

## 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 NEAR KIRKLAND, N.C., ON JULY 16, 1925.

October 28, 1925.

To the Commission:

On July 16, 1925, there was a derailment of a mixed freight and passenger train on the Atlantic Coast Line Railroad near Kirkland, N.C., resulting in the death of 1 employee, and the injury of 12 passengers and 2 employees.

#### Location and Method of Operation

This accident occurred on the New Bern branch of the Wilmington district of the First Division, which extends between Wilmington and New Bern, N.C., a distance of 87 miles, and is a single-track line over which trains are operated by time-table and train orders, no block-signal system being in use. The derailment occurred at a point about  $1\frac{1}{2}$  miles south of Kirkland, a non-telegraph office 10 miles north of Wilmington. The track is tangent for a considerable distance in either direction from the point of accident while the grade is undulating, it is 0.51 per cent descending for northbound trains for a distance of 900 feet to the point of accident, and for some distance beyond.

The track is laid with 56-pound rails, 30 feet in length, single-spiked to an average of 16 ties to the rail-length; no tie-plates are in use, and the rails are laid with suspended joints. The ballast is of natural soil, which is generally of a light sandy nature. The track was fairly well maintained.

The weather was clear at the time of the accident, which occurred at 3.17 p.m.

#### Description

Northbound mixed freight and passenger train No. 62, en route from Wilmington to New Bern, N.C., consisted of six loaded box cars, one combination mail and baggage car

and two coaches, in the order named, hauled by engine 220, and was in charge of Conductor Weathersbee and Engineman Grimes. It departed from Wilmington at 2.50 p.m., according to the train sheet, on time, made a stop at the switch at New Bern Junction in order to enter the branch line, and while traveling at a speed variously estimated to have been from 23 to 45 miles an hour the rear truck of the sixth car in the train was derailed, and after the three cars behind it had become derailed they broke off from the balance of the train, the sixth car continuing with the engine and first five cars a distance of about 900 feet.

The engine and first five cars were not derailed, while the rear truck of the sixth car after being derailed continued northward astride the right or east rail to where the head portion of the train came to a stop. The combination car and two coaches came to rest on their right sides, parallel with the track, about 280 feet north of the initial point of derailment, and were considerably damaged. The employee killed was a train porter.

#### Summary of evidence

The first mark of derailment was a flange mark on top of the right or east rail extending northward a distance of about 15 feet to where the wheel dropped off on the outside of the rail. The first marks on the ties were 6 inches from the rail, and they led gradually to the right to where the wheels ran off the ends of the ties, there were also corresponding marks on the ties between the rails.

Engineman Grimes said that after entering on the New Bern Branch no stop was made before reaching the point of accident. Approaching the point of accident he was working steam and the train was running at a speed of about 25 or 26 miles an hour, which he said was about the maximum speed of the train after leaving Wilmington. He did not notice any unusual motion of the engine, his first warning of anything wrong being when the air brakes were applied from the rear and he noted that the brake pressure was gone, he immediately shut off steam, looked back and saw that the coaches were derailed. The brakes were not holding as they should, and he reversed the engine and applied steam, bringing the front portion of the train to a stop about 900 feet from the point of derailment. Engineman Grimes said he noted that the accident occurred at 3.17 p.m. He also stated that before leaving the scene of the accident, in company with Conductor Weathersbee and Crancman Barbery of the wreck train, he made a brake test of the five box cars which were not derailed. This test disclosed that the piston travel of those cars was excessive, ranging from  $8\frac{1}{2}$  to 11 inches.

He stated however that he did not measure the distance the pistons would extend outward from the sleeve with the brakes released.

Fireman Chestnut said his first warning of the derailment was when the air brakes were applied in emergency and upon looking toward the rear of the train he saw a cloud of dust; he called a warning to the engineman and as the brakes were not as effective as they should have been the engineman reversed the engine and applied steam. Fireman Chestnut said that he had previously noticed that the track in this vicinity had been a little rough.

Conductor Weathersbee said his train was traveling at a speed he thought was between 25 and 30 miles an hour and his first warning of the accident was when he felt the car in which he was riding leave the rails. After getting out of the overturned coach he noted that it was then 3.17 p.m.

Roadmaster Croom said he arrived at the scene of the accident about 30 minutes after it occurred and at once made a thorough inspection of the track and equipment. From his observations he concluded that the speed of train No. 62 at the time of the derailment was between 40 and 45 miles an hour, this estimate being based upon the condition of the wrecked equipment and the distance the three rear cars ran after being derailed, about 270 feet, and also the distance the front portion of the train traveled with the air brakes in emergency. Roadmaster Croom and two of his foremen took cross-level measurements of the track at 15-foot intervals for a distance of 225 feet south of the first mark of derailment, and these measurements showed that the surface varied from level to 1 inch out of level; within a distance of 100 feet there was no variation in level in excess of 1/2 inch. Roadmaster Croom said the track in this vicinity was in good condition otherwise and safe for a speed of 30 miles an hour for the type of equipment involved.

Trainmaster McCulloch arrived at the scene of the accident shortly after it occurred and made a careful inspection of the derailed equipment, giving special attention to ACL car 28,031, the sixth car in the train and the first to be derailed, but found nothing about this car to indicate any defective condition or a probable cause for its derailment, his examination of the running gear of the coaches was more or less cursory as he said he was plainly evident that any damage to them was the result rather than the cause of the accident. Trainmaster McCulloch thought the track in this vicinity was safe for a maximum speed of 30 miles an hour, and was of the opinion that this speed was being exceeded at the time of the derailment, basing this estimate upon the general condition of the equipment

after being derailed and the distance the engine and first six cars ran with the air brakes applied in emergency. He did not witness the air-brake test made of the engine and first five cars at the scene of the accident but understood from what the conductor said that such a test had been made.

Road Foreman of Engines Quarles also arrived shortly afterwards and from his examination of the track and equipment he was of the opinion that the accident was due to excessive speed coupled with uneven track, he estimated the speed of train No. 62 at the time of the derailment to have been between 30 and 35 miles an hour. This estimate by the road foreman was concurred in by Wreckmaster Sellers who also was of the opinion that the accident was due to excessive speed and track conditions.

Car Inspectors Williamson and Royall said they inspected the equipment in train No. 62 before it left Wilmington and that the piston travel on the coaches was approximately 6 inches, and from 6 to 8 inches on the box cars. Inspector Royall also said that to the best of his recollection the only adjustments made consisted of renewing a brake shoe on one of the coaches, and adjusting the piston travel on one car on which the travel was too short, being about  $5\frac{1}{2}$  inches.

Craneman Barberly, employed on the wrecking train, said he measured the piston travel on the first five cars, at the scene of the accident, and that this piston travel was as follows, beginning with the head car:  $10\frac{3}{4}$  inches,  $10\frac{1}{2}$  inches, 10 inches,  $9\frac{1}{4}$  inches and  $8\frac{1}{2}$  inches. He did not know whether the brakes were applied in service or emergency application when these measurements were made, the brakes being applied when he reached the scene.

Engine 220 is of the 4-6-0 type, with a weight on the driving wheels of 111,700 pounds, and a total weight, engine and tender, of 239,830 pounds. At the time of the accident it was carrying a main reservoir pressure of 100 pounds and a brake-pipe pressure of 80 pounds.

The car which was the first to be derailed was A.C.L. box car 28031. This car was taken to the Wilmington shops, the derailed truck replaced, and the car forwarded to its destination. An inspection of this truck made at the shops by the Commission's inspectors did not disclose anything which in their opinion could have caused or contributed to the occurrence of the accident.

#### Conclusions

The cause of this accident was not definitely ascertained.

The Commission's inspectors did not reach the scene of this accident until several days after its occurrence and their investigation did not develop definitely the exact cause of the accident. It did not appear that there was anything connected with the equipment which could have caused it, but, on the other hand, investigation showed that the track was laid with very light rails and ballasted with natural soil of a light sandy nature. The surface of the track was not maintained in really secure condition and it seems probable that this caused the cars to rock to such an extent as to allow the rear truck of the sixth car to become derailed, damaging the track and causing the derailment of the following three cars.

There was a question whether the speed of train No. 62 at the time of the derailment was not close to the maximum for mixed trains, which is 30 miles an hour, if in fact this rate was not being exceeded. The distance the head end of the train ran after the accident, however, was not of great benefit in estimating the probable speed of the train, in view of the fact that the air brakes on that part of the train were in poor working order. In connection with the speed of this train attention is called to the fact that its schedule allows three hours and seven minutes for the distance of 84.8 miles between New Bern Junction and New Bern Yard, or an average speed of about 27.21 miles an hour. Within this distance of 84.8 miles there are seven scheduled stops and five flag stops and it is doubtful that a train of this character can maintain such a schedule and keep within the maximum of 30 miles an hour. It further appears that the schedule does not allow as much time between stations as is called for by that part of the time-table which prescribed the minimum running time for freight and mixed trains between stations. An example of this is found in the fact that under the schedule train No. 62 passes Fernside without stopping at 3.01 p.m. and leaves Scotts Hill, after making a scheduled stop at that point, at 3.21 p.m., thus allowing 20 minutes to travel the distance between the two stations and also to do station work at Scott's Hill. The distance is 9.4 miles and according to the time-table the minimum running time for mixed trains is 24 minutes. It was within this territory that this accident occurred.

The employees involved were experienced men and 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.