it looked as though train No. 12 was going to collide with their train and that they had better get off the engine. Engineman Gates then applied the train brakes in emergency, bringing the train to a complete stop at a point about 335 feet east of the east switch, and after this had been done, the engineman, brakeman and fireman got off the engine,

the accident occurring immediately afterwards. Engineman Gates estimated the speed of train No. 12 to have been about 50 miles per hour when it passed signal H-202.4 and about 45 miles per hour when the accident occurred. The statements of Brakeman Arnold and Fireman Williams practically corroborated those of Engineman Gates.

Signal Supervisor Deming stated that he was notified of the accident shortly after its occurrence and that he immediately proceeded by automobile to Echeconnee, on arrival at that point he noticed that signal H-202.4 was displaying a stop indication and that the electric signal lamp was burning properly. When daylight broke he opened the signal case of signal H-202.4 and observed that the relay controlled by lever 8 was in the left position, indicating that the signal was displaying a stop indication for train No. 12. After the main track was opened to traffic the signal apparatus was tested and functioned properly. Signal Maintainer Downs stated that he also arrived at the scene of the accident shortly after its occurrence and at that time he observed that signal H-202.4 was displaying a stop indication, with the signal lamp burning properly.

On April 9 a test was made with train No. 12 for the purpose of determining whether a stop could be made before reaching the point of accident after signal H-202.4 came into plain view of the engineman without having the engineman make any special effort to observe the signal, that is, with the engineman sitting on his seat box and observing the signal through the front window of the cab. At the time of the test, train No. 12 consisted of eight cars hauled by the same type of engine as the one involved in the accident. When signal H-202.4 first came into view from the engineman's side of the cab, at which time the speed of the train was 55 miles per hour, an emergency application of the air brakes was made and the train was brought to a stop 188 feet short of the point of collision, this point, however, being 350 feet beyond the signal. It was also developed that there was no possibility of confusing the switch light with the signal light, not only on account of the great difference in visibility but also because of the fact that the lens of the switch lamp was only $6\frac{1}{2}$ feet above the rails while the center of the lens of the lamp on the signal mast was 29 feet above the rails. Attention is also called to the fact that in a previous test it was developed that the

signal was first visible from the fireman's side of the cab for a distance of 1,982 feet and from the engine-man's side for a distance of 1,338 feet.

Conclusions

This accident was caused by the failure of Engineman Seaborn, of train No 12, properly to comply with bulletin instructions to approach signal H-202.4 under control.

The statements of Engineman Seaborn were to the effect that he had his train under such control that he could have stopped had the fireman called the indication of the signal correctly, and he estimated that the speed of this train was about 30 miles per hour when the fireman erroneously told him that a clear signal indication was displayed; he then released the brakes and began to work steam, not personally observing the indication of the signal until it was too late to stop. The investigation developed, however, that Engineman Seaborn could have seen the indication of the signal a distance of about 1,300 feet and had the speed been reduced to 30 miles per hour, as he said was the case, then there is no reason why a service application of the brakes should not have brought the train to a stop before the signal location was reached. As it was, the train overran the signal location a distance of more than 500 feet and collided with the opposing train, which was standing at the time, with sufficient force to result in serious damage. These facts indicate quite clearly that the speed of train No. 12 was much higher than was estimated by Engineman Seaborn and it also would appear that he did not personally observe the indication of the signal as soon as it was practicable to do so.

The semiautomatic signal lamp was on a high mast, 29 feet above the rail, while the switch lamp was about $6\frac{1}{2}$ feet above the rails and could not be seen more than half the distance at which the light from the semiautomatic signal lamp was visible. Under these circumstances it does not appear that there was any reason for the action of an experienced fireman in mistaking the indications of these two signals, as the engineman thought might have been the case.

This accident is of a type which could have been prevented by the use of an adequate system of automatic train control.

The employees directly involved were experienced men, and 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.