

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT OF THE DIRECTOR
BUREAU OF SAFETY

ACCIDENT ON THE
CHICAGO, ST. PAUL, MINNEAPOLIS & OMAHA RAILWAY

VALLEY JCT., WIS.

SEPTEMBER 11, 1938

INVESTIGATION NO. 2290

SUMMARY

Inv-2290

Railway: Chicago, St. Paul, Minneapolis & Omaha
Date: September 11, 1958
Location: Valley Jct., Wis.
Kind of accident: Rear-end collision
Trains involved: Passenger : Passenger
Train numbers: 515 : First 405
Engine numbers: 505 : 602
Consist: 8 cars : 14 cars
Speed: 5-10 m.p.h. : 12-15 m.p.h.
Operation: Timetable, train orders, and automatic
block-signal system
Track: Double; tangent; slightly undulating
Weather: Misty and foggy
Time: 4:45 a.m.
Casualties: 3 injured
Cause: False clear signal indication and
failure to provide proper rear-end
protection for first train.

Inv-2290

October 20, 1938.

To the Commission:

On September 11, 1938, a rear-end collision between two passenger trains on the Chicago, St. Paul, Minneapolis & Omaha Railway at Valley Junction, Wis., resulted in the injury of one railway mail clerk and two employees.

Location and method of operation

This accident occurred on that part of the Eastern Division designated as the Wyeville Sub-division which extends between Elroy and Altoona, Wis., a distance of 105.4 miles; in the vicinity of the point of accident this is a double-track line over which trains are operated by timetable, train orders and an automatic block-signal system. The accident occurred at a point 5,487 feet west of signal 1721. Approaching from the east the track is tangent from Wyeville, 2.5 miles east of Valley Jct., to the point of accident and beyond; the grade is slightly undulating, being 0.14 percent ascending westward at the point of accident.

At Wyeville the Chicago & North Western Railway, hereinafter referred to as the Northwestern, approaches from the north on a right curve and connects with the Chicago, St. Paul, Minneapolis & Omaha Railway, hereinafter referred to as the Omaha, the junction switch with the Omaha westward main track being located about 650 feet west of the station. Interlocking home-signal 9, which governs movements from the Northwestern to the Omaha, is also used as a train order signal; it is located north of the tracks and about 250 feet east of the junction switch. Automatic signal 1721, Bridge 57 $\frac{1}{2}$ and Bridge 58 are located 6,375 feet, 11,440 feet and 12,312 feet, respectively, west of home signal 9. Bridge 57 $\frac{1}{2}$ spans a drainage ditch under the track just east of Valley Jct. and Bridge 58 is a culvert under the track just west of Valley Jct. The point of collision was between these two bridges, 450 feet east of Bridge 58.

There is no maximum speed limit prescribed for passenger trains on the Wyeville Sub-division.

Rule 99 of the operating department reads in part as follows:

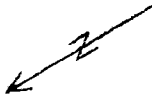
WYEVILLE

Beginning of double track

Depot

Interlocking
Hore Sig. 9

C. & N.W. Ry.



Direction of trains

o	Elroy, Wis.
	19.1 mi.
o	Stowell
	3.4 mi.
o	Wyeville
	2.5 mi.
o	Valley Jct. (P of A)
	29.3 mi.
o	Levis
	51.1 mi.
o	Altoona, Wis.

6,875 ft.

Signal 1721

4,565 ft.

5,487 ft.

Bridge 57 1/2

1,372 ft.

Point of accident

VALLEY JUNCTION

450 ft.

Bridge 58

3,869 ft.

Signal 1703

Inv. No. 2290
 C. & N.W. Ry.
 Valley Junction, Wis.
 September 11, 1938

99. When a train stops under circumstances in which it may be overtaken by another train, the flagman must go back immediately with flagman's signals a sufficient distance to insure full protection, placing two torpedoes, and when necessary, in addition, displaying lighted fusees. ***

When a train is moving under circumstances in which it may be overtaken by another train, the flagman must take such action as may be necessary to insure full protection. By night, or by day when the view is obscured, lighted fusees must be thrown off at proper intervals.

When day signals cannot be plainly seen, owing to weather or other conditions, night signals must also be used. Conductors and enginemen are responsible for the protection of their trains.

It was dark, misty and foggy at the time of the accident, which occurred about 4:45 a.m.

Description

No. 515, a west-bound passenger train, consisted of two express cars, one mail car, one express car, two coaches and two Pullman sleeping cars, in the order named, of all-steel construction, hauled by engine 505, and was in charge of Conductor Fischer and Engineman Karnapp. At Elroy, located 25 miles east of Valley Jct., the crew received copies of train order No. 731, Form 19, reading as follows:

Water very high in the bridge just east of Valley Jct. and the culvert just west of Valley Jct. where the old depot stood and at the bridge just east of Wyeville depot and the bridge about three fourths $\frac{3}{4}$ mile east of Stowell. All trains will stop at these bridges and the culvert and get permission from men on ground before passing over.

This train left Elroy at 3:35 a.m., according to the train sheet, 40 minutes late, left Wyeville, 22.5 miles west thereof, at 4:34 a.m., 1 hour late, stopped momentarily at a section tool house about $\frac{1}{4}$ mile beyond, passed signal 1721, which was displaying a proceed indication, stopped momentarily at Bridge 57 $\frac{1}{4}$, and again at Bridge 58, and shortly thereafter while moving at a speed estimated to have been between 5 and 10 miles per hour, it was struck in the rear by First 405.

First 405, a west-bound passenger train, consisted of one express car, two baggage cars, three Pullman sleeping cars, two coaches, one Pullman sleeping car, one lounge car and four Pull-

man sleeping cars, in the order named, hauled by engine 602, and was in charge of Conductor Brogan and Engineman Weirich. The cars were of all-steel construction with the exception of the second car, which had a wooden body and steel center sill. This train arrived at Wyeville over the Northwestern at 4:39 a.m. and stopped at interlocking home-signal 9, which was displaying a stop indication. At this point the operator delivered by hoop to the fireman copies of three train orders, one of which was No. 731, previously quoted, and a clearance card, issued at 4:40 a.m., stating that the last train ahead, No. 515, left Wyeville at 4:34 a.m. The indication of the home interlocking signal changed from stop to caution, and First 405 left Wyeville at 4:42 a.m., 2 minutes late, and 8 minutes behind No. 515. It passed automatic signal 1721, which was displaying a proceed indication and shortly thereafter, while moving at a speed estimated at between 12 and 15 miles per hour, struck the rear end of No. 515.

No. 515 parted between the fourth and fifth cars. The forward portion of the train stopped with the fourth car 18 feet west of Bridge 58; the rear truck of this car was derailed. The rear portion of the train stopped with the fifth car 114 feet east of Bridge 53. The rear truck of the last car of the train was derailed.

First 405 was separated from No. 515 a distance of 22 feet. The engine, tender and the forward truck of the first car of First 405 were derailed, while the rear truck of the third car was raised above the rails; engine 602 was badly damaged and it stopped leaning toward the left. The employees injured were the engineman and the head brakeman of No. 515.

Summary of evidence

Engineman Karnapp, of No. 515 stated that he read and understood the contents of train order No. 731. His train left Wyeville at 4:34 a.m. under a clear block-indication. A momentary stop was made at a section car house located just west of Wyeville; Roadmaster Zunker, who was there, informed the engineman that he had just returned from Valley Jct. and that it was all right to proceed. Signal 1721 was displaying a clear indication when the train passed it. A brief stop was made at Bridge 57 $\frac{1}{2}$ and also at Bridge 58, and at each of these points a watchman with a lighted fusee signaled them ahead. After starting from Bridge 58 they had moved about 3 or 4 car lengths and attained a speed of between 5 and 10 miles per hour when the rear of the train was struck. A dense fog prevailed between Wyeville and Valley Jct. and the engineman was unable to see the rear of the train. He did not whistle out a flagman at any of the stops between Wyeville and Valley Jct.

The statement of Fireman Kupfer, of No. 515, corroborated that of the engineman. He gave the time of the accident at 4:45 a.m.

The statement of Conductor Fischer, of No. 515, agreed with those of the engineman and the fireman regarding the train orders received and the stops made between Wyeville and Valley Jct. He also stated that the flagman was familiar with the content of order 731 and that he threw off a fusee when the train stopped just west of Wyeville. The conductor was standing on the right side of the vestibule of the fifth car from the engine when the stops were made at the bridges and each time he saw the flagman step off the rear end of the train with a lighted fusee, but because of the restricted visibility due to weather conditions he could not determine how far back the flagman went. All of the stops were brief, the engineman merely making the stop, whistling off and departing. The conductor estimated the speed to have been between 5 and 8 miles per hour when the rear end of his train was struck, and said the accident occurred at 4:45 a.m.

Train Porter Strong who was in the rear car of No. 515, stated that the flagman got off promptly at stops, and lighted a fusee at the stop made at the section car house and also one at the bridge at Valley Jct. From his position in the car he was unable to see the fusees but he could see the reflection through the side window.

Flagman Mordaunt, of No. 515, stated that he had seen train order No. 731, and had been instructed by the conductor to be unusually alert because of existing weather conditions. He knew the time that No. 405 was due to leave Wyeville, and had received information from the operator at that point that No. 405 was on time. He had provided himself with proper flagging equipment, including 10-minute fusees, and stationed himself on the rear end of the last car. When the stop was made about $\frac{1}{4}$ mile west of Wyeville he lighted a fusee and dismounted but was able to get back only a few feet when the engineman whistled off and started ahead. He did not have time to put down torpedoes, but he dropped the lighted fusee and observed that it was burning while in his range of vision. At Bridge 57 $\frac{1}{4}$ another brief stop was made and again he dismounted with a lighted fusee; almost immediately afterward the train started moving ahead and he dropped the lighted fusee on the ground, but lack of time prevented placing torpedoes. At this time it was raining hard and the visibility was so poor that he could see only about one car length behind the train. At Bridge 58 another momentary stop was made, and again he got off with a lighted fusee. When the engineman whistled off at this location, the flagman, preparing to board the rear vestibule of the last car,

heard the following train approaching; he ran toward it on the engineman's side of the track, waving a lighted fusee, and he had reached a point 6 or 7 car lengths back of his train when the engine of First 405, working steam, passed him, at a speed of about 35 miles per hour. Flagman Mordaunt stated that weather conditions were such that the headlight of the engine of the approaching train could be seen for a distance of only about three car lengths, and he also stated that when he ran back to flag No. 405 the fusee he had previously put down was still burning. Just prior to the collision both rear marker lights on his train were burning.

Engineman Weirich, of First 405, stated that at Adams, where he went on duty, a running test of the air brakes was made. At Wyeville the operator handed three train orders to the fireman. The home signal governing movements to the Omaha line at that point was red and he stopped his train just east of that signal. Shortly after stopping, the fireman gave him the orders which had been received. While the home signal was still showing a stop indication he checked the train orders with the clearance card and read one of the orders which required that signals be displayed for Second 405 from Wyeville to St. Paul. A caution indication was then displayed by home signal 9, and after calling the indication to the fireman he started his train. Between Wyeville and automatic signal 1721 he read another of the orders; it required a reduction in speed over Black River bridge. Due to foggy weather which restricted the range of vision to 6 or 7 car lengths, and to the fact that the train was running on a caution signal indication, a speed of about 15 or 20 miles was maintained after leaving Wyeville, and both he and the fireman kept a close watch for signal 1721. When it was seen that signal 1721 was displaying a clear indication he increased speed to about 35 miles per hour, reasoning that since the block ahead was unoccupied he would have ample time in which to read the remaining order, No. 731. However, before he had time to read this order, the reflection of a lighted fusee became visible in the fog; it was being waved across the track about 20 passenger coach lengths distant. He immediately closed the throttle and applied the air brakes in emergency, and he estimated the speed of his train to have been reduced to about 12 or 15 miles per hour at the time of the collision. Until just prior to the collision his train did not encounter any fusees or explode any torpedoes after leaving Wyeville. He said that had torpedoes been placed a reasonable distance behind the preceding train he would have been able to stop short of the point of accident. The air brakes worked properly at all times and there was nothing about the condition of the engine to distract his attention.

The statement of Fireman Towner, of No. 515, corroborated that of Engineman Weirich in all essential details. After receiving the three train orders and the clearance from the oper-

ator at Wyeville, he read two of the orders, but did not have opportunity to read order No. 731, hence did not know its contents. As his train approached it, automatic signal 1721 was displaying a clear indication. The first knowledge he had of anything wrong was when he saw the reflection of a lighted fusee being swung across the track shortly before the collision occurred. He did not see a bridge watchman at the bridge east of Valley Jct. giving stop signals with red and white lanterns; no torpedoes were exploded or fusees encountered en route prior to the accident.

Conductor Brogan, Head Brakeman Nelson, Flagman Welch and Baggage-man Randall, of First 405, were not aware of anything wrong prior to the accident. The conductor was in the seventh car and stated that he finished reading the orders when the train was near the west end of the yard at Wyeville; then he laid the orders down and called the attention of the brakeman to them. Shortly afterward he attempted to determine the whereabouts of the train and while doing so the accident occurred. Brakeman Nelson stated that he did not have time to read the orders between the time the conductor finished reading them and the time of the collision. Flagman Welch was on the rear platform, between Wyeville and Valley Jct., and did not see the orders prior to the accident. None of these employees saw any lighted fusees or heard any torpedoes exploded.

Section Laborer Quist, who was on duty as watchman at Bridge 57 $\frac{1}{4}$, stated that when No. 515 stopped for the bridge the flagman stepped to the ground with a lighted fusee, and when that train made a second stop, with the rear end just west of Bridge 57 $\frac{1}{4}$, he again stepped to the ground and placed a lighted fusee. The bridge watchman then heard First 405 approaching and expected that it would stop before reaching the bridge, but as the engine continued to work steam he flagged it with red and white lanterns. The engine passed him at a speed of about 25 or 30 miles per hour. When he heard First 405 approaching the first fusee the flagman of No. 515 had placed was still burning; also stated that at that time the flagman of No. 515 took another fusee and waved it from some distance west of the bridge.

Signal Maintainer Johnson arrived at the scene of the accident about 8 a.m. At that time signal 1721 was displaying a clear indication although both trains were standing in the block. He did not determine what caused the false-clear signal indication.

Superintendent of Telegraph and Signals Johnson described the signals involved, as follows: Interlocking home-signal 9 is of the 2-arm, 3-position, upper-quadrant, semaphore type. Night aspects and indications of this signal are as follows:

Discussion

The evidence was to the effect that the engineman of No. 515, in carrying out the requirements of order 731, made momentary stops at Bridge 57 $\frac{1}{4}$ and again at Bridge 58, and as a matter of additional precaution he had previously made a brief stop at the section house located a short distance west of Wyeville to consult with the roadmaster who was on the ground at that point. When the first and second of these stops were made the flagman stepped to the ground with lighted ten-minute fuses which he dropped to the track when his train started, but because of lack of time he did not place torpedoes at either point. When the third stop was made, at Bridge 58, the flagman again stepped to the ground with a lighted fusee and when he was about to board his train as it started to leave he heard First 405 approaching. He started to run eastward waving the lighted fusee but was able to get back only about 6 or 7 car lengths when the engine of First 405 passed him. The statements of the conductor and the Pullman porter of No. 515 supported that of the flagman that he left a lighted fusee at the section house, and the statements of the Pullman porter of No. 515 and of the watchman stationed at Bridge 57 $\frac{1}{4}$ supported his statement that he dropped a lighted fusee when his train departed from that bridge. The bridge watchman also stated that this fusee was still burning when he heard First 405 approaching. Neither the engineman nor the fireman of First 405 saw any lighted fusees en route until immediately prior to the collision.

The weather conditions were described as very foggy and raining at times, with the visibility very much restricted. The flagman of No. 515 was in possession of information that First 405 was on time and, consequently, was following his train closely. Under these circumstances he should have taken the utmost precaution, and the possibility that his train might run away from him should not have influenced him. Had he placed torpedoes it is probable that the engineman of the following train would have reduced speed and been on the lookout for additional signals, and the accident probably would have been averted.

Both the engineman and the fireman of First 405 stated that signal 1721 was displaying a clear indication as their train approached it, and it was found to be displaying a clear indication with the block occupied when the maintainer arrived at about eight o'clock. Tests made after the accident established that this false clear signal failure was caused by crossed line wires having worn insulation. The evidence indicates that prior to receiving this clear indication First 405 had been operated at low speed and both the engineman and fireman were maintaining

a careful lookout ahead; when the clear signal indication was received speed was increased and the engineman turned his attention to orders which he had received at Wyeville. Had this signal given the proper indication it is probable the accident would have been averted.

Neither the engineman nor the fireman of First 405 had read order No. 731 which was delivered to them at Wyeville, and it is possible that had either done so the accident would not have occurred, since the order required a stop at Bridge 57 $\frac{1}{4}$. The conductor of First 405 had read order No. 731 and was attempting to determine the whereabouts of his train when the accident occurred.

Conclusion

This accident was caused by a false-clear signal indication given by the automatic signal governing the use of the block within which the accident occurred, and failure to provide proper flag protection for the first train.

Respectfully submitted,

W. J. PATTERSON,

Director.