

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE
INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA RAILWAY AT
STILLWATER JUNCTION, MINN , ON AUGUST 23, 1928.

November 12, 1928

To the Commission

On August 23, 1928, there was a side collision between a passenger train and a light engine on the Chicago, St. Paul, Minneapolis and Omaha Railway at Stillwater Junction, Minn , which resulted in the death of one employee and the injury of eight passengers, one mail clerk, one employee on duty and one employee off duty. The investigation of this accident was held in conjunction with representatives of the Railway and Warehouse Commission of Minnesota.

Location and method of operation

This accident occurred on that part of the Eastern Division extending between St. Paul, Minn , and Altoona, Wis., a distance of 88.8 miles, in the vicinity of the point of accident this is a double-track line over which trains are operated by time-table, train orders and an automatic block-signal system. The accident occurred within yard limits at about the center of a main track trailing-point crossover which was located opposite the station; approaching this point from the west the track is tangent for a distance of 1,957.7 feet, followed by a 3° curve to the right 2,658 feet in length, the west crossover switch being located on the curve 430 feet from its western end. The grade for eastbound trains is 1.171 per cent descending at the point of accident. On account of an 18-foot cut immediately west of the curve the view of the point of accident from the engine cab of an eastbound train is materially restricted.

The crossover involved is 215½ feet in length and leads off both main tracks through No. 10 turnouts. Both rails are insulated near the center of the crossover, the insulated joint on the south rail is located approximately 100 feet from the point of the west switch and the one on the north rail is located approximately 124½ feet from the same point. The crossover is connected with the track circuits of the block-signal system in such manner that when

both switches are closed the portion of the crossover west of the insulated joints forms a part of the westbound track circuit and that portion east of the insulated joints forms a part of the eastbound circuit. The connections are so arranged that when either switch is set for a crossover movement the track circuits operate the signals on both main tracks. Switch indicators, of the upper-quadrant type, are located about 6 feet from the switch stands, they are not lighted at night. The starting circuits for these indicators are located about 10,500 feet in advance of each indicator.

The signals involved are eastbound signals 138 and 152, located 7,931 and 1,159 feet, respectively, west of the west crossover switch. These signals are of the 3 position, upper-quadrant, semaphore type, night indications are green, green and red, and red, for proceed, caution, and stop, respectively. The view of signal 152 is restricted to a distance of 2,115 feet from the engineman's side and 2,184 feet from the fireman's side of an eastbound engine.

It was raining at the time of the accident, which occurred at about 12.16 a. m.

Description

Light engine 491, headed west, was in charge of Engineman Casey and Fireman Brantley. After helping a westbound train to a point a short distance west of Stillwater Junction it had backed eastward on the westbound track until it reached the crossover. The fireman then opened the west crossover switch, without looking at the indicator, and the engine was backed in on the crossover far enough to allow the fireman to close the switch. The engine was standing at this point, west of the insulated joints, with the switches closed and with its tender fouling the eastbound main track, when it was struck by passenger train No. 510.

Eastbound passenger train No. 510 consisted of one baggage car, one mail car, one baggage car, one smoking car, one chair car and four Pullman sleeping cars, in the order named, hauled by engine 513, and was in charge of Conductor Shaw and Engineman Richardson. This train departed from St. Paul, 15.7 miles from Stillwater Junction, at 11.38 p. m., eight minutes late, passed signals 138 and 152, both of which were displaying clear indications, and collided with the tender of engine 491 while traveling at a speed estimated to have been about 40 miles per hour.

The tender of engine 491 was derailed to the north and was slightly damaged. Engine 513 came to rest on its right side south of and parallel to the track about 350 feet east of the crossover. The first five cars and the forward truck of the sixth car were derailed, the first car being

practically demolished, the next three cars seriously damaged and the other two slightly damaged. All of the derailed cars remained upright. The employee killed was the engineman of the passenger train.

Summary of evidence

Engineman Casey, of engine 491, stated that his engine was engaged in helper service and that after assisting westbound freight train extra 427 to a point a short distance west of Stillwater Junction he started a return movement, backing up on the westbound track, and upon reaching a point where he could see the train-order signal at the station at Stillwater Junction he looked at his watch and noted the time as 11.15 p. m. Being of the impression that he had ample time in which to cross over to the eastbound track and proceed to Hudson, 3.5 miles east of Stillwater Junction, ahead of train No. 510, which train he knew was due at Stillwater Junction at 12 o'clock midnight, he instructed the fireman to open the west crossover switch. After this had been done he backed the engine in on the crossover and brought it to a stop at a point which would enable the fireman to close the switch. While waiting for the fireman to return to the engine he observed the reflection of a headlight which he thought belonged to an approaching eastbound freight train, and as he was not certain whether the tender of his engine cleared the eastbound track he made an attempt to move forward but had succeeded only in getting the engine started when the collision occurred. The headlight of his engine was burning brightly at the time of the accident while he heard no whistle signals sounded by the approaching train. Engineman Casey further stated that he was aware that instructions were in effect which required that both switches of the crossover be set for a crossover movement before such a movement is started and said that it was the usual practice to do so providing the indicators were displaying a normal indication, he also said it was his practice, if a scheduled train was about due, to go to the station and get a lineup on such a train, but in this instance he deviated from the usual custom because of the fact that he was anxious to get to Hudson for the purpose of assisting in clearing up a congestion at that point, together with the fact that the last time he looked at his watch he thought it was only 11.15 p. m., which would have given him plenty of time in which to proceed to Hudson and clear the time of train No. 510. Subsequent to the accident he compared his watch with the clock at the station and both of them showed the same time, while his watch had been inspected on August 21 and at that time it was 15 seconds slow.

Fireman Brantley, of engine 491, stated that while his engine was approaching the crossover the engineman handed him a switch key and instructed him to open the west crossover switch. He got off the engine and opened the switch without looking at the indicator and after the engine had backed on the crossover a sufficient distance he closed the switch and started walking towards the east switch for the purpose of opening it, but after proceeding a short distance he glanced back and noticed a headlight approaching from the west. At about the same time he saw the operator come out of the depot and he ran towards the operator, who inquired about train No. 510. The fireman said he did not reply but immediately shouted to the engineman to move the engine forward, but he could not say whether it was moved prior to the collision. Fireman Brantley, who had been in the service of this railway only 11 months, said he had no knowledge of the time as he was not in possession of his watch, he also had no timetable with him and did not know at what time train No. 510 was due at that point as he had worked with the helper engine in this vicinity only a few times. Fireman Brantley further stated that it was the practice for the fireman to throw the switches when a crossover movement was made by the helper engine at Stillwater Junction and he thought that the customary method of handling the switches was the same as was followed on this occasion, he did not know of any rule that both switches were to be lined before a crossover movement is actually started.

Operator Judd, on duty at Stillwater Junction, stated that westbound extra 427 passed his station at 12.10 a. m. and shortly afterwards he noticed the helper engine returning. As it approached the west switch of the crossover he called the dispatcher to ascertain the location of train No. 510 and was told that that train should arrive at any time. The crossing bell then started ringing and upon looking westward he noticed the west crossover switch light displaying a red indication, he immediately ran out of the station and warned the engineman of engine 491 that train No. 510 was then approaching closely. The engineman made an effort to move the engine ahead but train No. 510 collided with it before it could be gotten into clear. Operator Judd said he saw fire flying from the wheels of train No. 510 when that train was about a car-length or two from the point of accident. He had been working at Stillwater Junction for the past 10 years and during that time the usual custom followed in making a crossover movement was to throw both switches before the movement was started.

Fireman Saurer, of train No. 510, stated that approaching the point of accident he was riding on his seat-box and that as the train passed signals 138 and 152 he observed they were displaying clear indications which he called to the engineman who in turn repeated their indica-

tions The station whistle signal was sounded when the train was about one-fourth mile east of Stillwater Junction and as the train was nearing the station a crossing whistle signal was sounded. Fireman Saurer noticed the headlight of an engine which he thought was dimmed and which appeared to be standing on the westbound main track, and he did not know it was standing on the crossover until after the occurrence of the accident. Fireman Saurer further stated that before leaving St. Paul a brake test was made which proved satisfactory and that the brakes worked properly en route, also that the engineman had made a service application a short distance west of Stillwater Junction, which was effective in reducing the speed, and that he applied them in emergency at about the time of the accident, at which time the speed of the train was about 40 miles per hour.

Conductor Shaw, of train No. 510, was riding in the third car of the train approaching Stillwater Junction and estimated the speed at 50 miles per hour at the time a service application of the brakes was made about one-fourth mile east of the station. This reduced the speed but he could not say to what extent because of the fact that he was riding in a baggage car with the doors closed, nor did he know at what speed the train was traveling at the time of the accident. His first intimation of anything wrong was when the brakes were applied in emergency, the accident occurring immediately afterwards.

The statements of Baggageman Whipple and Brakeman Judge and Mickelson, of train No. 510, brought out no additional facts of importance as they were unaware of anything unusual prior to the occurrence of the accident.

General Signal Supervisor Johnson stated that he made an inspection of signals 138 and 152 between 7 and 9 a.m., and found them to be functioning perfectly, there having been no alterations made between the time of the accident and the time of his inspection except repairing the damage caused by the accident. He also said it was possible for the signals on the eastbound track to display clear indications with an engine standing on the crossover providing both switches were closed and all wheels were west of the insulated joints.

Tests were conducted subsequent to the accident to determine as nearly as possible the length of time required for train movements similar to those made by the trains involved in the accident. An observation was made with an eastbound passenger train which showed that it required 2 minutes and 17 seconds for the train to pass the switch from the time the switch indicator at the west crossover switch dropped to the stop position when the train entered the control circuit. The point at which the train

first came into view from the switch was approximately the same point from which signal 152 could first be seen from the cab of the approaching train, it consumed 45 seconds between that point and the switch. A light engine similar to engine 491 was used in making a test to ascertain the time required for that engine, backing up on the westbound main track from the point where Engineman Casey said he looked at his watch, to enter the crossover and close the switch. This test developed that the point in question, which was where the train-order board at the station first became visible from the engineman's side of the cab, was 437 feet from the west switch, and the time consumed for the test engine to proceed to the crossover, enter it and close the switch, was 50 seconds, the switch was handled by the fireman. It was established during this test that there was an interval of 12 seconds between the time signal 152 assumed the stop position when the switch was opened and the time it started to return to the proceed position when the switch was closed.

Conclusions

This accident was caused by engine 491 occupying the crossover without proper protection for which Engineman Casey and Fireman Brantley are responsible.

According to the statements of Engineman Casey he looked at his watch, noted the time as 11.15 p. m., when apparently it was 12.15 a. m., and considered that there was ample time in which to cross over to the eastbound track and proceed to Hudson and clear the time of train No. 510. The result was that after the west switch had been opened by the fireman, Engineman Casey moved the engine in on the crossover and then brought it to a stop, fouling the eastbound track, to permit the fireman to close the switch and return to the engine. Shortly afterwards he saw the reflection of the headlight of the approaching eastbound train and attempted to move the engine westward but was unable to clear the fouling point before the tender was struck by train No. 510. Not only is Engineman Casey responsible for allowing his engine to foul the eastbound track on the time of an overdue superior train, but he also is responsible for violating that part of rule 522 which provides that "should any part of a train be stopped on a crossover both switches of crossover must be kept open until movement is complete."

Rule 522 also provides that a crossover switch in either track must not be opened when the red disk is visible or when the semaphore arm is in the stop position in the indicator box at the switch in the track from which the movement is to be made.

One of the tests conducted subsequent to the accident developed that it required a period of 2 minutes and 17 seconds for a train moving under conditions similar to those under which train No 510 was moving, to reach the west crossover switch after entering the switch indicator control circuit, while in making another test with a light engine it required only 50 seconds from the time the train-order signal became visible until the engine had entered the crossover and the switch had been restored to its normal position. From these tests it is evident that train No. 510 was occupying the control circuit before the west switch was opened and had Fireman Brantley observed the indication displayed by the switch indicator he would have known that an east-bound train was approaching, in which event, had he obeyed the rule, he would not have opened the switch and the accident would not have occurred.

The tests which were conducted also indicated that signal 152 probably was in the stop position a matter of only 12 seconds during the opening and closing of the switch. In view of the short interval between the time at which this signal first came within the range of vision of the engine crew of train No. 510 and the time at which the train reached the point of accident, about 45 seconds, it is more than probable that engine 491 was occupying the crossover, with the west switch closed, before the engine crew of train No. 510 could see the signal with the result that they received a proceed indication for the movement of their train.

Engineman Casey entered the service as a fireman in 1910 and was promoted to engineman in 1919, Fireman Brantley entered the service as a fireman in September, 1927. None of the employees involved had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

W. P. Borland

Director.