INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE INTERNATIONAL-GREAT NORTHERN RAILROAD NEAR PALESTINE, TEXAS, ON JANUARY 4, 1925.

February 25, 1925.

To the Commission:

On January 4, 1925, there was a derailment of a freight train on the International-Great Northern Railroad near Palestine, Texas, resulting in the death of two employees and the injury of one employee

Location and method of operation

This accident occurred on the Taylor Subdivision of the San Antonio Division, which extends between Palestine and Taylor, Texas, a distance of 144.8 miles In the vicinity of the point of accident this 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 3.40 miles south of Palestine Yard; approaching the point of accident from the north there are 2,914 feet of tangent and then a 4° curve to the left 1,145 feet in length, the accident occurring on the curve at a point 386 feet from its northern end. The grade for southbound trains is 1 per cent descending for more than 3 miles, level for 900 feet, and is then 1 per cent ascending to the point of accident, 700 feet distant, and for some distance beyond.

The track is laid with 75 pound rails, 33 feet in length, with about 20 oak and pine ties to the rail-length, single-spiked, tie-plated except at rail joints, and ballasted with limestone rock screenings to a depth of 5 or 6 inches below the ties, and is generally well maintained Under time-table rule the maximum speed permitted freight trains is 30 miles an hour.

The weather was clear at the time of the accident, which occurred at 11.37 a.m.

Description

Southbound second-class freight train No. 67 consisted of 29 cars and caboose, hauled by engine 505 and was in charge of Conductor Barnes and Engineman Webb. This train

left Palestine Yard, according to the conductor, at 11.23 a.m., and shortly afterwards was derailed while traveling at a speed of about 30 miles an hour.

The engine came to rest on its side, to the right of the track, with its head end 337 feet south of the first mark of derailment. The following 12 cars and the forward truck of the 13th car in the train were derailed, 7 being demolished, 3 badly damaged and 3 only slightly damaged. The employees killed were the engineman and fireman.

Summary of evidence

Conductor Barnes said that as his train was proceeding out of the south end of the yard to the main track there was a short delay for repairs to an air hose which had stretched, causing a leak in the train line, and it was 11.23 a.m. when the main-track switch was closed and the train departed. Conductor Barnes was riding in the left side of the cupola from the yard to the point of accident and did not think a speed of 30 miles an hour was exceeded at any time. A brake-pipe reduction was made about 1/2 mile in advance of the point of accident which reduced speed from 27 or 28 miles an hour to about 15 miles an hour and he thought Engineman Webb had just begun to work steam again when the slack in the train ran up and there was a sharp jerk, followed by the shock of the derailment. He said he looked at his watch before getting down from the cupola and noted that the accident occurred at 11.37 a.m. He assisted in removing Engineman Webb from the engine, and while they were en route to the hospital he asked the engineman what had caused the accident and Engineman Webb said he did not know but was of the opinion it was a broken rail as he thought he had heard something pop following a lurch of the engine. Conductor Barnes said he inspected the track upon his return to the scene of the accident and his examination led him to believe that the accident was caused by a broken rail. The statements of Flagman Daniel brought out nothing additional of importance.

Head Brakeman Hooper was riding on the fireman's seat box at the time of the derailment, he said the train was traveling at a speed of about 20 miles an hour and the engine was riding smoothly when it seemed to encounter a very low joint or swing under the left trailer truck, the engine rocked to the right and as it came back to the left it broke a rail After breaking the rail the engine turned toward the right, traveled a distance of about three car lengths, and then left the roadbed. He said Engineman Webb applied the air brakes in emergency immediately after striking the first low joint or swing.

Miss Grace Smith, whose home is located on the east side of the track near the scene of the accident, said she was standing on the front porch of her home and saw the train derailed. She said the engine was the first to be derailed, appearing to lean to the right momentarily, and it then went down the embankment on the right side of the track

Assistant Chief Engineer Bond arrived at the scene of the accident shortly after its occurrence and conducted a thorough examination of the track, roadbed and derailed equipment in an effort to determine the cause of the derailment. The first indication of derailment which he observed was the canting of a rail on the right or outer side of the curve; the adjoining rail to the south was also canted outward, its leaving and resting on its side. The next rail to the south was also on its side. The gauge was about 1 inch wide at a point 26 feet north of where the first flange marks appeared on the ties, on the inside of the left rail. At the time of this investigation Mr Bond was unable to state whether the accident was due primarily to a rail turning under the engine or to a rail breaking.

Trainmaster Brooks, who arrived at the scene of the accident about an hour after its occurrence, made a careful inspection of the track and derailed equipment; he said his first impression of the cause was that a rail had turned under the engine, but further examination led him to believe that the derailment might have been due to a broken rail. Trainmaster Brooks considered the track in good condition for the permitted speed of freight trains, and said that engines of the type and class of engine 505 are used in passenger-train service, and when necessary attain a speed of 60 miles an hour. Roadmaster Vanover stated that the track in this particular vicinity was safe for a speed of 40 or 45 miles an hour for the type of engine involved in this accident.

Southbound freight train extra 410 passed over this part of the road at about 10.05 a.m., 1 hour and 32 minutes prior to the occurrence of the accident Engineman Crutchfield of that train said the speed when passing this point was about 30 miles an hour and that he did not notice any irregularities in the track.

Examination of the track showed that the first indication of anything wrong was where a rail on the right side of the track was canted outward, beginning at about the center of the rail, opposite a joint in the left rail. Ten feet south of where the right rail began to turn, the spikes on the outside of the rail were pushed outward, apparently until the gauge had widened sufficiently to allow the wheels

on the left side of the engine to drop between the rails, the first flange marks being found on the ties on the gauge side of the left rail. Directly opposite these marks there was a flange mark on the gauge side of the web of the right rail, beginning near the receiving end of the second rail to cant outward. These flange marks then increased in number both on the ties and on the web of the rail, those on the ties gradually extending to the right for an additional distance of about 15 feet, beyond which point the track was torn up. Examination of the rails which had been in the track on the right side beyond this point, however, showed that the flange marks continued on the webs of the 3rd, 4th and 5th rails, while the angle bars at the leaving ends of the 3rd and 5th rails were broken No flange marks were found beyond the 5th joint on the webs of the seven succeeding rails to be torn up; the 6th, 8th and 10th rails were broken. On the left side of the track, beginning at the joint opposite the point where the right rail began to cant outward, the 2nd to the 8th rails, inclusive, were torn up, the 3rd being the only one to be broken, this break being at a point 73 feet south of where the right rail began to cant outward. The receiving end of the leaving portion of this rail was badly battered by wheel flanges. All of the breaks in the various rails were fresh breaks, and the surfaces of the fractures showed no indications of defects. At the point where the track began to spread, there were two decayed ties separated by one good tie, and then two good ties followed by another decayed tie, under a rail joint, where the spreading of the track was particularly evident, and where three joint ties were not tie-plated on account of the fact that the tie plates did not fit the old-type angle bars which were in use. The rails in this track were rolled and laid in 1902; those on the outside of the curve were considerably curve-worn.

Engine 505 is an oil-burner of the 2-8-2 type, having a weight, engine and tender loaded, of 459,200 pounds; it was built in April, 1924. Careful examination of this engine and tender made subsequent to the accident failed to disclose any defective condition which would have caused or contributed to the occurrence of the derailment.

Conclusions

This accident was caused by spread rails.

The examination of the track after the accident showed that the right rail gradually turned over on its right side, while the first flange marks on the ties were on the inside of the left rail south of where the right rail began to turn over. Rails were broken both on the right and on the left sides of the track; the break on the left side

was 48 feet south of where the first marks began to appear on the ties on the inside of the left rail and about 93 feet south of where the right rail began to turn over; the first of the breaks in the right rail was more than 150 feet south of where the rail began to turn over. It also appeared that the spikes on the outside of the leaving end of the rail which first began to turn were pushed outward. Under these circumstances it would appear that the track structure was not strong enough to withstand the strain placed upon it, resulting in the right or outside rail on the curve turning over under the weight of the engine, and that the broken rails were a result of the accident rather than its cause. It also seems apparent that the swing or low spot referred to by the head brakeman must have been the result of a wheel on the left side of the engine, possibly the trailer-truck wheel, dropping to the ties on the inside of the left rail; had a swing or low spot sufficient to cause such a noticeable motion of the engine been in the track undoubtedly it would have been noticed by the crew of the train which passed this point approximately 1½ hours prior to the occurrence of the accident.

At the time of the accident all of the employees had been on duty less than 1 hour, previous to which they had been off duty nearly 12 hours, with the exception of the fireman, who had been off duty several days.

Respectfully submitted,

W. P. Borland,

Director