

In re Investigation of accident which occurred
on the Chicago & North Western Rail-
way at Dunlap, Iowa, February
7, 1916.....

March 20, 1916

On February 7, 1916, there was a rear-end collision between two freight trains on the Chicago & North Western Railway at Dunlap, Iowa, which resulted in the death of four persons carried under contract and the injury of three employees. After investigation of this accident, the Chief of the Division of Safety reports as follows:

The part of the West Iowa Division of the Chicago & North Western Railway on which this accident occurred is a double-track line, trains using the left-hand track in the direction of traffic. Train movements are governed by timetable and train orders, which are transmitted by telephone.

Block signal protection is provided by automatic, enclosed disc signals, commonly known as Banjo signals, each signal having a home and distant indication. These signals are located on the left side of the track. When the distant signal is at caution it indicates that the home signal is at stop, and trains will proceed with caution to the home signal. When the home signal indicates stop, the engineman is required to bring his train to a full stop before passing the signal; he may then proceed at caution through the block.

Westbound freight train extra 1769 consisted of 11

loaded and 39 empty cars and a caboose, hauled by locomotive 1789, and was in charge of Conductor Atherton and Engineman Coltry. This train left the Boone freight yards one mile east of the passenger station at Boone, Iowa, at 10:00 p. m., February 6th, en route to Council Bluffs, Iowa. At Carroll, Iowa, 55.3 miles from Boone, this train passed westbound extra 390, and left that place at 2:55 a. m., February 7th, passed Arion, the last open telegraph station, 35.4 miles west of Carroll, at 4:45 a. m., and at 5:35 a. m. came to a stop behind a train which was standing at the station at Dunlap, Iowa, 9.9 miles beyond Arion. At 5:30 a. m., while standing at this point, it was struck by extra 390, its rear end being 3,925 feet east of the station at Dunlap.

Westbound freight train extra 390 consisted of 42 loaded and 1 empty cars and a caboose, hauled by locomotives 390 and 1802, and was in charge of Conductor L'Homme dieu and Engineman Rinchart and Stevens. It left Boone freight yards at 6:59 p. m., February 6th. This train left Carroll at 3:15 a. m., February 7th, passed Arion at 5:09 a. m., and collided with the rear end of extra 1789 while running at a speed of about 15 miles an hour.

The leading locomotive of extra 390 turned to the right, crossed the eastbound track and came to rest on its right side at an angle of about 45 degrees with and just clear of the eastbound track. The second locomotive turned to the

left and came to rest in an upright position at an angle of about 45 degrees with and ten feet clear of the westbound track. Both locomotives suffered considerable damage; two cars in extra 390 were slightly damaged; one box car and the caboose of extra 1769 were demolished and five empty box cars of that train were damaged.

Approaching from the east there is a thirty-minute curve to the left, 2,210 feet in length, followed by tangent track for a distance of 7,549 feet to the point of the accident; 3,069 feet west of the west end of the above curve is located distant signal No. 341, and 3,935 feet west of the distant signal is home signal No. 341. The collision occurred 545 feet west of this home signal. At the point of the accident there is a slight descending grade for westbound trains, the track in this vicinity being on a fill of approximately five feet. The weather at the time of the accident was clear and cold.

Conductor Atherton, of extra 1769, stated that after leaving Carroll his train made no stop until it reached home signal No. 339, about 2-3/4 miles east of Dunlap, at 5:10 a. m., where, on account of the light in that signal not burning, the train stopped as required by the rules, and then proceeded slowly through the block. The next signal was distant signal No. 341, which was found to indicate caution, and home signal No. 341 was found to be in the stop position.

After stopping for that signal, his train proceeded, finally coming to a stop at 5:25 a. m., about 10 car lengths west of this home signal, and about 3 car lengths behind the caboose of another extra train which was standing at the coal chutes at Dunlap. The train stopped at about the usual place to cut off the engine to take coal and water. He then told his rear brakeman that he was going to the head end of the train because the train order board at the station was set against his train, but said nothing more to him before leaving the caboose. When about ten car lengths from his engine he looked back and could see the electric headlight of an approaching train, but was not certain whether it was on the tracks of the Chicago & North Western Railway or on those of the Illinois Central Railroad which in that vicinity run parallel to each other. He had just reached the locomotive when he noticed the slack of his train being forced forward, and believing that a train must have collided with his, he looked at his watch and it was then 5:30 a. m. Conductor Atherton stated that he was familiar with Rule 99, requiring his train to be protected by a flagman in case of delay, as in this instance, but that he had issued no instructions to have it so protected, thinking that when he told his flagman that he was going to the head end of the train, the latter would have considered that sufficient notification to go back with a flag.

Rear Brakeman Bolitto, of extra 1789, stated that when his train came to a stop behind another extra train just

east of Dunlap, and about 545 feet west of home signal No. 341, he started forward along the train looking for hot journal boxes, some trouble from that source having been experienced previously on this trip. He had gone about 15 or 20 car lengths when he looked back and saw the electric headlight of an approaching train coming around the curve east of Dunlap, about one and one-half miles distant. He then ran toward his caboose, the collision occurring when he got within about ten car lengths of it. He stated further that when his train came to a stop he examined both marker lights and the cupola lights and that they were burning brightly; that the weather was clear, there being no fog, and that signals could be seen very distinctly.

Engineer Rinehart, of the leading locomotive of extra 390, stated that between Boone freight yards and Carroll the air-brakes on his train had been working satisfactorily. At Carroll both engines were uncoupled and a supply of coal taken. He stated that when his train was leaving that point the brakes were dragging and the train was brought to a stop with the engines just west of the coal chutes, whereupon the brakeman inspected the air-brakes in the train, fixed a few leaks and when the air gauges showed proper pressures the train proceeded. He further stated that he looked at his air gauges several times between Carroll and the point of collision, and each time they indicated the proper amount of

pressure. He stated that when his train came around the curve about 7,000 feet east of home signal No. 341, the speed was about 30 miles an hour. At that time he could see distant signal No. 341 in the caution position, as well as dim lights which appeared to him to be the lights on the rear of a train, but he stated that he could not see the home signal. He further stated that he then partly shut off the steam, allowing his train to drift until the locomotive was ten or twelve car lengths beyond the distant signal. The train was still running at a speed of about 30 miles an hour and he made a ten-pound application of the air-brakes. He felt the brakes take hold, but not very severely. Engineman Rinehart stated that he then allowed his train to drift about 30 car lengths farther, upon reaching which point he could see the lights on the caboose of extra 1769 burning brightly. He then made an emergency application of the brakes and opened the sander, but said that the brakes did not receive the full effect of the emergency application because of the reduction in pressure brought about by the previous application. At this time he was about 400 feet east of home signal No. 341 and noticed that the light in that signal was not burning. He said that he saw no flagmen protecting the rear of extra 1769 and that his train was traveling at a speed of about 15 miles an hour at the time of the collision. Engineman Rinehart stated that although he could see the lights on the rear of the standing train when more than a mile distant, he misjudged the distance in which it would have been possible for him to bring his train to a

stop, considering the holding power of the brakes and the weight of the train; and in his opinion the cold weather conditions affected the brakes, which would have stopped the train had he applied them sooner.

Engineman Stevens, of the second locomotive of extra 390, stated that when the two locomotives were coupled together at Boone freight yards, prior to leaving on this trip, he cut out the brake valve on his engine by turning the cut-out cock with a wrench, this being done to give the engineman of the leading locomotive absolute control of the operation of the brakes. He stated that the only time he noticed anything wrong with the brakes was when they began to drag leaving the coal chutes at Carroll yard. After the brakeman had repaired the leaks the air released properly and the train started. He said that when his train was rounding the curve about 1 1/2 miles east of Dunlap he saw the red lights on the caboose of extra 1789 and the caution indication of distant signal No. 341. Before reaching that signal he partly shut off steam, continuing in this manner until about 15 car lengths east of home signal No. 341, when he shut off steam entirely. He said that his train was traveling at a speed of about 25 or 30 miles an hour when it passed the distant signal. Engineman Stevens further stated that when his engine was about five car lengths west of the distant signal he whistled for the brakes, but felt no application of the air at that time.

When about midway between the distant and home signals he again whistled for brakes. He stated that he could have applied the air brakes from his engine by the use of a wrench, but that he was not supposed to do so, and also that had he done so and had the brake valve on the leading locomotive been in the running position at that time, the result would have been that the pump on that locomotive would have pumped off the air as he applied it. He stated that when about 25 car lengths east of home signal No. 341, he felt the first application of the brakes, and it appeared to him that they took hold properly, although the speed of the train had not been reduced very much when he felt the emergency application. He said that he jumped from his engine about two car lengths from the caboose of extra 1769, the speed of his train then being about 15 miles an hour. He also stated that he had not seen any flagman protecting extra 1769. It was his opinion that the reason the train was not brought to a stop in time to avert the collision was a misjudgment of speed and distance.

Fireman Haine, of locomotive 390, stated that the air-brakes in the train had been working satisfactorily during the trip and that the air released properly before leaving Carroll. He stated that he was busy with his firing while rounding the curve east of the point of accident, and that he was repairing an electric connection to the water gauge light in the cab when he heard some one shout, and looking out he could see the rear markers on the caboose of extra 1769, and at that time his train was between the distant and

home signals. Just about that time the engineman made an air-brake application, followed soon thereafter by an emergency application. He felt the brakes take hold at that time, reducing the speed of the train some before the collision occurred. He stated, also, that he heard the second engine sound the whistle for brakes just about the time they were applied, and that the second engineman again whistled for brakes almost immediately after the application was made.

Fireman Huddleston, of locomotive 1808, stated that after Engineman Stevens had sounded the whistle signal for brakes the second time, and when about 30 car lengths from the rear of the caboose of extra 1769, he jumped from his engine and when he regained his feet about 10 cars of the train had passed him. He then noticed the fire flying from the wheels and brake-choes of the cars passing him and stated that the air-brakes were then holding properly.

Rear Brakeman Bowman, of extra 390, stated that leaving Carroll the air gauge in the caboose registered 67 or 68 pounds. He stated that he noticed the gauge on the curve east of Dunlap and it then registered 67 pounds. He felt the service application of the air brakes and shortly afterward an emergency application, and thought at the time it was probably caused by a bursted air hose. He started toward the head end of the train with an air hose when he learned that his train had struck extra 1769.

On February 9th, 34 of the cars which had been in extra 300, were tested at Arion, and it was found that, with one exception, each of these cars was in good working condition, and as no repairs of any kind had been made it would appear that the air-brakes in extra 300 were operating properly at the time of the accident.

Rule No. 95, of the operating rules of this railway, provides in part as follows:

"When a train stops or is delayed under circumstances in which it may be overtaken by another train, the flagman must go back immediately with stop signals not less than one-half mile (50 rail lengths), or as much farther as is necessary to insure full protection, and where he can have an unobstructed view of an approaching train at least one-fourth of a mile farther." * * *

Rule No. 95-b reads as follows:

"All regular freight trains, extras and work extras will enter and pass through all stations, and will approach all isolated side tracks, water-tanks and coal-sheds, with train under full control, expecting to find trains. Speed must be reduced; enginemen and trainmen must commence to get their train under control one mile from such points, so that under no circumstance shall it be possible for them to collide with any train, car or engine that may be within the switches, or that may be taking coal or water. Trains occupying main track at stations will protect against superior trains in all cases, and will protect against all trains where the view is obscured, or where circumstances such as fog, snow, unusual stops, or other causes require additional safeguard."

Rule No. 51 reads in part as follows:

"A distant disc signal will display a green disc with a white cross on its face, and, in addition, at night, a red and green light when the home signal with which it is used is at stop or the track obstructed between home and distant signal. This

will indicate proceed with caution to the home signal.***

"A home disc signal will display a red disc, and, in addition, at night, a red light when the block is not clear. This will indicate stop." * *

Rule 510 provides that:

"Trains finding a signal out of service, must stop, and then proceed with caution to the next block signal, unless otherwise directed."

In this instance none of these rules were observed.

This accident was caused by the failure of Head Brakeman Bolithe properly to protect the rear of his train, and by the failure of Engineman Rinehart properly to control the speed of his train, and obey the block signal indications provided to prevent the occurrence of such accidents. Engine 390 was equipped with an electric headlight; the track was straight for $1\frac{1}{2}$ miles approaching the scene of the accident; the weather, while quite cold, was clear; and Engineman Rinehart admits that he could see the markers on the rear of the caboose for more than $1\frac{1}{2}$ miles. Under such conditions it would appear that Engineman Rinehart should have been able to bring his train to a stop in time to avert this accident, even though the preceding train was not protected by a flagman.

Engineman Rinehart was employed as fireman by this railway on January 10, 1908, was promoted to engineman on October 15, 1908, and had a good record. Brakeman Bolithe

was employed as freight brakeman August 27, 1906, was promoted to freight conductor Oct. 8, 1912, and had a clear record.

At the time of the accident Engineman Rinehart had been on duty about 11 hours and Brakeman Bolithe about 9 hours.