

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE
INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON
THE ATCHISON, TOPEKA & SANTA FE RAILWAY NEAR
SORRENTO, CALIF., ON APRIL 28, 1925.

August 28, 1925.

To the Commission:

On April 28, 1925, there was a derailment of a passenger train on the Atchison, Topeka & Santa Fe Railway near Sorrento, Calif., resulting in the death of 1 employee, and the injury of 63 passengers, and 5 employees. This accident was investigated in conjunction with a representative of the Railroad Commission of California.

Location and method of operation

This accident occurred on the Fourth District of the Los Angeles Division, extending between ~~San Diego~~ *Fullerton* and National City, Calif., a distance of 108.1 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 about $1\frac{1}{2}$ miles east of Sorrento, in a cut, approximately 300 feet in length, on what is known as Curve No. 100, at a point about 2,350 feet east of mile post 250; approaching this point from the west there is more than 1 mile of tangent track, followed by a reverse curve, 1,469 feet in length, the curvature of the first 807 feet being $3^{\circ} 02'$ to the left, and the curvature of the remaining 662 feet being $2^{\circ} 02'$ to the right, followed by 330 feet of tangent, then a 9° curve to the left 942 feet in length, the first mark of derailment appearing outside of the south rail at a point 343.3 feet from the western end of this 9° curve and $4\frac{1}{2}$ feet from the center line of the track. The grade for east-bound trains from Sorrento to the point of accident is ascending, varying from 0.1818 to 2.20 per cent, being 1.84 per cent at the point of accident. In the vicinity

of the point of accident the track is laid with 90-pound rails, 33 feet in length, with 22 ties to the rail length, and ballasted with rock and gravel to a depth of about 10 inches, tie-plated, and double-spiked on the inside and single-spiked on the outside of both rails on curves. There is a fixed slow-board located about 3,600 feet west of the point of derailment on the engineman's side of an eastbound train, limiting speed to 35 miles an hour. A drizzling rain had been falling for about an hour prior to the accident, which occurred at about 9.37 p.m.; there had not been enough rain to soften the track and there had been no rainfall in this vicinity prior to this time for about a month.

Description

Eastbound first-class passenger train No. 76 consisted of one baggage car, one smoking car, two coaches, and one parlor car, in the order named, hauled by engine 1332, and was in charge of Conductor Service and Engineman Warboys. This train left Oceanside, the last open office and 22.9 miles from Sorrento, at 8.55 p.m., three minutes late, and arrived at Del Mar, a flag stop and 5.1 miles west of Sorrento, practically on time, 9.16 p.m. At this point the engineman was not given the signal to stop to discharge a passenger until too late to make a stop at the station, the train being brought to a stop about a train length beyond this point, and then a back-up movement was made to the station. On account of this delay train No. 76 departed from Del Mar about seven or eight minutes late and on reaching a point approximately 6.6 miles beyond was derailed while traveling at a speed estimated to have been between 35 and 50 miles an hour.

Engine 1332, together with its tender, came to rest on its right side south of the track, the top of the boiler resting against the south embankment of the cut. The baggage car was about 10 feet behind the tender, on the embankment, leaning to the right at an angle of about 45°; The smoking car and first coach were also derailed and came to rest on the north embankment, leaning to the left at about a similar angle; the coach was opposite the engine, while the smoking car was beyond the engine, its head end being at the east end of the cut. The two rear cars were not derailed, the rear end of the last car stopping just outside the west end of the cut and immediately east of the initial mark of derailment. The employee killed was the engineman.

Summary of evidence

Fireman Weir, of train No. 76; stated that on arriving at Del Mar the train was on time, and departed from this point about six or eight minutes late. On passing Sorrento, at about 9.33 or 9.34 p.m., he said the speed was between 45 and 50 miles an hour and near the slow-board the speed was decreased to about 35 miles an hour. He intended to look back over the train for hot boxes while rounding the curves in the vicinity of the point of accident, looking ahead every thing appeared to be all right, then he turned partly around and at this time felt the engine rise under him, he got off his seat box and stood up, after which the engine gave a jerk and he was thrown to the deck by the force of the derailment, being in the cab near the throttle when the engine came to rest. There was nothing wrong with the engine so far as he knew, he was of the opinion the front end of the engine was the first to be derailed. He thought the speed on this curve in this instance was not any greater than usual.

Conductor Service, of train No. 76, said that schedule speed was practically maintained from Los Angeles to Sorrento on this trip, the speed being about 45 miles an hour when passing the latter point. In the vicinity of the slow-board a service application of the brakes was made, reducing the speed to about 35 miles an hour on entering the first curve approaching the point of derailment, the brakes were released shortly afterwards, and he did not remember whether they were applied again prior to the derailment. He stated that the train left Del Mar about 9.25 p.m., the accident occurred at about 9.35 or 9.36 p.m., and that his watch stopped at 9.37 p.m.; he noticed nothing unusual prior to the accident. He had talked with Engineman Warboys on this trip and the Engineman remarked that engine 1332 was new and just out of the shops and stiff, but he did not say anything about it being dangerous, or that this stiffness interfered with its operation on curves.

Head Brake man Underwood, of train No. 76, said that after passing Sorrento and before reaching the first curve the air brakes were applied, reducing the speed to about 35 miles an hour, which speed was maintained around the curves. He was riding in the smoking car and felt it lurch slightly on entering the first and second curves, however, he stated the speed in this instance was about as high as is generally maintained in this vicinity.

Flagman Mackin, of train No. 76, thought the train passed Sorrento about 9.30 p.m., at the usual rate of speed, about 40 or 45 miles an hour, and said that prior to the derailment there was no indication of excessive speed such as side-swaying, vibration, or rattling of the train. While rounding the reverse curve and just before reaching the curve on which the accident occurred, the air brakes were applied as usual and the customary speed of about 35 miles an hour was being maintained at the time of the accident, the air brakes remaining applied at this time.

News Agent Cain was riding in the smoking car at the time of the accident, he said that just prior to the derailment, on reaching the curve, this car was rolling and pitching badly, he was about to comment upon the high speed to Conductor Service who was sitting across the aisle when the accident occurred. He thought the speed was at least 50 miles an hour at the time of the derailment, and that the air brakes were applied just prior thereto.

Division Engineer Clark stated that the track in the vicinity of the point of accident was in first class condition prior to the derailment, and maintained properly in every respect, and in his opinion there was nothing about it that contributed to the accident. He said that during the period from August to October, 1924, new rail had been laid in this portion of the track, broken and decayed ties replaced, and the track was put up to a new grade line to correct settlement on fills and the grade was reduced as required at other points where the track had been raised by section crews. The track was properly ballasted, spirals provided for sharp curves, and when the job was completed he considered that the track was in first-class condition. He examined the track in this vicinity after the accident occurred and except where damaged by the derailment he considered that it was practically in its original condition after being rebuilt. The easement of this 9° curve was 105 feet in length, and the super-elevation of the outside rail began a distance of about 100 feet farther back. After the accident there was a furrow in the ground outside the south rail, at a point 4½ feet from the center line of the track, this being the first mark of derailment. There were no marks on the ties

between the rails west of this point and starting at a point 18 feet east thereof the track was torn up or shoved out of line for a distance of 300 feet, the entire length of the cut. He was of the opinion that the accident was caused by excessive speed, he based this opinion upon the fact that the track approaching the point of accident was in good condition and the location and position of the derailed equipment after the accident, he thought a slow-moving train would not have gone that distance.

Transitman Haffley, on arrival at the scene of the accident, took various measurements as far back as about 500 feet west of the point of derailment; from the first mark of derailment, a furrow on the south side of the track, he ran a tangent back to the south rail, a distance of 52 feet, and in his opinion this point is where the initial derailment occurred. The superelevation of the outside rail on the curve was $5 \frac{3}{8}$ inches, and the gauge and alignment were proper. The track was in excellent condition and he did not think it contributed to the accident in any manner, being of the impression the accident was due to excessive speed. He also stated that the furrow was only a light groove where it started and that it gradually got deeper toward the embankment, being about 60 or 65 feet in length, and about 2 feet in depth at its end, the ground being plowed up at this point.

Roadmaster Gabriel inspected the track in this vicinity three days prior to the derailment and at that time noticed nothing unusual, it being in excellent condition on the curve on which the accident occurred. Shortly after the accident he examined the track but found no marks on the ties or rails where the derailment occurred, the first mark appearing outside the ends of the ties of the south rail, on the shoulder of the roadbed, and was apparently made by a blunt object. The track west of the cut was in good condition and no repairs were made to it after the accident. He said the head end of the engine was imbedded in the south embankment of the cut on the outside of the curve, which kept it from traveling further after it was derailed, and he was of the opinion that the accident was caused by excessive speed. At the time of the accident it had not been drizzling long enough to wet the roadbed throughly.

Section Foreman Robinson stated that the drainage in this vicinity is good and that water did not start running in the ditches as a result of the rain until

about an hour after the accident occurred. He also thought the accident was caused by excessive speed.

A careful examination of the engine after the accident failed to disclose any defect that would have contributed to the accident.

Conclusions.

This accident is believed to have been caused by the operation of train No. 76 at an excessive rate of speed on a sharp curve.

Apparently there was no defect in the track or equipment prior to the accident, nor did weather conditions have any bearing on the derailment. There was an absence of marks on the ties or rails west of the first mark found outside the ends of the ties, on the outside of the curve, on the shoulder of the roadbed, $4\frac{1}{2}$ feet south of the center line of the track; this fact, together with the distance the derailed equipment traveled on the sharp curve and up the ascending grade, tearing up or shoving the track out of line, and the manner in which the equipment came to rest, the head end of the engine being imbedded in the south embankment of the cut, lead to the conclusion that excessive speed was responsible for the occurrence of this accident.

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.