1981

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY CONCERNING AN ACCIDENT ON THE MISSOURI-KANSAS-TEXAS RAILROAD AT CROSS, (PARSONS) KANS., ON APRIL 26, 1935.

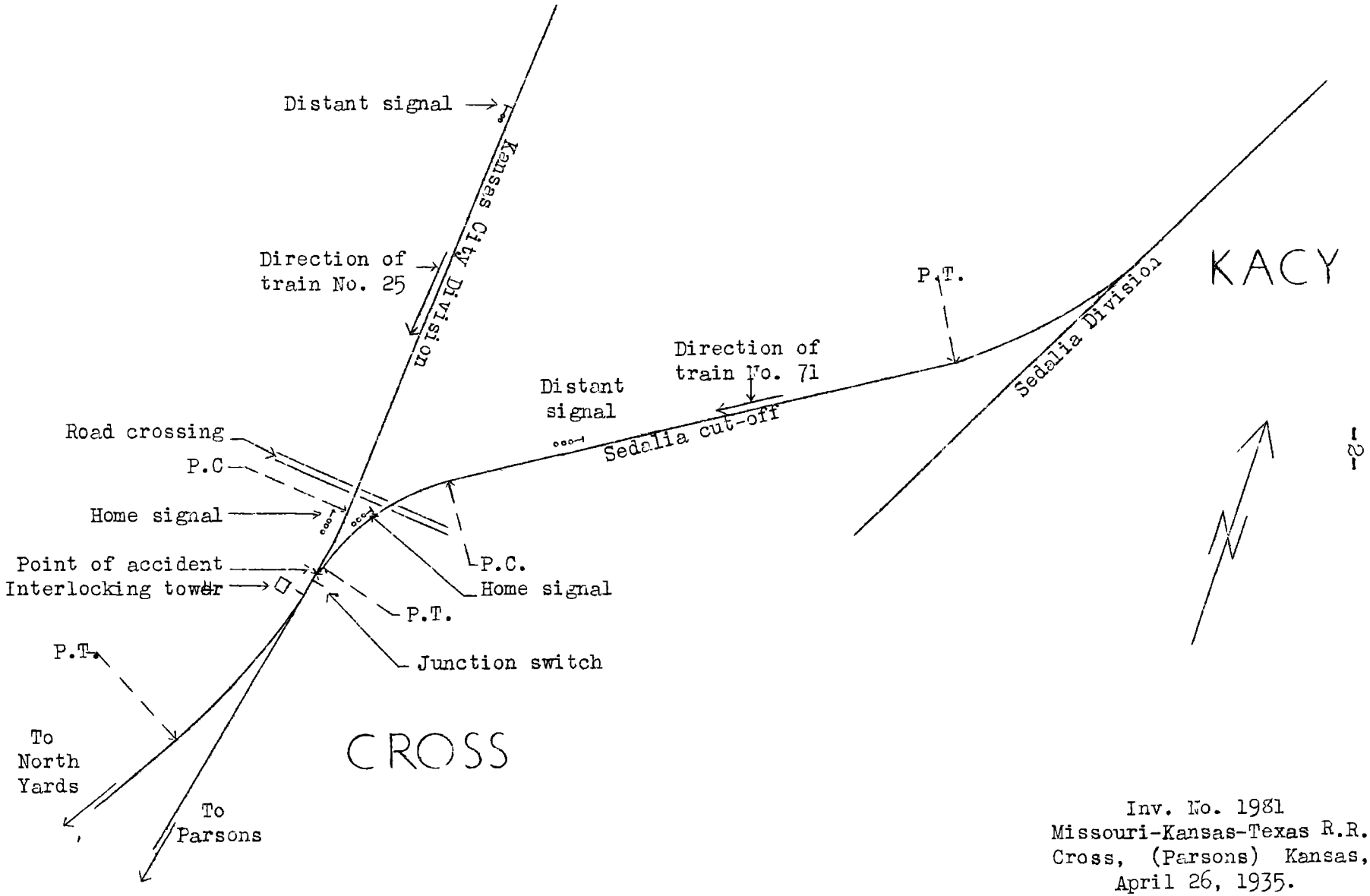
July 17, 1935.

To the Commission:

On April 26, 1935, there was a side collision between a freight train and a passenger train on the Missouri-Kansas-Texas Railroad at Cross, (Parsons), Kans., which resulted in the death of 2 employees, and the injury of 3 passengers and 1 employee.

Location and method of operation

The Sedalia Division extends between Franklin, Mo., and Parsons, Kans., a distance of 197.5 miles, and the Kansas City Division extends between Kansas City, Mo., and Parsons, a distance of 136.8 miles. In the vicinity of Parsons each division is a single-track line over which trains are operated by time table, train orders, and an automatic block-signal system. The Sedalia Division main line practically parallels the Kansas City Division main line on the east and there is a track connecting the two divisions known as the Sedalia cut-off, which extends between Kacy, on the Sedalia Division, and Cross, on the Kansas City Division, a distance of about 1 mile, and the accident occurred opposite the interlocking tower at Cross, at the fouling point of the junction switch, which is within the yard limits of Parsons. Approaching the junction switch from the north on the Sedalia cut-off, the track is tangent for a distance of 3,758 feet, followed by a $3^{\circ}$ curve to the left 1,288 feet in length; the Kansas City Division main track is tangent for more than 2 miles, followed by a $1^{\circ}$ curve to the right which extends a distance of 589 feet to the junction switch. The grade is practically level.




Inv. No. 1981
Missouri-Kansas-Texas R.R.
Cross, (Parsons) Kansas,
April 26, 1935.

The signals and switches at this point are mechanically operated from Cross interlocking tower, located west of the junction switch and 17 feet south thereof, and there is a semi-automatic interlocking home signal governing south-bound movements on each track, and also an automatic block signal which displays a distant indication for the home signal. The home and distant signals on the Sedalia cut-off are of the 3-unit, color-light type, approach lighted, and are located 501 and 3,447 feet, respectively, north of the junction switch; the indications displayed are red, yellow, and green, for stop, caution, and proceed, respectively. The home and distant signals on the Kansas City Division main line are located 510 and 6,599 feet, respectively, north of the junction switch; this home signal also is of the 3-unit, color-light type, while the distant signal is of the 2-unit, color-light type, and the indications displayed are red and green, for stop and proceed, respectively. The track circuits are so arranged that when a proceed indication is displayed by one of the home signals, should a train on the other route pass the home signal on that route in the stop position, it automatically causes the home signal which had been displaying proceed to change immediately from proceed to stop. The switch at Kacy which leads to the cut-off is a remote-control switch operated from the tower at Cross.

The weather was clear at the time of the accident, which occurred about 11:24 a.m.

## Description

Train No. 71, a south-bound Sedalia Division freight train, consisted of engine 883, an auxiliary water tender, an air-brake instruction car, 68 loaded and 2 empty freight cars, and a caboose, in the order named, and was in charge of Conductor Waddell and Engineman Butner. This train, which was due at Cross at 11:15 a.m., entered upon the Sedalia cut-off at Kacy about 11:17 a.m., passed the automatic signal, which was displaying a caution indication, passed the home signal at Cross, which was displaying a stop indication, and was brought to a stop with the engine fouling the junction switch, where it was standing when it was struck by Train No. 25.

Train No. 25, a south-bound Kansas City Division passenger train, consisted of 1 baggage car, 1 mail car, 1 coach, 1 chair car, and 1 Pullman sleeping car, hauled by engine 359, and was in charge of Conductor Arnold and Engineman Heuby. The cars were of all-steel construction with the exception of the coach and the chair car, which were of steel-underframe construction. This train, due at Cross at 11:13 a.m., left Erie, the last open office, 13.1 miles north of Cross, at 11:09 a.m., according to the train sheet, 13 minutes late. The route at Cross was lined for the movement of this train and it passed the distant signal, which was displaying a proceed indication, passed the home signal at stop, the signal having gone to that position shortly before the train reached it, and collided with the freight engine while traveling at a speed variously estimated to have been between 15 and 45 miles per hour.

The freight engine was derailed to the left and partly overturned and was badly damaged but none of the other equipment in the freight train sustained any damage of consequence. The passenger engine, its tender, and the first car in the passenger train were derailed and partly overturned toward the west; the front truck of the second car also was derailed. The engine was badly damaged, while its front end stopped against the north side of the concrete interlocking tower, considerably damaging the tower; the first car was damaged to such an extent that it was listed to be destroyed. The engineman and fireman of the passenger train were fatally injured while the other employee injured was the engineman of the freight train.

Summary of evidence

On account of the serious nature of the injuries sustained by Engineman Butner, of Train No. 71, no statement was obtained from him until July 3, more than 2 months after the accident occurred. At that time he stated that he had been operating in this territory for many years and was familiar with the location of all signals. His train entered the cut-off at a speed of about 15 miles per hour, with the distant signal for Cross interlocking displaying a caution indication, changing to proceed just before his engine reached it. He then inquired of Fireman Allen as to the indication of the home signal and at first the fireman said he could not see it

and then said "clear block, all clear, pull them across." In the meantime Engineman Butner had been applying the independent brake gradually, but after being told that the home signal was clear he released the brake and began to work a little steam. He was looking ahead to see if the operator had any messages for him and while looking ahead he saw the home signal and he said all the lights were green, not a perfect green but a glassy green. Glancing around he saw that the fireman had disappeared and therefore made a 6 or 7-pound brake-pipe reduction with the intention of stopping in order to see where the fireman had gone. He estimated the speed of his train when passing the home signal to have been about 7 or 8 miles per hour, and said the 6 or 7-pound reduction was the only application of the brakes he had made. It further appeared from Engineman Butner's statements that he did not know the air-brake car was in the train and that he did not recall having seen Air Brake Supervisor Vergan; he also said that the cab of his engine was over the Kansas City main line when it stopped, but later he said that his engine was still moving when it was struck by Train No. 25.

Fireman Allen, of Train No. 71, stated that the distant signal on the cut-off was displaying a caution indication and that both he and the engineman called its indication about the same time. Fireman Allen thought that the speed, which had been about 15 or 20 miles per hour after entering the cut-off, was about the same on passing the distant signal, and while he was not positive yet he thought that the engineman was working steam, and to his knowledge the speed was not reduced either at that time or shortly thereafter. After passing the distant signal the fireman was constantly on the lookout for the indication of the home signal, saying that the engineman asked him several times whether or not he could see it, and that he kept telling the engineman that he could not. The fireman said that he first saw the two bottom lights of the home signal, which were in the stop position, and informed the engineman accordingly. As the engine rounded the curve and reached a point where the top light of the signal began to come into view, the light seemed to have a white or yellowish cast and he told the engineman that he thought it was going to be yellow although he was not then certain about it. Shortly afterwards, when the top light came into full view, at which time the engine was about 100 to 150 yards away, the fireman saw that it also was at stop and told the engineman to stop. He did not recall that the engineman replied or that he made any air-

brake application, and Fireman Allen continued watching the signal to see whether the red indication of the top light would change. The fireman watched the signal until the front end of the engine obscured his view of it and as the engine passed it he told the engineman to apply the air brakes in emergency; then he saw some one at the tower violently waving stop signals and when his train stopped, with the engine fouling the junction switch, he could hear the noise of the approaching passenger train. The air brakes had been tested, and worked properly en route. Fireman Allen said the engineman appeared normal in every respect and had made a fine run; in fact, at Lindale, 95.6 miles north of Cross, Air Brake Supervisor Vergan in charge of the air-brake instruction car, had complimented the engineman on the run he was making. Fireman Allen further stated that there was nothing in the handling of the train to indicate that the engineman did not understand the fireman or that the engineman was not aware of the indication displayed by the home signal.

Conductor Waddell and Head Brakeman Bradfield, of Train No. 71, were in the air-brake instruction car, while Flagman Ferguson was in the caboose; these employees were not aware of anything wrong until the train stopped as a result of the emergency air-brake application which was made just prior to the accident. Conductor Waddell said that after the train stopped he got off on the right side in order to ascertain what was wrong and saw Operator Long running away from the tower, then he heard Air Brake Supervisor Vergan shouting to him and also to Head Brakeman Bradfield, who was close by, and on turning around he saw Train No. 25 approaching; these two employees estimated the speed of Train No. 25 to have been between 20 and 25 miles per hour at the time of the collision. Flagman Ferguson said that the caboose gauge went down until it registered a pressure of about 20 pounds and he thought that probably an air hose had burst. He then looked across and saw Train No. 25 about 3/4 mile from the junction, traveling at a speed of about 50 miles per hour; he estimated that the speed of the passenger train had been reduced to about 15 or 18 miles per hour when the accident occurred. Flagman Ferguson also said that while en route he had looked at the caboose air gauge at frequent intervals and that it registered a pressure of 70 pounds.

Air Brakeman Supervisor Vergan stated that he arranged to have air-brake instruction car 419 placed next to the water car for the purpose of checking the operation of the train, and that the car was picked up at Sedalia, which is 156.4 miles from Cross. The train was handled properly en route, including stops, with the exception that at Fort Scott, 45.3 miles north of Cross, a forced stop was made in order to stop short of a railroad crossing, resulting in a severe movement of slack forward and jolting the air-brake car sufficiently to knock out the desk drawers, due to the fact that the engineman failed to start braking soon enough. Approaching Kacy the train was operated correctly in every detail and it proceeded through the cut-off at a speed of 22 miles per hour; when the air-brake car passed the distant signal the speed still was 22 miles per hour, and this speed was maintained until the air-brake car reached a point where it was directly over a public road crossing located 216 feet north of the home signal, where the engineman made a 10-pound brake-pipe reduction, and 13 seconds later the AB valve in the air-brake car moved to emergency position, the pressure being reduced from 60 to 12 pounds in 3½ seconds. According to the chart, the engine stopped 10 seconds after the emergency application was made, and then the increase in brake-pipe pressure indicated that the engineman endeavored to release the brakes for a period of 30 seconds, at which time the collision occurred. At the time the emergency application was made Mr. Vergan was looking out of the window watching Train No. 25, and when that train was north of the road crossing an automobile passed over the crossing from the engineman's side and he saw fire flying from the brake shoes of each car, indicating that the brakes had been applied. He estimated the speed of that train to have been 40 or 45 miles per hour at the time of the accident. Shortly after the accident he inspected the brakes on Train No. 25 and found that all of them had been applied; later he inspected the brakes on Train No. 71 and they were all applied, with piston travel between 7 and 9 inches, with the exception of a refrigerator car located about 10 car lengths from the engine on which the brakes failed to apply; the brake-valve on engine 883 was in emergency position and the power-reverse lever was in reverse position. Mr. Vergan further stated that with a speed of 22 miles per hour on passing the Sedalia cut-off distant signal, Engineman Butner should have made a 6 or 8-pound brake-pipe reduction at the distant signal location, and this would have brought the

train to a stop before reaching the home signal without any additional reduction with the exception of the last one which would have been necessary within 40 feet of the stopping point in order to prevent a severe stretch of the train. Making calculations based on the length of the equipment at the head end of Train No. 71 and the various time intervals involved in the operation of the brakes in service, emergency and release, and assuming that the speed of this train was 22 miles per hour until the front end of the engine reached the home signal on the cut-off, Mr. Vergan stated that the engine caused the home signal on the Kansas City Division to go to the stop position approximately 49 seconds prior to the accident.

Conductor Arnold, of Train No. 25, stated that approaching Cross he raised a window on the west side of the third car in the train, looked ahead and saw that the train-order signal and the home signal were in clear position, and then closed the window. Shortly afterwards he felt the air brakes apply in emergency, when the engine was about five or six car lengths from the road crossing located north of the home signal, at which time the speed was about 45 or 50 miles per hour. The air brakes had been tested and worked properly en route and Conductor Arnold talked with Engineman Heuby before leaving Kansas City and said the engineman appeared normal in every respect. Brakeman Ford was on the rear platform of the last car in the train and was not aware of anything wrong until the air brakes were applied in emergency, at which time he estimated the speed to have been about 60 miles per hour.

Telegrapher-Towerman Long, at Cross tower, stated that at 11:16 a.m., when Train No. 71 first entered upon the annunciator circuit while approaching Kacy, he immediately operated the remote-control switch at that point so that the train could pass from the Sedalia Division main line to the cut-off en route to the freight yard, but made no attempt to advance it beyond the Sedalia cut-off home signal, and after the rear end had cleared the main line at Kacy, about 11:19 a.m., he restored the switch to normal position. Train No. 25 then entered upon the annunciator circuit on the Kansas City Division at 11:20 or 11:21 a.m., and he at once cleared the signals for that train. Towerman Long first saw Train No. 71 when it was a considerable distance from the home signal, and on seeing that the engine was working steam and realizing that it was not going to stop he ran out of the tower and started giving stop signals. The

freight train stopped with the engine fouling the junction switch where it was struck by Train No. 25. The clock in the tower was stopped at 45 seconds after 11:23, as a result of the tower being struck by engine 359.

Chief Dispatcher Poole arrived at the scene about 11:45 a.m.; Engineman Heuby, who was fatally injured, was conscious and told him that he saw the indication of the home signal change to red. Examination of the interlocking showed the route to be lined for the Kansas City Division main line with seals intact, and all three lights on each home signal were displaying red indications.

Signal Inspector Dutton stated that on the Sedalia Division the annunciator circuit extends 3.28 miles north of the home signal at Cross, and on the Kansas City Division about 3.8 miles. The interlocking plant is equipped so that in order to change the line-up it is necessary to operate a time release, which requires 1 minute and 45 seconds; the plant is not equipped with derail devices. Signal Inspector Dutton also said that one engineman had suggested that the focus of the southbound home signal on the cut-off be changed, which was done; there also was a record of a freight train passing this signal in stop position about 1 year ago. Signal Maintainer Pluto inspected and tested the interlocking plant and checked the line-up, very shortly after the occurrence of the accident, and everything was found to be in proper order.

Vision tests developed that the distant signal on the Sedalia cut-off could be seen from the engineman's side of the cab for a distance of 2,136 feet and from the fireman's side for a distance of 1,800 feet. The top light of the home signal could be seen across the inside of the curve from the fireman's side of the engine starting at a point 1,918 feet away, the middle light starting at a point 1,599 feet away, and the bottom light starting at a point 1,248 feet away, while the front end of the engine obscured the home signal from the fireman's view when 170 feet away; the engineman's view of the home signal around the outside of the curve was restricted to a distance of 244 feet. The view of the distant and home signals on the Kansas City Division was unobstructed.

Discussion

Engineman Butner, of Train No. 71, said his train entered the cut-off at a speed of 15 miles per hour, that the indication displayed by the distant signal changed from caution to proceed just before his engine reached it, that the fireman called the home signal as being at proceed, that he saw the lights of the home signal displaying green when the signal came within his own range of vision, and that he passed the home signal at a speed of 7 or 8 miles per hour, bringing the train to a stop with a 6 or 7 pound brake-pipe reduction after having glanced around and found the fireman missing from the cab. Fireman Allen, however, stated that the distant signal was at caution and the home signal at stop and that he called these indications to the engineman, finally telling the engineman to apply the brakes in emergency, when the engine was close to the home signal, while Air Brake Supervisor Vergan stated that according to the records in the air-brake instruction car the speed was maintained at 22 miles per hour until the front end of the engine was approximately 100 feet from the home signal, when the engineman made a 10-pound reduction followed in 12 seconds by an emergency reduction which brought the train to a stop within 10 seconds, followed in 30 seconds by the occurrence of the accident. The evidence further indicated that the signals and route were lined for the movement of Train No. 25, which would have made it impossible for proceed signals to be displayed for the movement of Train No. 71, while the time-release feature of the interlocking apparatus would have prevented the telegrapher-towerman from taking the route away from Train No. 25 and giving it to Train No. 71. Under these circumstances, it is clearly apparent that the signals governing the movement of Train No. 71 were at stop and that for some unknown reason these signals were not properly observed or obeyed.

Fireman Allen, of Train No. 71, said he first saw the two bottom lights of the home signal in stop position but could not distinguish clearly the indication of the top light until it came into full view, at which time it was only 100 or 150 yards distant. However, tests which were made after the accident, showed that the top, middle and bottom lights of this signal came within the fireman's range of vision when approximately 1,900, 1,600 and 1,250 feet, respectively, from the engine. It would appear that there should have been time for Fireman Allen to give effective warning to Engineman Butner, and if necessary by

reason of any indisposition on the part of the engineman, take charge of the engine in time to bring it to a stop short of the crossing.

The evidence indicated that the home signal on the Kansas City main line changed from proceed to stop about 49 seconds prior to the accident, this being when the engine of Train No. 71 passed the home signal on the cut-off, and Chief Dispatcher Poole, who reached the scene before Engineman Heuby had been removed, quoted the engineman of Train No. 25 as saying he saw the signal go from proceed to stop. On the other hand, however, the conductor and flagman of Train No. 25 felt an emergency application of the brakes, the conductor estimating that the engine was five or six car lengths north of the highway crossing at that time, while the air brake supervisor said he saw fire flying from the wheels before the train reached the highway crossing. In view of these statements it seems more probable that at some time after passing the distant signal Engineman Heuby's attention was attracted to the highway crossing and to the automobile which passed over the crossing ahead of him, with the result that when he saw the stop signal and made the emergency application of the brakes it was too late to avert the accident.

## Conclusions

This accident was caused by failure properly to observe and obey signal indications governing the movement of Train No. 71 on the Sedalia cut-off.

Respectfully submitted,

W. J. PATTERSON,

Director.