

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE
INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE
UNION PACIFIC RAILROAD AT LORING, KANSAS, ON MARCH
28, 1928.

May 23, 1928.

To the Commission:

On March 28, 1928, there was a rear-end collision between two Chicago, Rock Island & Pacific freight trains, operating over the tracks of the Union Pacific Railroad, at Loring, Kansas, which resulted in the death of three live-stock caretakers, and the injury of four live-stock caretakers.

Location and method of operation.

This accident occurred on the Eastern Subdivision of the Kansas Division, extending between Kansas City and Junction City, Kans., a distance of 137 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 at a point approximately 1,280 feet east of the west passing-track switch at Loring; approaching this point from the west the track is tangent for a distance of 2,794.6 feet, followed by a 2° curve to the left 1,341.7 feet in length, and then tangent extending to the point of accident, a distance of approximately 1,450 feet, and for a considerable distance beyond that point. The grade is slightly descending for eastbound trains. Between Topeka and Kansas City, within which territory the accident occurred, the tracks are own/jointly by the Chicago, Rock Island & Pacific Railway and the Union Pacific Railroad, and are operated by the last-named railroad.

The signals involved are signals 220 and 214. Signal 220 is a distant signal of the one-arm, two-position, lower-quadrant type, and the night indications displayed by this signal are green and yellow, for proceed and caution, respectively. Signal 214 is a home-and-distant signal of the two-arm, two-position, lower-quadrant type, the lower arm giving a distant indication in connection with the next signal to the eastward, while the upper arm operates in conjunction with distant signal 220 and governs the block within which the accident occurred. Signal 214 is equipped with approach lighting, which becomes effective when a train

passes distant signal 220 and remains lighted until the train has passed out of the block. These signals are located 4,090 and 1,380 feet, respectively, west of the point of accident. A view of signal 220 can be had from the cab of an eastbound engine, continuously, for a distance of 4,210 feet; signal 214 first comes in to view from the fireman's side at a point 3,110 feet west of its location, while the indications displayed by this signal can be clearly seen by the fireman for a distance of 2,710 feet. An engineman can not see signal 214 until it is only 520 feet distant.

The weather was clear at the time of the accident, which occurred at about 3.55 a. m.

Description

Eastbound C.R.I. & P. freight train extra 2663 consisted of 84 cars and a caboose, hauled by engine 2663, and was in charge of Conductor Carr and Engineer Donohue. This train departed from Topeka, 47.3 miles west of Loring, at 1.32 a. m., passed Linwood, the last open office, 7.6 miles west of Loring, at 3.30 a. m., and was brought to a stop on the main track at Loring, due to a hot box, at about 3.46 a. m. It was still standing at this point when it was struck by eastbound extra 2696.

Eastbound C.R.I. & P. freight train extra 2696 consisted of 62 cars and a caboose, hauled by engine 2696, and was in charge of Conductor Sandels and Enginemen Falsch-er. This train left Topeka at 2.05 a.m., passed Linwood at 3.44 a. m., passed signal 220, which apparently was displaying a caution indication, passed signal 214, which was displaying a stop indication, and collided with the rear of extra 2663 while traveling at a speed estimated to have been between 4 and 7 miles per hour.

The caboose and the last car in extra 2663 were demolished and afterwards consumed by fire. None of the other equipment was derailed, or damaged to any great extent. The caretakers killed were riding in the caboose of extra 2663.

Summary of evidence.

Flagman Studebaker, of extra 2663, stated that as his train approached Loring he detected a hot box and after conferring with the conductor it was decided to stop and remedy this condition. He then went to the rear of the caboose and lighted three 10-minute yellow fusees, placing one on either side of the caboose and throwing off the third

fusee at a point approximately one-half mile west of the west passing-track switch at Loring. As soon as the train came to a stop, which he said was at 3.46 a.m., he got off and started back to afford protection, continuing westward for about three or four minutes, and had reached a point approximately 1,180 feet from his caboose when he was recalled. Before returning to his train, however, he lighted another yellow fusee and placed it on the track, as well as two torpedoes. When he had returned to within four or five car-lengths of his caboose he looked back and observed the reflection of the headlight of an approaching train. He immediately started running as fast as possible toward that train, waving stop signals with a yellow fusee and upon reaching the first of the two torpedoes he had previously placed on the rail he kicked it away so as to leave only one torpedo, which would act as a stop signal. Flagman Studebaker said this other torpedo was exploded when the engine encountered it, but that a distinct report was not heard, due to the grinding of the brakes and the exhaust of the engine; he saw sparks flying from the wheels before the train reached the torpedo, and estimated that the train passed him at a speed of about 30 miles per hour. Flagman Studebaker further stated that he did not know there was a train following closely, although he had seen its headlight at Lawrence, 18.9 miles from Loring, nor had he heard any whistle signals sounded. It further appeared from his statements that he was riding on the steps of the caboose as his train passed signal 220, being particularly interested as to the location of the signals, and saw it change from green to yellow when the engine passed it, while signal 214, at the time his caboose passed it, was displaying a stop indication. He also said that his caboose was equipped with a deck light and markers, all of which were burning at the time of the accident.

Conductor Carr, of extra 2663, stated that while at Lawrence he received a message advising him that two trains were closely following his own train and that he was not to hold them if his train was delayed, he did not remember whether he mentioned this to the flagman but thought the flagman read the message. Conductor Carr observed the headlight of a following train as his own train departed from Lawrence but did not again see it until just before the accident, nor did he hear the whistle of that train at any time. He instructed his flagman to throw off a lighted fusee preparatory to stopping at Loring but did not know the exact location at which it was thrown off, although he thought it was near signal 220. When the train came to a stop at Loring he told the flagman to watch out for following trains while he attended to the hot box, and he said the flagman started back promptly, although he did

not know how far back the flagman proceeded. After the hot box had been remedied, which required from three to five minutes, he looked back and saw the flagman and a burning fusee some distance west of the caboose but could not determine the exact location. Noticing no train approaching at the time he signalled the engineman to call in the flagman, who appeared at that time to be near signal 214, and then walked toward the engine, inspecting the train. Shortly afterwards, as he started to return to the rear of his train, he heard a faint sound which resembled the explosion of a torpedo and upon looking back he saw the glare of a headlight but could not see the flagman, who was hidden from his view by the approaching train. Conductor Carr further stated that it was customary to recall a flagman even within one or more minutes after a train had been brought to a stop, providing no other train is in sight at the time, which was in accordance with his interpretation of the Union Pacific rules, and he did not think any difference would be made by the fact that he had in his possession a message to the effect that other trains were following his own train.

The statements of Engineman Donahue, Fireman Monroe and Brakeman Jackson, of extra 2663, all of whom were on the engine, were to the effect that they were unaware of the impending accident until after its occurrence, there being no shock felt at the head end of the train. Engineman Donahue also said that when approaching Loring the brakeman observed a stop signal indication displayed by a yellow fusee at the rear of the train, but as he had a copy of the message relative to following trains he did not bring his own train to a stop until it had passed the passing-track switch, which would enable these trains to pass if necessary. The stop was made at 3.45 a.m., at which time he sounded a whistle signal for flag protection, and after standing at that point about five minutes he received a signal to call in the flagman; he did not receive a proceed signal and at about 3.55 a. m. the air brakes applied in emergency; shortly afterwards he noticed fire at the rear of his train. Engineman Donahue said that signals 220 and 214 were in the clear position as his train approached them.

Engineman Hilscher, of extra 2696, stated that an air brake test was made before departing from Topeka, and the brakes functioned properly after leaving that point, several stops being made en route. He was positive that signal 220 was displaying a clear indication as his train approached and passed it, but when within a distance of 1,200 feet of signal 214, before it came within his range of vision, the fireman and brakeman both called "red board,"

whereupon he made a heavy service application of the air brakes, not making an emergency application as he was afraid it might result in a derailment on account of the fact that the train was on a curve, coupled with its heavy tonnage. This first application of the brakes seemed to hold properly. Engineman Hilscher saw the caboose of the train ahead at about the time his own engine passed signal 214 and immediately moved the brake valve to the emergency position and opened the sanders, but did not get a good emergency effect owing to the previous service application, and when about midway between signal 214 and the caboose of the standing train he reversed the engine and opened the throttle. He estimated the speed of his train when it was approaching Loring to have been from 30 to 35 miles per hour, and thought it had been reduced to about 20 miles per hour at the time it passed signal 214 and that it was further reduced to 6 or 7 miles per hour at the time of the accident. He also said he did not sound the station whistle signal because it was just after passing the whistling post that the fireman called "red board," neither did he acknowledge the flagman's signals, giving as his reason the fact that he saw the caboose at about the time he noticed the flagman and was then doing all in his power to bring the train to a stop, further stating that he did not see a burning fussee at any time, nor did he hear the explosion of a torpedo; he estimated that the flagman was only five or six car-lengths from the caboose. In this connection it might be noted that the first part of Engineman Hilscher's statement, wherein he said he was about 1,200 feet from signal 214 when notified it was in the stop position, differs materially from his subsequent statement that it was just at or after passing the whistling post that this warning was given; this whistling post is about 2,600 feet from signal 214. Engineman Hilscher could not account for signal 220 displaying a clear indication unless it was out of order at the time his train approached and passed it.

Fireman Metz, of extra 2696, stated that he observed signal 220 displaying a clear signal indication just as soon as it came within his range of vision; he also observed signal 214 as soon as he came within view of it, about one-quarter of a mile distant, displaying a stop indication and immediately informed the engineman to that effect. He said the engineman applied the brakes at once but he did not know whether or not a second application was made prior to the accident. Fireman Metz estimated the speed of his train at the time the brakes were applied to have been about 35 miles per hour and thought this speed had been reduced to about 15 miles per hour by the time his engine had reached a point approximately 500 feet from the caboose of the standing train, at which point he jumped off.

The statements of Brakeman Holmes, of extra 2696, who was riding on the engine, practically corroborated those of Fireman Metz, except that he was not certain as to the position of signal 220 at the time his train passed it, nor did he see signal 214 until after the fireman had called its indication. He also said he observed the markers of the standing train, as well as the flagman, but could not estimate the distance between the flagman and the caboose, nor did he hear the explosion of a torpedo or see a burning fusee. He jumped off when his train had reached a point about one or two car-lengths from the train ahead, at which time his train was moving at a speed of 4 or 5 miles per hour.

Conductor Sandels, of extra 2696, stated that he did not see signal 220 at the time his train passed it but shortly after the accident he returned to the signal and found it displaying a caution indication. He further stated that his understanding of the rules was that when a train stops a flagman must immediately start back to protect, but as soon as the train is ready to proceed he may return providing he places two torpedoes and a lighted fusee on the track and no following train is in sight, regardless of the distance between him and his train; whether or not block signals were in use would make no difference in this respect. Flagman Snyder, of extra 2696, could add no additional facts of importance except that he observed signal 220 displaying a caution indication at the time his train passed it.

Signal Supervisor Haney, of the C.R.I. & P. Ry., stated that at about 9.30 a. m. on the day of the accident he made an inspection of the signals involved, in company with Signal Supervisor Ziehlke, of the Union Pacific Railroad, and found them to be in proper working order, while their general maintenance was good. Daylight observations revealed that signal 220 could be seen for a distance of 1 mile and signal 214 could be seen from signal 220, it was his opinion that these signals could be seen for a greater distance at night. He also said that on the day subsequent to the accident he observed a train in that vicinity, consisting of approximately 70 cars running at a speed of about 25 miles per hour, stop in about 1,800 feet. Signal Supervisor Ziehlke confirmed the statement of Supervisor Haney as to the condition of signals 220 and 214 and how they functioned at the time of the inspection.

Assistant Signal Supervisor Canavan, of the Union Pacific Railroad, stated that he arrived at the scene of the accident between 6.25 and 6.35 a. m. on the day of its occurrence and found signal 220 displaying a caution indication and signal 214 displaying a stop indication. He

remained in the vicinity until the track was clear and all trains had departed, whereupon both signals went to the clear position. Roadmaster Jung substantiated the statements of Supervisor Camavan, further stating that he remained at the scene of the accident until following trains had passed and during that time the signals functioned properly.

During the night of March 30 a test was conducted which determined that the red lights on a caboose standing at the point at which the accident occurred could be seen dimly from the fireman's side of an eastbound engine from a point 3,400 feet distant and they then appeared at intervals, very dimly, until 3,000 feet distant, from which point they continued in plain view. Owing to the curvature of the track the lights on the caboose were not visible from the engine's side of the engine until it had reached a point 1,450 feet from the caboose.

Conclusions

This accident was caused primarily by failure properly to observe and obey signal indications, for which Engineman Hilscher, Fireman Meitz, and Brakeman Holmes, of extra 2696, are responsible.

According to the statements of these employees, the engineman and fireman saw distant signal 220 displaying a clear indication while the head brakeman was not certain as to its indication; the head brakeman also failed to notice home signal 214 until its indication was called by the fireman, at which time, according to the fireman's statement, it was about one-fourth mile distant. The engineman's statement on this particular point was conflicting, one estimate indicating that the signal, which could not then be seen from his side of the engine, was at that time about 1,200 feet distant, while another estimate by him was to the effect that the fireman called the indication of the home signal at or just after passing the station whistling post, which is about 2,600 feet from the home signal; in either event, it was not until after this indication had been called that any of these employees saw the markers on the caboose of the train ahead.

So far as distant signal 220 is concerned, the evidence indicated that it was operating properly at the time extra 2663 passed it, while it displayed a caution indication when observed by the conductor and flagman of extra 2696 after the occurrence of the accident. An examination of this signal subsequent to the accident disclosed

that it was functioning properly, nothing being found that would cause it to display a false clear indication, and it seems apparent that this signal was displaying a caution indication when extra 2696 approached and passed it, and that for some reason this indication was not observed by any one on the engine, with the result that no attempt was made to control the speed of the train until it was too close to home signal 214 to be brought to a stop before passing the signal location.

Tests conducted subsequent to the accident revealed that home signal 214 could be clearly seen from the fireman's side of an eastbound engine for a distance of 2,710 feet, or 4,090 feet from the point of accident, and that the markers on a caboose standing at the point of accident could be seen clearly for a distance of 3,000 feet. The members of the engine crew of extra 2696 were aware that they were closely following another train, as their own train had caught up with it just west of Lawrence, being flagged and stopped at that point. In view of this fact they had all the more reason to be keeping a careful lookout, and had such a lookout been maintained by the fireman and also by the head brakeman, even after passing the distant signal without any reduction in speed, there is no reason why they should not have observed the stop indication displayed by signal 214, and also the caboose of extra 2663, in ample time to have enabled their engine-man to bring the train to a stop.

The Union Pacific rules provide that the flagman must go back one-fourth of a mile and put down one torpedo, and then continue back one-half mile and put down two torpedoes, he may then return to the single torpedo and remain there until recalled. These rules also require that if recalled before reaching the required distance the flagman shall, if necessary, put down two torpedoes, and by night display a fusee, to protect his train while returning. It was under the last-mentioned provision that Flagman Studebaker was recalled before he had gone out the full distance prescribed by the first part of the rule. Probably there was ample authority under this particular provision for the action of the conductor in having the flagman recalled, but in view of the fact that he knew there was another train closely following his own train, good judgment should have prompted him to allow the flagman to go out a greater distance before recalling him, although in view of the circumstances it is questionable whether any greater benefit would have resulted unless the flagman had been allowed to go out a full half mile, in which event stop signals

given by him from that point with a red lantern or a red fusee, or both, should have attracted the attention of the crew of the following train in time to enable them to bring their train to a stop and avert the accident.

Had an adequate automatic train stop or train control device been in use on this line, this accident would have been prevented.

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.