

INTERSTATE COMMERCE COMMISSION.

REPORT OF THE CHIEF OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE DENVER & RIO GRANDE WESTERN RAILROAD NEAR TOLTEC, N. MEX., ON SEPTEMBER 29, 1922.

October 13, 1922.

To the Commission:

On September 29, 1922, there was a head-end collision between a passenger train and light engine on the Denver & Rio Grande Western Railroad near Toltec, N. Mex., which resulted in the death of 2 employees, and the injury of 19 passengers, 2 persons carried under contract, and 2 employees.

Location and method of operation.

This accident occurred on that part of the Fourth Division extending between Alamosa, Colo., and Chama, N. Mex., a distance of 92.41 miles, this being single-track narrow-gauge line, over which trains are operated by time-table and train orders, no block-signal system being in use. The accident occurred at a point about 1 mile east of Toltec; approaching this point from the west there is a compound curve to the left 1,460 feet in length, varying in curvature from 3° to 20° , the point of accident being on the curve 385 feet from its eastern end, where the curvature is 8 degrees; approaching from the east the track is a series of curves and short tangents, followed by the curve on which the accident occurred. The grade is ascending for westbound trains, varying from 0.17 to 1.42 per cent, being 0.72 per cent at the point of accident. On account of rock bluffs on the inside of the curve, the range of vision is restricted to about 60 feet. The weather was clear at the time of the accident, which occurred at 11.10 a. m.

Description.

Westbound passenger train No. 115 consisted of 2 baggage cars, 1 combination mail and baggage car, 2 coaches, and 1 parlor car, all of wooden construction, hauled by engine 169 and was in charge of Conductor Hines and Engineman Wright. At Antonito the crew re-

ceived a copy of train order No. 24 reading as follows:

"No 115 Eng 169 run one 1 hour
late Lava to Osier fifty 50 mins
late Osier to Cumbres"

Train No. 115 left Antonito, which is 30.14 miles from Toltec and the last open office, at 9.20 a. m. on time on its run-late order, and was approaching Toltec when it collided with extra 411 while traveling at a speed estimated to have been about 18 miles an hour.

Eastbound light engine 411, disconnected on the left side on account of a broken main rod, was being run to the shops at Alamosa for repairs, in charge of Engineman Smith and Fireman McGuire. At Cumbres, Colo., 20.14 miles from Toltec, these employees received among others a copy of train order No. 24, previously quoted. Extra 411 departed from Cumbres at 9.35 a. m., and proceeded until it collided with train No. 115 east of Toltec while traveling at a speed estimated to have been about 15 miles an hour.

Engine 411 was driven backward a distance of about 60 feet, but remained upright with its front end considerably damaged. The pony trucks of both engines were under engine 169, the front end of which was raised upward and considerably damaged. Slight damage was sustained by the combination mail and baggage car. The employees killed were the engineman and fireman of train No. 115.

Summary of evidence.

When Engineman Smith, of extra 411, entered the telegraph office at Cumbres and received several orders addressed to him, among which was train order No. 24, he glanced at this order and read it as saying train No. 115 would run 1 hour and 50 minutes late, remarked to the operator about it, and claimed Operator Lively nodded his head as though in assent. While he was reading the other orders, Fireman McGuire entered and read train order No. 24 aloud and asked him how far they could go with 1 hour and 50 minutes time, to which he replied they would be able to go to Big Horn, which is 11.15 miles east of Toltec. After leaving Cumbres, the engine was operated at a moderate rate of speed and while rounding the curve approaching the point of accident the fireman called to the engineman to stop the engine, the collision occurring almost immediately.

Engineman Smith said the condition of his engine made it necessary to give it considerable attention, and while he had looked at some of the orders after leaving Cumbres, he said he had firmly fixed in his mind the fact that train No. 115 was 1 hour and 50 minutes late, and did not look at train order No. 24 from the time he first glanced at it until after the occurrence of the accident. Fireman McGuire said he also read the order in the telegraph office, and understood train No. 115 would be 1 hour and 50 minutes late. Operator Lively said Engineman Smith read all of the orders to him, and that when reading train order No. 24 he read it correctly.

Conclusions.

This accident was caused by Engineman Smith and Fireman McGuire misreading their orders.

Engineman Smith and Fireman McGuire in some unknown manner read train order No. 24 as directing train No. 115 to run 1 hour and 50 minutes late, whereas it was only 1 hour late, and having made this mistake they did not realize that their engine was occupying the main track on the time of train No. 115 until after the accident occurred.

This accident again calls attention to the inherent deficiency of the time interval system of train operation. Had some form of block signal system been in use on this line this accident would no doubt have been prevented, notwithstanding the failure of Engineman Smith and Fireman McGuire to read their orders correctly.

Both of these employees were experienced men, with good records; they had been on duty about $3\frac{1}{2}$ hours, previous to which they had been off duty about 13 hours.

Respectfully submitted,

Chief, Bureau of Safety.