

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE CHICAGO, MILWAUKEE, ST. PAUL & PACIFIC RAILROAD NEAR TOMAH, WIS., ON JULY 15, 1929.

November 14, 1929.

To the Commission:

On July 15, 1929, there was a derailment of an express and deadhead equipment train on the Chicago, Milwaukee, St. Paul & Pacific Railroad near Tomah, Wis., which resulted in the death of two employees and the injury of six employees. The investigation of this accident was held in conjunction with a representative of the State Railroad Commission of Wisconsin.

Location and method of operation

This accident occurred on the La Crosse and Portage Sub-division of the La Crosse Division, extending between La Crosse and Portage, Wis., a distance of 102.9 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, an automatic block-signal system and an automatic train stop and cab-signal system, the latter being of the continuous inductive type. The accident occurred at a crossover located approximately three-fourths of a mile east of Tomah, approaching this point from the west the track is tangent for a distance of more than 2 miles, followed by a 1° curve to the left 1,050 feet in length and then tangent track to the crossover, a distance of 566 feet, and for some distance beyond that point. The grade is level at the point of accident.

The crossover involved is a standard No. 10 crossover 194 feet 10 inches in length, which was installed temporarily for the purpose of diverting traffic to the west-bound main track between that point and Camp Douglas, 12.8 miles east of Tomah, due to the laying of new rail on the eastbound track between these points. There is also a temporary train-order office located at this crossover, no fixed signal had been provided, a red flag being used by the operator when he had orders for delivery. Under special rules contained in the time-table, all trains passing through crossovers must not exceed 10 miles per hour except at designated turnouts with long frogs, where the speed may be increased to, but not exceed, 20 miles per hour. The last eastbound automatic signal is located east of the station at Tomah and 3,556 feet west of the west switch of the temporary crossover.

The weather was clear at the time of the accident, which occurred at about 7.03 a.m.

Description

Eastbound first-class train second No. 12 consisted of one deadhead Pullman observation car, six loaded express cars, one deadhead dining car and four deadhead Pullman sleeping cars, in the order named, hauled by engine 6133, and was in charge of Conductor Welch and Engineman McMahon. At La Crosse, 41 miles west of Tomah, the crew received, among others, a copy of train order No. 519, Form 31, reading in part as follows:

"From 3 30 a.m. to 5 30 p.m. today the eastward track between temporary crossover east of Tomah and east crossover Carlo Douglas will be out of service. Eastward trains will not pass the temporary crossover Tomah without a 19 order conferring further rights ***"

This train departed from La Crosse at 6 a.m., passed Tomah at 7 a.m. entered the crossover east of Tomah, and was derailed on the westbound main track just east of the east crossover switch while traveling at a speed estimated to have been between 25 and 40 miles per hour.

The engine came to rest on its left side north of the main track at a point 230 feet east of the crossover, the tender cistern was torn from its frame and rested on its left side directly behind the engine. The first seven cars and the forward truck of the eighth car were also derailed, the first car came to rest on its right side on the eastbound main track, 109 feet beyond the engine, the second and third cars remained upright, the fourth car was on its left side and the following three cars were leaning towards the north. All of the derailed equipment, except the eighth car, sustained considerable damage. The employees killed were the fireman and head brakeman and the employees injured were the engineman, conductor, two cooks and a waiter.

Summary of evidence

Superintendent Frick stated that operators handling temporary switches of this character are instructed not to throw the switches for a crossover movement until after an approaching train has passed the last automatic block signal in order to avoid stopping the train at the signal. This practice is considered safe due to the fact that train orders to safeguard these operations are issued to cover all train movements.

Engineman McMahon stated that he was thoroughly familiar with the territory and was fully aware of his location at all times during the trip on which the accident occurred. He received a copy of train order No 519 at La Crosse and understood its contents, and after he read it back to the conductor he remarked that they would have to get a 19 order before proceeding beyond the crossover. After leaving La Crosse he made a running test of the air brakes and they functioned as intended, and while approaching Toman he made a 10 or 12-pound brake-pipe reduction, reducing speed from 50 or 60 miles per hour to about 35 miles per hour. When his engine was near the station he observed that the automatic block signal, located approximately 325 feet east of that point, was displaying a clear indication, and he then released the brakes and permitted the train to drift. As the train proceeded, his own view of the track ahead being restricted by the curve, the fireman informed him that some one had come out of the telegraph office with a hoop but that the crossover switches were closed and it was the fireman's idea they were going straight through. From this information Engineman McMahon thought the order to cross over to the westbound track had been annulled and he did not further reduce the speed of the train at this time, the fireman did not say anything about seeing a red flag. Shortly afterwards the fireman told him that the operator had opened the switch and about the same time he received a red indication of the cab signal, he immediately applied the brakes in emergency but due to having just previously been released after the service application he thought the full emergency effect was not obtained. He did not remember operating the acknowledging valve of the train-control device, and said that he did not see the red flag in the vicinity of the crossover. Engineman McMahon also said that he felt no application of the brakes from the train prior to the time he applied them in emergency, and estimated the speed at 25 to 30 miles per hour at the time the train entered the crossover. He had the contents of train order No. 519 in mind as his train approached the crossover, knew it was still in effect, and was aware the rules restricted his speed through the crossover to 10 miles per hour, but when the fireman stated that the switch was lined for the eastbound track and that the operator was holding a train-order hoop, it led him to believe there was some change in the orders and it was for this reason that he did not bring his train under proper control for a crossover movement. Engineman McMahon stated that he was close to the crossover switch when he received the red cab-signal indication and made the emergency application of the brakes. He thought at the speed he was running he could have stopped his train in a distance of 25 or 30 car-lengths, and that he would have run by the crossover switch a distance of about 10 car-lengths. It further appeared from Engineman McMahon's statements that he had been called upon at various times to make movements similar to the one intended to be made in this case, and that the usual practice was being followed,

that is, an order was sent in advance, with further orders to be received at the crossover, and the operator was not to open the crossover switches until the last automatic signal had been passed. He also said that if the operator wants the train to stop he usually gives a hand signal, but if he wants the train to go ahead he holds up the train-order hoop, which is picked up as the train moves through the crossover.

Conductor Welch stated that among the orders received at La Crosse was the order restricting his rights to the eastbound main track beyond the temporary crossover at Tomah. He delivered the orders to the engineman, who read them aloud and stated time that they were to receive a 19 order at Tomah. Conductor Welch rode in the leading car and felt a brake application shortly after leaving La Crosse. When the train was approaching Tomah he went out on the rear platform for the purpose of ascertaining the position of the train-order signal, which was clear. He then re-entered the car and after passing the station he remarked to the head brakeman that the train was running pretty fast, after which both he and the head brakeman returned to the platform. When the train was close to the crossover he looked ahead from the left side of the train and observed the operator in a stooped position at the west switch, apparently in the act of opening it, the train then was just leaving the curve. Realizing that the train was traveling at too high a rate of speed to take the crossover he stepped to the rear of the platform and opened the emergency valve, the accident occurring very shortly afterwards. Conductor Welch said he felt no air-brake application between the running test made on leaving La Crosse and the time he opened the emergency valve, and he estimated the speed at the time the train passed Tomah station at 40 miles per hour, which speed he thought was reduced slightly before reaching the crossover, apparently as a result of the train being allowed to drift. After the accident he saw a red flag sticking in the ground on the engineman side of the track at the west crossover switch. Conductor Welch further stated that during his experience he has on numerous occasions been detoured over the opposite track between certain points, and the customary practice in making such movements was to approach the crossover under control and the operator would hand a 19 order to the crew conferring additional rights without requiring the train to stop. Conductor Welch stated that the brake was cut out on one car about the fourth car from the head end of the train. He said this brake was cut out when the train arrived at La Crosse, but he did not know for what reason.

Flagman Glass stated that he was aware there was a temporary crossover east of Tomah but was not familiar with its exact location, as he had never been on a train which used it. At La Crosse the head brakeman read the train orders

to him and he understood that a crossover movement was to be made at Tomah. He assisted in making an air-brake test from the rear car in the train before departing and the brakes applied and released properly. A running test of the brakes was made shortly after leaving that point and this was the last application he felt until just before the train entered the curve west of the point of accident, when there appeared to be an emergency application, he estimated the speed at 45 to 50 miles per hour when the train passed Tomah station. Flagman Glass also said he was of the opinion that the speed was too great at the time the train passed the station to enable it to comply with train order No. 519, but he said he took no action toward applying the brakes from the rear of the train as he was afraid of breaking it in two, and he was momentarily expecting the engineman to apply them.

Operator Knuteson, on duty at the temporary crossover and train-order office, stated that train order No. 519 was issued to him, as well as a 31 order to hold all eastward trains, these orders being made complete at 6.31 a.m. Upon receipt of these orders he placed a red flag near the eastbound main track on the engineman's side. At 6.46 a.m., he received two additional orders, one addressed to train second No. 12, authorizing that train to use the westbound main track between his station and Camp Douglas, and the other addressed to himself which read "Second 12 may go". He placed the orders in hoops for the purpose of delivering them to the crew of that train and then left the office and stood at the east crossover switch awaiting the arrival of the train. After it passed the last automatic signal he opened the switch and then hurried to the west switch, and by the time he reached it the train was about at the east end of the curve, he had just time enough to open the switch and hold up the hoop when the train passed, but there was no one out to receive the orders. Fire was flying from the wheels when the train passed him. Operator Knuteson said that it is the usual practice, when he holds orders giving a train further rights, to give the approaching train crew a proceed hand signal and deliver the orders by hoop when the train passes, without stopping it. He also said that he has had considerable experience at temporary crossovers and that his understanding is that he is to wait until the train passes the last automatic signal before opening the switches, in order to avoid unnecessary delay by stopping the train at the signal.

Dispatcher Farnham corroborated the statements of Operator Knuteson with respect to the orders issued to the latter's station, also as to the practice followed in making detour movements.

Section Foreman Henschell and two section laborers were standing about half way between the crossover switches at the time of the accident. According to their statements, train second No. 12 was approaching at a high rate of speed. The operator ran from the east switch to the west switch and threw the west crossover switch just in front of the train, the train was only about one rail-length from it. There was a red flag with its staff sticking in the ground on the engineman's side of the eastbound track, opposite the switch. The train started to turn over just after it got through the crossover and upon the westbound track.

Roadmaster McMahon stated that the crossover involved was installed in June, 1938, for the purpose of detouring trains to expedite the work of relaying rail. Such facing-point crossovers are installed in accordance with plans furnished by the division engineer, who usually locates them so that the automatic block-signals will afford protection. Roadmaster McMahon arrived at the scene of accident at about 9.30 a.m., inspected the crossover and switches, and found them to be in good condition, no repairs were made to this crossover after the accident. There were no marks on the crossover to indicate that the train was derailed either on the switches or on the crossover, the first mark appearing on the westbound main track about 8 or 10 feet beyond the east switch. He thought that the maximum speed a train could be operated through the crossover with safety was 15 miles per hour.

The statements of Assistant Signal Supervisor Snoemaker and Assistant Air Brake Supervisor McMinn were to the effect that subsequent to the accident a test was made of the signal and train-control systems, without any changes or alterations having been made, and they functioned as intended.

Conclusions

This accident was caused by train second No. 12 entering a crossover at an excessive rate of speed, for which Engineman McMahon and Conductor each are responsible.

Under the rules, the speed of trains passing through the crossover at the point of accident was restricted to 10 miles per hour. According to his own statement, Engineman McMahon understood the requirements of train order No. 519 received at La Crosse, he was familiar with the location of this crossover, and was also aware of speed restrictions through this crossover. However, the evidence is conclusive that train second No. 12 approached this crossover at excessive speed. The statements of all employees involved and of other witnesses clearly establish this fact.

When he learned that the crossover switches were being opened, the engineman made an emergency application of the brakes, but because of the short distance then existing between his train and the crossover, and the rate of speed at which the train was running, he thought the train could not be stopped until it had passed a distance of about 10 car-lengths beyond the crossover switch. The conductor realized that the train was running too fast to make the crossover movement safely and according to his statement he opened the emergency valve on the first car, apparently at about the same time the engineman applied the brakes in emergency from the engine; however, this action on the part of the conductor was too late to avert the accident. The flagman on the rear end of the train thought the train was running too fast but took no action to reduce its speed. The operator, the section foreman and two section laborers who were on the roadway near the scene of the accident all stated that the train approached the crossover at a high rate of speed. Estimates of the speed of the train as it entered the crossover varied from 25 to 40 miles per hour, whereas the speed restriction in effect at this point was 10 miles per hour.

The location of the train at the time the operator opened the east crossover switch was not determined with exactness. The opening of this switch resulted in the display of a red cab signal, the engineman stated he was close to the switch when he received this cab-signal indication but could not estimate the distance. The conductor said the train was just leaving the curve when he opened the emergency valve; the point of curve is 586 feet from the west crossover switch. The operator was unable to state the exact location of train second No. 12 when he opened the east crossover switch except that he was sure it had passed the last automatic signal near the station, the evidence is that he hurried or ran from the east crossover switch to the west crossover switch and threw the west switch while the train was on the tangent between the switch and the curve, completing this operation only an instant before the train entered the crossover. The investigation disclosed no defective or insecure condition either of track or of the crossover which might have contributed to this accident, the direct cause of the accident being the high rate of speed at which the train passed through the crossover.

Engineman McMahon was not justified in acting upon an assumption that the order requiring his train to make a crossover movement had been annulled, under the orders which he held he was required to approach this crossover under control, prepared to make the crossover movement. Conductor Welch was equally responsible with him for the safe operation of their train, according to his statement he was fully aware that the speed of the train was not being properly controlled but he failed to act quickly enough to effect the required reduction in the speed of this train.

The investigation disclosed that this train was being operated with the brake cut out on one car associated with other power brake cars in the train, this is not in conformity with the provisions of the safety appliance law.

On the line where this accident occurred there was an automatic train-stop and cab-signal device in service. It appears from the investigation that this device functioned as intended, a red cab-signal indication was displayed when the first crossover switch was opened, upon receipt of which the engineman immediately made an emergency application of the brakes without waiting for the automatic apparatus to operate. However, in view of the high rate of speed and the short distance between the train and the crossover when the first crossover switch was opened, the operation of the automatic train-stop device was not initiated soon enough to prevent the accident.

The employees involved were experienced men, and at the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service law

Respectfully submitted,

W. P. BORLAND,

Director.