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IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE ST. LOUIS & SAN FRANCISCO RAILROAD NEAR SCHULTER, OKLA., ON JANUARY 20, 1916.

On January 20, 1916, there was a derailment on the St. Louis & San Francisco Railroad near Schulter, Okla., which resulted in the injury of 23 passengers. After investigation of this accident, the Chief of the Division of Safety reports as follows:

The train involved was northbound passenger train No.512, running between Sherman, Texas and Tulsa, Okla. It consisted of locomotive 1004, 1 mail and baggage car, 1 combination baggage and passenger car, 1 chair car, 1 coach and 1 Pullman sleeping car, and was in charge of Conductor Riddell and Engineman Keatley. It left Sherman at 1:55 p.m., on time, and at 10:19 p.m. was derailed at a point about 4½ miles north of Henryetta, Okla., and about 2½ miles south of Schulter, Okla., while running at a speed of about 35 miles an hour.

The division on which this accident occurred is a single track line over which train movements are governed by the telegraphic train order system, no block signal system being in use. Approaching the point of accident from the south there is a 4-degree curve, followed by tangent track, the accident occurring on this tangent track about 100 feet beyond the northern end of the curve. At the point of derailment the track is practically level. There were no slow orders covering the point of derailment or track in the vicinity thereof. At the time of the accident it was raining very hard.

The track is laid with 65-pound rails, 30 feet in length,

upon about 18 untreated white oak ties to the rail, the ties being single spiked and no tie plates being used. The roadbed consists of about 10 to 12 inches of chat ballast with a fairly good shoulder, and the track was in good surface, alignment and gauge. The section on which the accident occurred is 6 miles in length and is maintained by 5 men, one of whom is the foreman.

About 90 feet south of the point of derailment there is a concrete box culvert, the opening of which is 18 inches by 18 inches, to accomodate an area of about 50 acres lying to the west of the track, the slope of this land ranging from 2 to 5 per cent. The aperture of the culvert proved inadequate to accomodate the volume of water drained to it on this particular occasion, and the overflow forced the chat ballast from under the ties, leaving a section of the track unsupported, which gave way under the weight of the train and caused the derailment.

The precipitation in this territory is about 45 to 50 inches per annum and the drainage area tables for this section provide an opening of not less than 9 square feet to accomodate a 50-acre area under ordinary conditions. For several days prior to the date of derailment, frequent rains had occurred in this region and the precipitation had been exceedingly heavy. On the day of the accident heavy showers fell at intervals during the day and at about 9:30 p.m., a very heavy rain started, which continued steadily for about 2 hours. It was impossible to definitely establish the exact rainfall in the neighborhood of Schulter but the records of Okmulgee, a station 8 miles north of Schulter, showed the rainfall at that point to be 2½ inches.

Section Foreman Bird stated that he covered his entire

section on the day of the accident and passed over the point where the accident afterwards occurred at about 4:30 p.m. He stated that it had been raining more or less all day but at 4: 30 the track at point of derailment was perfectly safe. He further stated that when it began to rain hard at 9:30 p.m., he started to get his men to go over the track, in accordance with the rules of the company. He could locate but 3 of his men and started from the tool house at about 9:40 p.m. It was raining so hard and the wind was so strong that it was impossible for his men and himself to pump the hand car and they had to give it along ahead of them. He stated that when they reached a point about a mile and a half from the point of accident he saw the headlight of train No. 512 as that train rounded the curve just south of the point of accident, and after it had rounded the curve, noticed that it stopped. He immediately concluded that a washout had caused trouble, having feared that there might be one at that particular point before he left the tool house. He stated that he found the space washed away to be 26 feet in length and 18 inches in depth.

Engineman Keatley stated that on account of the heavy rain, he was very carefully watching the ditches along the right-of-way for signs of high water. He stated that the ditches up to the point of accident were practically free from water and that there was nothing that would indicate a washout. He further stated that the first warning he had of the accident was when the locomotive struck the swinging track, and he immediately applied the air brakes in emergency. Engineman Keatley stated that the train ran about 5 or 6 car lengths after he had applied the brakes and that it was not until after he had gotten off the locomotive

and gone back that he discovered that the derailment had occurred. The locomotive was equipped with a Pyle National headlight of 3,100 candle power and the engineman stated that it was in good condition and was burning at the time of the accident, but that on account of the curve just south of the point of accident, the rays were thrown beyond the washout. He stated that although some light diffused closer, the color of the soil at this particular place was very similar to the shot ballast and under these circumstances he was unable to make a distinction. He also stated that at the time of the derailment, both the fireman and himself were standing up with their heads out of the windows in order to closer observe the track conditions.

This accident was caused by a washout on account of the culvert not having sufficient capacity to carry off the water which concentrated in the ditch along the track in a heavy rain storm.

Investigation disclosed the fact that on two previous occasions during the past eight months, this waterway failed to relieve the volume of water concentrated at this opening, resulting in washing out the ballast and leaving the track swinging. On one of these occasions a coal car in a freight train was derailed, but on the other occasion the condition was discovered in time to avert an accident. It would appear that proper measures to remedy a condition which was a menace to the safe operation of trains had not been taken. Since the occurrence of this accident, however, the management has taken action to remedy this condition and will immediately install a culvert at this point with a waterway having a capacity 3 times greater than the present one.