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June 23/20

IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE MISSOURI PACIFIC RAILROAD NEAR LEEDS, MO., ON APRIL 4, 1920.

June 11, 1920.

On April 4, 1920, there was a derailment of a passenger train on the Missouri Pacific Railroad near Leeds, Mo., which resulted in the death of 1 employee and the injury of 3 employees and 2 passengers. After investigation of this accident the Chief of the Bureau of Safety reports as follows:

This accident occurred on the Kansas City District of the Central Kansas Division, a single-track line extending from Leeds, Mo., to Osawatomie, Kansas, a distance of 49.91 miles. Trains are operated by time-table, train orders, and a manual block-signal system. Special instructions in the time-table restrict the speed of passenger trains to 40 miles an hour and freight trains to 25 miles an hour.

The accident occurred at a point 2.8 miles west of Leeds, approaching which point from the east there is a curve of 4° 3' to the left about 480 feet in length, followed by a tangent about 675 feet in length, and then a curve of 4° 4' to the right about 960 feet in length; the accident occurred on the last-mentioned curve at a point about 128 feet from its western end. The grade is from .5 to .7 per cent descending for a distance of about 2,500 feet, followed by about 300 feet of .6 per cent ascending grade and about 50 feet of level track to the point of accident. The track is laid with 90-pound rails, 33 feet in length, with about 20 treated red and white oak ties

to the rail. The rails are single-spiked, tie-plated on curves; the ballast consists of chatt about 2 feet in depth. The general condition of the gauge, surface, and alinement was good. The elevation of the outside rail on the curve is 4 inches, which is standard on this railroad for a speed of 45 miles an hour on 4-degree curves. At the time of the accident a light snow was falling.

Westbound passenger train No. 105, in charge of Conductor Clark and Engineman Cohlmeyer, consisted of engine 5504, 1 mail and baggage car, 1 baggage car, 1 mail and baggage car, 1 baggage car, 1 coach, 1 chair car, 1 Pullman sleeping car and 1 coach, in the order named. This train left Kansas City at 11.15 a. m., 2 hours and 45 minutes late; at Sheffield, 5 miles west, engine 1316, in charge of engineman Brown, was coupled to the head end of the train and a caboose was coupled to the rear end. Train No. 105 left Leeds, 9 miles from Kansas City, at 11.59 a. m., and at about 12.10 p. m. was derailed while traveling at a speed variously estimated at between 25 and 35 miles an hour. Both engines were derailed, the leading engine remaining upright on the roadbed, and stopping 384 feet beyond the point of derailment, while the second engine came to rest on its left side clear of the track in a reversed position about 275 feet from the point of derailment and about 25 feet behind the tender of the leading engine. The tender of the second engine came to rest beside that engine, headed in a westerly direction. The first mail and baggage car was derailed and partially overturned, coming to rest diagonally across the

track with its head end against the tender of the second engine; the next car also came to rest diagonally across the track, at an acute angle with the first car; the next two cars were derailed but remained coupled together practically in line with the track. The wheels of the forward truck of the fifth car came to rest on the ball of the left rail, while the opposite wheels were on the flange of an overturned rail. The last three cars and the caboose remained upright on the rails. The employee killed was the fireman of the second engine.

Examination of the track showed the first mark of derailment to be on the inside and along the web of the inside rail about 128 feet from the western end of the curve. This rail was turned over on its side and was twisted out of the angle bars; there were no corresponding marks on the opposite side of the track, and it was not definitely established whether the marks on this rail were made by engine 1316, by some of the following equipment, or whether they were made during the rerailing of the cars after the derailment. The track beyond this point was torn up for a distance of nearly 400 feet. Measurements of the track for a distance of 2,000 feet in each direction from the point of accident showed it to be in good condition as to surface, gauge and alinement. Although the crew of engine 1316 said that at the time of the derailment there was a severe lurch, as though it had struck a soft spot in the track, no such spot was found to exist in the vicinity. The engineman thought this lurch originated at the pony truck on the left side and that the engine then dropped upon the ties on the right side of the track, while the fireman

said the engine seemed to surge upward and forward, and then came down upon the ties. The engineman who had operated engine 1316 over this part of the road earlier in the day had not noticed anything wrong, while other employees who had been over the road on the same day also stated that they had noticed nothing wrong. Some of the officials of the railroad were of the opinion that the accident might have been due to the front right driving wheel of engine 1316 striking an obstruction, their theory being based on a mark in the flange of the wheel about 2 inches in length. No obstruction was found which could have made this mark, and it might have been made after the engine had been derailed.

The statements of the engine crew of engine 1316 indicated that their engine was the first part of the train to be derailed. This engine is a freight engine of the 2-8-2 type; it was built in September, 1919, and up to March 1, 1920, it had traveled a distance of 9,214 miles. Very little damage was sustained by this engine in the accident, and subsequent examination showed it to be in good condition with respect to lateral and gauge, while the brake rigging was intact; no defects were discovered which could have contributed to the accident.

Engine 5504 is of the 4-4-2 type; it was quite badly damaged, the truck and truck frame were demolished and the brake rigging stripped. Measurements of the driving and tender truck wheels showed them to be in good condition with respect to lateral and gauge.

The work reports and repair records showed that neither of these engines had undergone any but minor repairs during the

30 days prior to the accident.

The cause of this accident was not definitely ascertained.

Careful examination failed to disclose anything wrong either with the track or equipment, and while the theory was advanced that the accident was due to an obstruction, it was not definitely established that such was the case.

At the time of the accident the crew of engine 1316 had been on duty 8 hours and 55 minutes after being off duty 22 hours, while the remainder of the crew had been on duty 4 hours and 10 minutes after off-duty periods ranging from 19 hours and 10 minutes to 36 hours and 55 minutes.