

## INTERSTATE COMMERCE COMMISSION.

- - - - -

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE PENNSYLVANIA RAILROAD NEAR CRAWFORDSVILLE, IND., ON JULY 19, 1923.

August 4, 1923.

To the Commission:

On July 19, 1923, there was a derailment of a freight train on the Pennsylvania Railroad near Crawfordsville, Ind., resulting in the death of four employees. This accident was investigated in conjunction with a representative of the Public Service Commission of Indiana.

Location and method of operation.

This accident occurred on that part of the South Bend Division of the Southwestern Region extending between Terre Haute and Frankfort, Ind., a distance of 78.4 miles, in the vicinity of the point of accident this is a single-track line over which trains are operated by time-table, train orders, and a manual block-signal system. The accident occurred about 2 miles north of the station at Crawfordsville, on a fill about 22 feet in height, approaching this point from the south the track is tangent for a considerable distance, followed by a 1-degree 1-minute curve to the right 3,242 feet in length, the accident occurring on this curve at a point approximately 965 feet from its southern end. The grade for a distance of 3,900 feet is from 0.53 to 0.81 per cent descending, then practically level for 1,100 feet, and then ascending for more than 6,000 feet, varying from 0.47 to 1.61 per cent, the point of accident being on the ascending grade about 1,100 feet from its southern end, at a point where the grade is 1.17 per cent. The track is laid with 85-pound rails, 33 feet in length, with about 18 to 20 ties to the rail-length, hard and soft wood mixed, some ties being creosoted, single-spiked, tie-plated on curves, and ballasted with washed and bank gravel about 12 inches in depth. The weather was clear at the time of the accident, which occurred at about 5 p.m.

Description.

Northbound freight train extra 7333 consisted of 16 cars, hauled by engine 7333, backing-up, and was in charge of Conductor Tracy and Engineman Derby. This train left Ames at 4.53 p.m., enroute to Midway, 4.6 miles distant, and after having proceeded approximately 2 miles north of Crawfordsville, an intermediate station, was derailed while traveling at a speed estimated to have been about 40 miles an hour.

Engine 7333 was derailed to the left, and came to rest on its left side, reversed, at the bottom of the fill, about 240 feet from the initial point of derailment, the tender was just south of the engine, bottom up. The first three cars were overturned, while the forward truck of the fourth car was derailed. The employees killed were the engineman, fireman, conductor and a brakeman, all of whom were riding on the engine.

Summary of evidence.

Flagman York, the only surviving member of the crew, stated that at the time of the accident he was riding on top of the rear car in the train, there being no caboose, and the first knowledge he had of anything wrong was on feeling the jar, caused by the sudden stop; he stated the speed was about 40 miles an hour at the time of the accident, it being customary to increase speed in view of the ascending grade which extends for a considerable distance beyond the point of accident. Flagman York stated that the last time water was taken was at Midway, at about 9.30 a.m., and at this time a full coal supply was also had, however, as the fireman was a new employee, more coal was used while switching than would ordinarily have been the case, although the switching movements were no heavier than usual. Just before leaving Ames, the siding at this point being about 3,000 feet south of the station at Crawfordsville, Engineman Derby asked him to measure the water, and at this time there remained about 15 or 16 inches, however, he did not notice the amount of coal left. Flagman York further stated that the air brakes had been working properly, no trouble being experienced in making the various stops while engaged in switching.

Assistant Road Foreman of Engines Collins arrived at the scene of accident about 5½ hours after its occurrence, and on examining the track found a wheel flange mark about 8 inches in length, between the ties, on the outside of the base of the west rail. There was also a clearly defined wheel flange mark on the spike in the first tie north of this point, then the marks led off the ends of the ties within a distance of about six or eight ties. He did not see any flange marks on the top of the rail, nor were there any indications of a spread rail. Mr. Collins was of the impression the accident was caused by the right rear tender wheel climbing the rail, due to the rocking motion resulting from the speed at which the train was moving, coupled with the diminished coal and water supply.

Assistant Division Engineer Campbell stated that the track was in a very fair condition, and that there was nothing to indicate that track conditions had caused the derailment.

An inspection of the track, as well as measurements of the same, showed it to be in fairly good condition, the gauge on the curve was well maintained, while the surface was somewhat uneven at one point about a rail-length south of the point of accident.

Engine 7333 is of the 2-8-0 type, class H-6-a, the tender has a water capacity of 7,350 gallons, and a coal capacity of 30,109 pounds. An examination of the tender disclosed the wheels to be in good condition, however, the tank was not equipped with swash plates to reduce water surge. Under permanent instructions in time-table No. 4, effective January 14, 1923, engines of the type involved are limited to a speed of 25 miles an hour while running backwards.

#### Conclusions.

This accident was caused by excessive speed.

Apparently the train rounded the curve at a high rate of speed, and this fact, coupled with slightly uneven track, diminished coal and water supply, and the absence of swash plates to prevent surging of the water, caused the tender to rock to such an extent that the tender-truck wheels climbed the outside rail on the curve. Conductor Tracy and Engineman Derby were both riding on the engine, and had they seen to it that the speed was held within the prescribed limits, this accident might not have occurred.

Both of these employees were experienced men. At the time of the accident the crew of extra 7333 had been on duty about 8 hours, prior to which they had been off duty 15 hours or more.

Respectfully submitted,

W. P. BORLAND,

Director.