INTERSTATE COMMERCE COMMISSION.

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REPORT OF THE CHIEF OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE ST. LOUIS-SAN FRANCISCO RAILWAY AT STARLAND, MO., ON SEPTEMBER 1, 1922.

September 25, 1922.

To the Commission.

On September 1, 1922, there was a derailment of a passenger train on the St. Louis-San Francisco Railway at Starland, Mo., resulting in the death of 3 passengers, and the injury of 64 passengers and 4 employees.

Location and method of operation

This accident occurred on that part of the St. Louis Sub-Division of the River Division extending between Southeastern Junction and Chaffee, Mo., a distance of 136.3 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 accident occurred at bridge 97.2, which spans a creek that empties into the Mississippi River at a point 100 feet to the east, approaching from the north there is a 1-degree 30-minute curve to the left 355 feet in length, followed by 1,926 feet of tangent, the accident occuring on this tangent at a point about 300 feet from its northern end. The grade is 0.17 per cent ascending for southbound trains. It was cloudy at the time of the accident, which occurred at about 3.55 a.m.

Description.

Southbound passenger train No. 805 consisted of 2 baggage cars, 1 combination car, 1 chair car, 1 club car, and 2 Pullman sleeping cars, in the order named, hauled by engine 1107, and was in charge of Conductor Phillipson and Engineman Lippard. This train left Seventy-Six, nearly 2 miles from bridge 97.2 and the last open telegraph office, at 3.45 a m , 3 hours and 46 minutes late, and was derailed at bridge 97.2 while traveling at a speed estimated to have been about 40 miles an hour,

The engine came to rest beyond the bridge, nearly bottom up, on the left side of the track. The two baggage cars were derailed to the right, coming to rest on the right side of the track, the first car being opposite the engine. The third car was on top of the fourth car, the forward end of which was resting on the south slope of the creek, with the rear end on the bridge; the forward truck of the fifth car was also derailed.

Summary of evidence.

The first the engine crew knew of anything wrong was when the engine lunged forward and downward, both the engineman and fireman being thrown from the cab. They said they had not encountered any rain at any point en route from St. Louis, nor was it raining when the accident occurred.

Section Foreman Rhyne said there was considerable thunder and lightning on the night of the accident and that he sat up until 1.30 a.m. to see what weather conditions would develop. After the hardest part of the rain he went out to see if track protection were needed. There is a pipe near mile post 95 and when there is 12 or 14 inches of water in it, he considers the track needs watching; on this particular night, however, there were only 6 inches of water in the pipe.

Bridge 97.2 was rebuilt of new material in June, 1918, and is of the standard type of pile-bent trestle as recommended by the American Railway Engineering Association, it is 138 feet in length, and 26½ feet in height over the bed of the creek; the bents are numbered, from north to south, 1 to 11 inclusive, and the accident occurred at bents 5 and 6, which are directly over the bed of the creek. The piles in these two bents were practically 38 feet in length, 11½ feet of which constituted the foundation. The creek which bridge 97.2 spans usually is nearly dry, but after midnight there was a heavy storm or cloudburst in the territory drained by this creek, the evidence of drift along the banks indicating the water reached a depth of 15 feet. This volume of water was sufficient to scour the earth from the bed of the creek down to bed rock, a depth of more than 11 feet; the strong current completely undermined and carried away bents 5 and 6, resulting in the bridge giving way under the weight of the train at this point. Trestles have been maintained at this point for 19 years and this is the first trouble experienced with washouts, the bridge where this accident occurred was considered to be safe and no

report was ever made to the contrary.

An examination made of the bridge after the accident, disclosed the piling that remained to be sound and of good quality and there was no indication of insect boring, although there did exist the usual amount of sap rot.

Conclusions.

This accident was caused by a washout.

The heavy storm that occurred within the drainage area of this creek transformed the usually dry watercourse into a stream of water about 15 feet in depth, moving with sufficient force to undermine and carry away bents 5 and 6, resulting in the collapse of the bridge under the weight of the train.

All of the employees involved were experienced men; at the time of the accident they had been on duty about 8 hours, after from 13 to 48 hours off duty.

Respectfully submitted,

W.P. Borland,

Chief, Bureau of Safety.