

## INTERSTATE COLLISION COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE MISSOURI-KANSAS-TEXAS RAILROAD NEAR ST. PAUL, KANS., ON APRIL 8, 1927.

May 24, 1927.

To the Commission:

On April 8, 1927, there was a derailment of a passenger train on the Missouri-Kansas-Texas Railroad near St. Paul, Kans., resulting in the death of 2 employees and 1 trespasser, and the injury of 11 passengers, 3 employees and 2 other persons.

#### Location and method of operation

This accident occurred on the Nevada Division of the St. Louis District extending between Parsons and Lindale, Kans., a distance of 98.6 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 a point about 2,000 feet south of bridge 369.1, which spans Flat Rock Creek, this point being about  $3\frac{1}{2}$  miles north of St. Paul; approaching from the south there is a  $1^{\circ} 02'$  curve to the right 1,152.1 feet in length, followed by more than 1 mile of tangent, the derailment occurring on the tangent a short distance from the leaving end of the curve. The grade for northbound trains is 0.722 per cent descending to within about 1,475 feet of the curve, from which point it is level to and beyond the point of accident. The track in this vicinity is laid with 90-pound rails, 33 feet in length, with an average of 20 ties to the rail-length, single-spiked and ballasted with chatts to a depth of about 13 inches. Curves are fully tie-plated while tangents are from 50 to 70 per cent tie-plated.

Bridge 369.1, a steel truss span, is 103 feet in length, the drainage area and source of Flat Rock Creek is northwest of the bridge. The water in the creek flows in a general direction from north to south, passing under the bridge from west to east. Starting at a point near the southern end of the curve there is a fill, averaging about 5 feet in depth, which extends about 4,800 feet northward; this fill was constructed in 1871, of black soil taken from alongside the roadbed.

A light rain was falling at the time of the accident, which occurred at about 4.52 a.m.

#### Description

Owing to an accident due to a washout on the Kansas City Division near Erie, Kans., train No. 22 was detoured over the Nevada Division and at the time of the accident was running as northbound passenger train extra 377, from Parsons to Fort Scott, a distance of 48.4 miles. Extra 377 consisted of one baggage car, one combination car, one baggage car, one coach, one chair car, three Pullman cars, one

dining car, one chair car, and two Pullman cars, in the order named, hauled by engine 377, and was in charge of Conductor Cory and Engineman Phillips. The fourth car was of wooden construction, the first, second, fifth and twelfth cars were of steel-underframe construction, and the remainders were of all-steel construction. Extra 377 left Parsons at 4.20 a.m., passed St. Paul, 13.7 miles beyond, and shortly afterwards, while traveling at a speed estimated to have been from 40 to 50 miles per hour, was derailed on encountering a washout.

Engine 377, together with its tender, and the first eight cars in the train were derailed and scattered about at various angles to the track. The engine and two of the cars were turned over. Of the first five cars in the train, the fourth was practically demolished while the other four cars were badly damaged. The employees killed were the engineman and fireman.

#### Summary of evidence

During the night of April 7 there was an unusually heavy rainfall in the vicinity of the point of derailment, the official U. S. Weather Bureau report for Walnut, 7.9 miles north of St. Paul, showing 5.45 inches of rainfall at that point, between 9 p.m. and 6 a.m. At Chanute, about 18 miles west of St. Paul, the official U. S. Weather Bureau report for the morning of April 8 showed 8.83 inches of rainfall for the previous 24-hour period, while at St. Paul 5.5 inches of rain fell between 7.30 p.m. and midnight and 2.72 inches between midnight and 6 a.m. In fact there was a general atmospheric disturbance around this whole section of the country and the railroads in the general vicinity of St. Paul experienced considerable trouble on account of numerous washouts. At the point of accident the water overflowed the low ground on the west side of the track and continued to rise until it reached an elevation somewhat higher than the subgrade, then it overflowed the track, washing out the ballast for a distance of about 1,300 feet, starting at a point about 300 feet south of the north end of the curve and extending to a point about 600 feet south of bridge 369.1, the ballast being deposited on the low ground on the east side of the track. The derailment occurred when the train reached the washed-out track.

Conductor Cory, of extra 377, said that after leaving Parsons he collected transportation and just after passing St. Paul he sat down in the coach, the fourth car in the train, opened a window and looked out to ascertain his location. While so engaged he felt the air brakes apply in emergency and on looking ahead, leaning out of the window, he saw the engine derail, immediately after which the car in which he was riding left the track. He estimated the speed of the train to have been about 50 miles per hour at the time the air brakes were applied. Conductor Cory further stated that before leaving Parsons he did not converse with the engineman relative to weather conditions, the only conversation between them at that point being about a meet with an opposing train at Fort Scott. He knew his train was being detoured on account of a washout but no informa-

tion had been furnished him concerning heavy rains on the line between Parsons and Fort Scott, no slow orders had been issued, nor had he been cautioned to be on the look out for washouts or soft track. After leaving Parsons he did not notice whether it was raining, but he was of the opinion that had there been an unusually heavy rain storm en route he would have noticed it and he said that at the time he looked out of the window just after passing St. Paul it was only drizzling. Conductor Cory also said that while he had run trains over the Nevada Division yet he was not familiar with the road.

Flagman Kerr, of extra 377, stated that he rode on the rear end of the train from Parsons to St. Paul and that he had just gone inside the last car and was about to sit down when he felt the air brakes apply in emergency, at which time the speed of the train was about 50 miles per hour.

Accounting Engineer Brant, Engineman Denton and Conductor Fisher, all of whom were riding in the fourth car in the train at the time of the accident, stated that the first intimation they had of anything wrong was when the air brakes were applied in emergency just prior to the derailment; their estimates of the speed ranged from 40 to 60 miles per hour at the time the brakes were applied. After the accident they found that the water was above the tops of the rails, Accounting Engineer Brant estimating that by 8 a.m. it had reached a point about 5½ feet above the rails. They had not noticed any unusual amount of rainfall while en route.

Southbound freight train No. 73, the last train to pass the point of derailment, passed Walnut at 1.55 a.m., according to the train sheet, passed St. Paul at about 2.10 a.m., and arrived at North Yard, Parsons, at 2.50 a.m. The crew of that train stated that although it had been raining during the night there was no water on or near the right-of-way in the vicinity of Flat Rock Creek at the time their train passed, but that it rained hard after their arrival at Parsons. Engineman Connor testified that it rained very hard after he reached home, about 5.50 a.m., and Conductor Yarnell stated that he never heard it rain any harder, after he had retired.

Road Foreman of Engines Tierney stated that just before he left Parsons on the wreck train en route to scene of the accident on the Kansas City Division he inquired of Engineman Phillips, of extra 377, who was oiling around the engine, as to whether or not he was familiar with the Nevada Division and was informed in the affirmative. Then he told Engineman Phillips that if he felt the least bit uneasy about running on the Nevada Division he would go with him but Engineman Phillips told him he did not think it would be necessary; he then cautioned the engineman to be careful and the engineman told him that he would be. Road Foreman of Engines Tierney was of the opinion that had he gone with extra 377 as pilot the accident would have occurred just the same. He did not remember of having used a pilot for crews, other than foreign crews, for several years.

Section Foreman Wood, in charge of the section of track on which the accident occurred, lives at St. Paul. He stated that he retired at about 8.30 p.m. the night of April 7, at which time it was raining moderately, and the rain seemed to slacken before he went to sleep. The first knowledge he had that the track had been washed out was when Flagman Kerr, of extra 377, notified him at about 5.45 a.m. April 8. At this time he had already sent one of his children after one of the three section men comprising his force, while he was getting dressed, with the idea of going over the track ahead of train No. 5, due at 7.20 a.m., as the conditions indicated that it had rained hard during the night. He did not know that train No. 22 was being detoured. Section Foreman Wood further stated that since he had been on this section, a period of seven years, no trouble had been experienced from high water. On March 31, at about 3 p.m., he went over the track during a heavy rain storm, one that seemed more severe than the one which caused this accident. No damage was done to the track at that time, the water lacking about 6 feet of reaching the track at any point, but on that occasion however the water in Flat Rock Creek was from 8 to 10 feet lower than it was at the time of the derailment, although the opposite was the case with some of the other streams.

Section Foreman McLean, in charge of the section immediately south of the one on which the accident occurred and who lives at St. Paul, stated that it was raining lightly around 9 p.m. He was awake about 1 a.m. and at that time it was raining hard, and he was up again around 4 a.m. at which time it was still raining. He did not think, however, that it had rained hard enough during the night to require him to go out and patrol the track, or to report it to the dispatcher.

Residents in the vicinity of the point of derailment stated that it started to rain around 8 or 9 p.m. and rained continuously during the night, and that an unusually heavy rainfall occurred after midnight, between 1 and 2 a.m.

Operator Carlos, stationed at Walnut, stated that he was not apprehensive of any dangerous condition around St. Paul which would make it necessary to put out sloworders or to call out section men to patrol the track. No rain fell after 2.45 a.m. and he thought the washout must have been due to rain falling in the area drained by the creek. He had never heard of a washout in the vicinity of Flat Rock Creek and was surprised to learn that extra 377 was derailed on that account.

Dispatcher Webb, of the Nevada Division, stated that he entered the service of this railroad as a train dispatcher on November 13, 1924, and since that time he had never had occasion to put out orders relative to unsafe track conditions in the vicinity of Flat Rock Creek. He went on duty at midnight the night of the accident; the only information received by him was that there was a light steady rain, nothing unusual. At 2.15 a.m. the rainfall was reported as the same, while at 3 a.m. he had a report

that the rain had stopped, and the first he knew of anything wrong was when Flagman Kerr telephoned to him from St. Paul. Dispatcher Webb said that the crew of extra 377 did not request a pilot and in conversation over the telephone prior to the departure of that train from Parsons some one at that point informed him that it was all right for this crew to run over this district. So far as he was aware, pilots had never been furnished when Kansas City Division trains were detoured over the Nevada Division, practically all the crews being familiar with the various divisions out of Parsons. Dispatcher Webb further stated that it was about 2.55 a.m. when Dispatcher Athy, of the Kansas City Division, communicated with him relative to high water and the derailment of train No. 21 in the vicinity of Erie but it did not occur to him that the unusual weather conditions at Erie might also affect the Nevada Division, as he was not familiar with the Kansas City Division or its proximity to the Nevada Division.

Dispatcher Athy, of the Kansas City Division, said it was about 1.05 a.m. when the crew of southbound extra 860 threw off a message to the operator while passing Erie tower stating that water was running over the track at mile post A-116, on the Kansas City Division; this was the only information he had of any unusual rainfall. At 1.15 a.m. both the telephone and telegraph wires went out of commission and at about 2.05 a.m. the engine of train No. 21 reached Erie tower and he was informed that the train was derailed as a result of a washout at mile post A-116. This was the first information he had of a washout and he said that he did not apprehend that this trouble would affect the Nevada Division, as nothing of the kind had ever happened before, and when arranging with Dispatcher Webb for the detouring of train No. 22 he did not say anything special to him about the weather conditions.

Dispatcher Cabell, of the Osage & Oklahoma Division, stated that at about 2.30 a.m. he called Dispatcher Webb and told him that a heavy rain and cloudburst had occurred just north of Erie and that train No. 21 had encountered a washout. He did not, however, have any information to give Dispatcher Webb concerning weather conditions on the Nevada Division, and subsequent arrangements regarding the detouring of train No. 22 were handled by Dispatcher Athy. Dispatcher Cabell further stated that at about 3.30 a.m. Engineman Phillips, of extra 377, came into the office at Parsons to register his watch; while there he inquired as to the derailment of train No. 21 and was given all the information Dispatcher Cabell had concerning it. As the engineman turned to leave the register room the dispatcher cautioned him to be careful and the engineman said that he would.

### Conclusions

This accident was caused by a washout.

The evidence indicated that there had been unusually heavy rains during the night and that this caused the waters of Flat Rock Creek to rise to such an extent that the

opening under the bridge over the creek was not sufficient to carry off the water, resulting in its being dammed up by the railroad embankment until finally it was high enough to flow over this embankment and wash out the ballast, resulting in the derailment of extra 377. While the various dispatchers apparently had not been fully informed as to the weather conditions, either by operators or by section foremen, they knew there must have been a storm of unusual severity to account for the washout on the Kansas City Division which necessitated the detouring of train No. 22 over the tracks of the Nevada Division as extra 377. It is only a few miles across country from the washout on the Kansas City Division to the point where extra 377 was derailed on the Nevada Division, and ordinary prudence should have suggested the possibility that the effects of such a storm would be felt on the Nevada Division. Notwithstanding this fact, however, no attempt was made to have the section foremen patrol the track nor were any instructions issued for the purpose of safeguarding the movement of the train.

The section foreman in charge of the section on which the accident occurred said he was asleep during the night, but the section foreman in charge of an adjoining section, who also lives at St. Paul, was awake at various times and knew that a heavy rain was falling. Neither this section foreman nor the operator at Walnut, a few miles from St. Paul, thought the rainfall was heavy enough to warrant the taking of special precautions. Not only did the statements of residents of the vicinity indicate that there had been an unusually heavy rainfall, accompanied according to one of them by severe thunder and lightning, but the records of a man living near the station at St. Paul showed that over 8 inches of rain fell between 6 p.m. and 6 a.m., and it also appeared that there had been unusually heavy rains to the west and north of St. Paul, the amount which fell at Chanute being 8.83 inches. It is inconceivable that the existence of a storm of such severity should fail to cause any one connected with the railroad to realize that precautions should be taken to safeguard the movement of trains, yet apparently this was the case in this instance.

It can not be said that the accident would not have occurred had the crew in charge of extra 377 been thoroughly familiar with the road over which they were operating, but attention is called to the fact that under the arrangement now in effect crews operating out of Parsons hold seniority rights over all divisions in that district and are supposed to be familiar with those various divisions. The engine crew of extra 377 had been running on the McAlester District prior to June, 1926, when they went to the Parsons District, and subsequent to that time they had not operated over the Nevada Division, of the Parsons District, and the officials were unable to locate any information in the records which would show when these employees made their last trip over the Nevada Division; the conductor had never been employed regularly on the Nevada Division, although he said he had run trains over it while

being detoured. If employees are to hold seniority rights over several divisions in one district, then care should be exercised to see that they are familiar with the territory traversed by each of those divisions.

The members of the crew of extra 377 were experienced men, at the time of the accident they had been on duty 1½ hours, after more than 24 hours off duty.

Respectfully submitted,

W. P. Borland,

Director.