

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE
INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
CHICAGO & NORTH WESTERN RAILWAY NEAR CROOKSTON,
NEBR., ON OCTOBER 22, 1928.

December 23, 1928.

To the Commission:

On October 22, 1928, there was a rear-end collision between two freight trains on the Chicago & North Western Railway near Crookston, Nebr., resulting in the death of two live-stock caretakers and the injury of two employees.

Location and method of operation

This accident occurred on Sub-division 1 of the Black Hills Division, extending between Chadron and Long Pine, Nebr., a distance of 121.8 miles, 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 3 miles west of Crookston, approaching this point from the west there is a $2^{\circ} 30'$ curve to the right 993.2 feet in length, 501.8 feet of tangent, and then a $0^{\circ} 54'$ curve to the right 3,711 feet in length, the accident occurring on the last-mentioned curve at a point 628 feet from its western end. The grade for east-bound trains is 0.92 per cent descending for a distance of about 3,700 feet to the point of accident, and for some distance beyond that point. A caboose standing at the point of accident can be seen a distance of 1,738 feet from the engineman's side of the cab of an eastbound engine.

Under special rules contained in the time-table, trains handling loaded oil tanks are restricted to a speed of 25 miles per hour, while other freight trains are restricted to a speed of 30 miles per hour; it is also provided that trains will be spaced 15 minutes apart.

The weather was clear at the time of the accident, which occurred at a time variously estimated as between 12.44 and 12.50 a.m.

Description

Eastbound freight train extra 1159 consisted of 38 cars, a large number of which were loaded oil tanks, and a caboose, hauled by engine 1159, and was in charge of Conductor Murphy and Engineman Kenney. At Cody, 26.5 miles west of Crookston and the last open office, copy of train order No. 59, Form 19, was received, reading in part as follows.

"C&E Eng 1159
C&E Eng 1220

Engs 1159 and 1220 run as two extras
Cody to Long Pine Meet No 3 at Crooks-
ton *** "

Extra 1159 left Cody at 11.50 p.m., October 21, according to the train sheet, made no stop en route, and was approaching Crookston when the air brakes applied in emergency, on account of a drawbar having dropped down between the sixth and seventh cars. This resulted in the train being brought to a sudden stop and very shortly afterwards the caboose was struck by extra 1220.

Eastbound freight train extra 1220 consisted of 29 cars of stock and a caboose, hauled by engine 1220, and was in charge of Conductor McGown and Engineman Knowles. At Cody the crew received a copy of train order No. 59, Form 19, previously referred to, and departed from that point at 12.05 a.m., 15 minutes behind extra 1159. This train also made no stop en route and it collided with the rear end of extra 1159 near Crookston while traveling at a speed estimated to have been about 10 or 12 miles per hour.

The caboose of extra 1159 was demolished and the wreckage caught fire and was consumed, the three cars ahead of it were derailed and badly damaged and the rear truck of the fourth car was derailed. Engine 1220 and its tender were only partly derailed and remained upright on the roadbed, the engine came to a stop with its front end 65 feet east of where the rear end of the caboose originally stood. The front end of the engine was considerably damaged. The first car in extra 1220 was not derailed but the next seven cars were derailed and badly damaged, one of them being destroyed. The two live-stock caretakers killed were in the caboose of extra 1159.

Summary of evidence

Flagman Staal, of extra 1159, stated that he was riding in the cupola of the caboose when the brakes applied in emergency. As the train was coming to a stop a flag was whistled out and he secured a white lantern and a red lantern, a fusee and torpedoes, got off the caboose before it came to a full stop, and immediately started running back to flag. He saw the reflection of the headlight of engine 1220 and was about half way back when he saw the engine as it was rounding the curve. His stop signals were not answered, although as the train was passing him he noticed that the air brakes were applied, with sparks flying from the brake shoes. Flagman Staal did not put down any torpedoes, he did endeavor to light the one fusee which he was carrying but on scratching the fusee it flashed twice but did not light. Flagman Staal stated that he was back a distance of about 27 car-lengths when the engine of extra 1220 passed him, at a speed of about 15 to 18 miles per hour, saying that he remained at that point and that when extra 1220 finally came to a stop he was opposite the car ahead of the caboose. He thought his stop signals would have been visible 10 or 12 car-lengths from where he was standing. It further appeared from Flagman Staal's statements that he knew extra 1220 was a live-stock train, ready to follow his own train out of Cody. He did not throw off lighted fusees en route, however, because he did not think that extra 1220 would follow closely enough to warrant the taking of such action and also because the speed of his own train was between 25 and 30 miles per hour en route from Cody to the point of accident. After passing Kilgore, located 10.7 miles west of Crookston, Flagman Staal saw what he thought were reflections from the headlight of engine 1220 and he judged that it was at least several miles in the rear of his own train, he said it was possible, however, that these reflections might have come from automobile headlights on a highway that parallels the track in that vicinity. Flagman Staal further stated that this was the first time he had ever had a fusee which failed to light for him, that it came from a supply of fusees which had been placed in the caboose about October 1, and while he had made no inspection to ascertain their expiration date yet they appeared to be new. The fusee involved was not located after the accident while the fusees in the caboose were consumed by the fire.

Conductor Murphy, Engineman Kenney, Fireman Peters and Head Brakeman Gay, of extra 1159, were all riding on the engine at the time their train parted. Engineman Kenney said that just before the train came to

a stop he whistled out a flag and on looking back he saw the reflection of the headlight of engine 1220. When the train stopped the conductor and head brakeman immediately got off and started back to the point where the break-in-two occurred, between the sixth and seventh cars, the fireman got a wrench out of the tool box and started back but had only reached a point about opposite the tender when the crash came. Engineman Kenney further stated that a fairly uniform rate of speed had been maintained, without stops, between Cody and the point of accident, estimating the speed to have been between 25 and 30 miles per hour, and although he looked back on rounding every curve he had not seen the reflection of the headlight of engine 1220 prior to the time his train came to a stop as a result of the breaking in two of the train. Engineman Kenney stated that he looked at his watch just after the crash occurred and it was then 12.44 a.m. The statements of Fireman Peters were practically similar to those of Engineman Kenney.

Conductor Murphy stated that at Cody he informed Flagman Staal that extra 1220 probably would pull out right behind their own train, as he understood that that train was not ready to depart just then but would be very soon thereafter. After the train broke in two near Crookston he got off the engine before he came to a complete stop and immediately started back, and he did not realize that a collision was imminent until he reached the point where his train had parted. He did not look at his watch at the time but thought that the accident occurred at about 12.50 a.m., saying that after the crew got together following the accident he then looked at his watch and at that time it was 1 a.m. Conductor Murphy estimated the speed of his train between Cody and the point of accident to have been between 25 and 30 miles per hour. He was fully aware that his train was limited to a speed of 25 miles per hour and that extra 1220 could be operated at a speed of 30 miles per hour.

Engineman Knowles, of extra 1220, stated that he knew extra 1159 had loaded oil tanks in the train and that it left Cody at about 11.50 p.m., while his own train departed from the passing track at 12.05 a.m. Approaching Crookston, Engineman Knowles made an application of the brakes to steady the train around the 20° 30' curve to the right, preceding the curve on which the accident occurred. While still on the curve, moving at a speed of 30 or 35 miles per hour, he saw the markers of extra 1159 which were burning brightly, and at about the same time he saw the flagman giving stop signals with his lantern. Engineman Knowles immediately moved the brake valve handle to the emergency position, no release having been made, and opened the sanders, and he said that while a full emergency effect

was not obtained, owing to the previous service reduction, the emergency application did succeed in reducing the speed considerably on the descending grade, estimating it to have been between 10 and 12 miles per hour when the accident occurred. He did not look at his watch when the accident occurred but said that he did so about a minute or two afterwards, at about 12.52 a.m., and he figured that the accident occurred at about 12.50 a.m. Engineman Knowles further stated that after leaving Cody he had not seen anything of extra 1159 until he approached the point of accident. It appeared to him that Flagman Staal was about 10 or 12 car-lengths in the rear of extra 1159 when his engine passed the flagman, but he understood from others that the flagman was in the immediate vicinity of the caboose of extra 1220 when it came to a stop. Engineman Knowles did not acknowledge the stop signals of the flagman as he was too busy doing all he could to get his train stopped on the descending grade, and he was of the opinion that had the service air brake application not been made he could have brought his train to a stop in time to have averted the accident by making the emergency application when he first saw the markers and the flagman. While the speed of his own train was limited to 30 miles per hour he said that this speed probably was exceeded slightly at some points en route.

Fireman Starkey, of extra 1220, stated that after departing from Cody he saw nothing of extra 1159 until the air brakes were applied in emergency, just prior to the accident, at which time the speed of extra 1220 was about 30 miles per hour. Head brakeman Murphy, who rode on the engine between Cody and the point of accident, estimated the speed of his train en route to have been generally between 40 and 45 miles per hour. He thought the speed was about 45 miles per hour when the air brakes were applied in emergency just prior to the accident, although he said that he thought the engineman would be a better judge of the speed. He thought the flagman of extra 1159 was back a distance of about 25 car-lengths.

Conductor McGown, of extra 1220, was sitting at his desk in the caboose when his train was approaching Crockston and the first knowledge he had of anything wrong was when the air brakes were applied in emergency, at which time the speed was about 30 miles per hour. Conductor McGown said that as he stepped from the caboose Flagman Staal, of extra 1159, was standing opposite the caboose with lighted red and white lanterns, and Flagman Staal informed him that extra 1220 had struck the caboose

of extra 1159. Conductor McGown said that no stops were made between Cody and the point of accident, that uniform speed was maintained, and that the air brakes worked properly in steadying the train around curves. The statements of Flagman Waltman were similar to those of Conductor McGown; Flagman Waltman also stated that the collision occurred at 12.50 a.m.

Operator Grieme, stationed at Cody said the fifteen-minute spacing rule was complied with, extra 1159 departing at 11.50 p.m. and extra 1220 departing at 12.05 a.m.

The car on which the draw bar had dropped down was LDLY tank car 735, this was the sixth car in the train of extra 1159 and it was on the rear end of the car that the draw bar had dropped. The inspectors who inspected the train in which this car arrived at Chadron on October 31 found nothing other than the need for re-brassing one of the journals on this car. Car Foreman Botello said that after the accident he found the carrier iron missing, and the type D draw bar, with Cardwell draft gear, down on the "A" or rear end of the car. Two bolts without nuts were still in place in the upper part of the buffer casting but the two bolts through the flange of the center channels, which also held the carrier iron, were missing, although one washer on each side was still resting on the flange. Car Foreman Botello found the carrier iron 2,200 feet west of the point of accident and with it there was found one broken bolt and a washer; the break in the bolt appeared to be new, and did not show any sign of a flaw in the metal. It also appeared from the car foreman's statements that after the undamaged portion of the train of extra 1220 had been pulled back from the scene of the accident he made a test of the air brakes and found all of them to be working properly, except that in the case of one car the piston travel was 10 inches.

Conclusions

This accident was caused by the failure of Engineer Knowles of extra 1220, and Flagman Staal of extra 1159, to take proper precautions for the safety of their respective trains when operating under close headway.

The exact time at which this accident occurred is in dispute, but it seems probable that extra 1159 was operated from Cody to the point of accident at an average rate of speed slightly less than the maximum of 25 miles per hour prescribed by rule for trains handling loaded oil tanks, on the other hand, extra 1220 probably was operated

at a speed slightly in excess of the 30 miles per hour prescribed by the rules for freight trains in general. Flagman Staal knew that extra 1220 undoubtedly would follow his own train closely from Cody to Crookston, while Engineman Knowles knew that extra 1159 left Cody 15 minutes ahead of him, each of these employees was fully aware of the speed restrictions imposed on the two trains and of the further fact that they were to meet train No. 3 at Crookston, the time of train No. 3 at that point being 12.41 a. m. Under these circumstances it was obviously necessary for these employees to pay very close attention to the operation of their trains and to be prepared to take unusual precautions to prevent the occurrence of such an accident as is here under investigation. In the case of Engineman Knowles it appeared from his own statements that the speed of his train was from 30 to 35 miles per hour, after the completing of a 10-pound brake-pipe reduction, when he first saw the markers on the rear of extra 1159. In the case of Flagman Staal it appeared that he did all that he could have done toward providing protection for the rear of his train after it had been brought to a stop, on the other hand, however, knowing that a faster train was following his own train and probably would close up on it as they approached Crookston, it would seem that he should have thrown off a lighted fusee at the leaving end of the 1.6 miles of tangent track which preceded the series of curves and tangents on which the accident occurred. The presence of a fusee at that point, 1 mile from the point of accident, where it would have been visible to an approaching train for a considerable distance, would have caused Engineman Knowles to operate his train at a more reasonable rate of speed, in which event the accident might have been prevented.

On the subdivision on which this accident occurred there are two first-class trains and two second-class trains daily in each direction, there is also one second-class train operated in each direction over portions of the subdivision daily except Sunday, in addition to the various extras which are operated as traffic requires. The distance between Chadron and Long Pine is 191.8 miles, these two terminals are continuously operated offices, out there are only four intermediate offices which are continuously operated and all four of them are closed at various times on Sundays and holidays. In view of the comparatively long distances between open offices, which tend to nullify the effects of the 15-minute spacing rule, it is suggested that the officials give consideration to the advisability of adopting some form of

block-signal system for the purpose of preventing the occurrence of accidents of this character.

With the exception of three of the brakeman, all the employees involved, including the flagman of extra 1159, 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.