RAILROAD ACCIDENT INVESTIGATION

REPORT NO 4058

CHICAGO, MILWAUKEE, ST PAUL AND PACIFIC RAILROAD COMPANY

RED WING, MINN

AUGUST 28, 1965

INTERSTATE COMMERCE COMMISSION

WASHINGTON

SUMMARY

DATE	August 28, 1965	
RAILROAD	Chicago, Milwaukee, St. Paul & Pacific	
LOCATION	Red Wing, Minn.	
KIND OF ACCIDENT	Side collision	
EQUIPMENT INVOLVED	Yard movement	Passenger train
TRAIN NUMBER		6
LOCOMOTIVE NUMBERS	Diesel-electric unit 907	Diesel-electric units 103A, 102B, 32C
CONSISTS	17 cars	15 cars
SPEEDS	Standing	28 m p h
OPERATION	Timetable, train orders, automatic block-signal and cab-signal systems, yard limits	
TRACKS	Double, tangent, level	
WEATHER	Clear	
TIME	9 07 a m	
CASUALTIES	77 injured	
CAUSE	Yard movement fouling eastward main track immediately in front of an approaching first-class train	
RECOMMENDATION	That the Chicago, Milwaukee, St Paul and Pacific Railroad Company take immediate action to enforce its operating rules	

INTERSTATE COMMERCE COMMISSION

RAILROAD SAFETY AND SERVICE BOARD

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REPORT NO 4058

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SYNOPSIS

On August 28, 1965, a side collision occurred between a passenger train and a yard locomotive with cars on the Chicago Milwaukee, St Paul and Pacific Railroad at Red Wing, Minn The engineer of the yard locomotive and 76 persons on the passenger train were injured The accident was caused by a yard movement fouling the eastward main track immediately in front of an approaching first-class train

LOCATION AND METHOD OF OPERATION

The accident occurred on that part of the La Crosse Division extending between St. Croix Tower, Minn., and La Crosse, Wis , a distance of 110.7 miles. In the accident area this is a double-track line over which trains moving with the current of traffic operate by timetable, train orders, yard-limit rules, and an automatic block-signal system supplemented by an automatic cab-signal system At Red Wing, Minn , 21.6 miles east of St Croix Tower, an auxiliary track, designated as the upper house track, 1,193 feet long, parallels the eastward main track on the south The west switch of the upper house track is facing point for eastbound movements on the eastward main track and is 1,550 feet west of the station Another auxiliary track, designated as the outside house track, diverges southeastward from the upper

house track. The west switch of the outside house track is facing point for eastward movements on the upper house track and is 881 feet east of the switch connecting the upper house track to the eastward main track Other auxiliary tracks are connected to the upper house track as shown in the sketch appended to this report

The collision occurred 1,471 feet west of the Red Wing station, at the west turnout of the upper house track

Between 3 3 miles and 1,272 feet west of the collision point trains operate on the double-track line by signal indications of a traffic control system, supplemented by a cab-signal system The traffic control system is controlled by the Red Wing operator from a control machine at the station

Automatic signal 372 6 and controlled signal 16R, governing eastbound movements on the eastward main track are, respectively, 1 6 miles and 2,075 feet west of the collision point

Details concerning the tracks, signals, operating rules, train involved, damages, and other factors are set forth in the appendix.

DESCRIPTION AND DISCUSSION

According to the timetable, No 6, an eastbound first-class passenger train, was due to leave St Croix Tower at 8 23 a m. and was due to pass Stroms, 7 9 miles west of Red Wing, at 8 34 a m Stroms is the last station west of Red Wing where time is shown for No 6

About 8 35 a m. on the day of the accident, yard locomotive 907 completed switching operations on yard tracks east of the Red Wing station and proceeded on the westward main track with several cars, en route to the upper house track, via a crossover connecting the main tracks west of the station. Before the yard locomotive reached the crossover, the conductor radio-telephoned the St Croix Tower operator and was informed that No 6 would pass St Croix Tower about 8,47 a.m , 24 minutes late. The conductor informed the other members of his crew that No 6 was running late. About 8 40 a m., the yard locomotive with several cars moved over the crossover and entered the eastward main track on the time of No 6 No member of the yard crew provided protection against No. 6 as required by Rule 99, or took exception to the yard locomotive occupying the eastward main track on the time of No 6

After entering the eastward main track the yard locomotive proceeded to the west switch of the upper house track, where it started switching operations involving use of the eastward main track and the west ends of the upper house track and associated yard tracks After several switching movements had been made, the front yard brakeman remarked to the conductor that No 6 should reach Red Wing soon The conductor then decided to clear the eastward main track for No 6 and the yard locomotive was coupled to the cut of cars remaining on the eastward main track Shortly thereafter, it pushed this cut of cars onto the west end of the upper house track and coupled it to a cut of cars on that track At this time, the yard locomotive occupied the fouling track circuit at the west end of the upper house track, and was coupled to a combined cut of 17 cars

The yard locomotive pushed the cut of 17 cars eastward on the upper house track and when it cleared the switch points of the west turnout of that track, the conductor restored the switch to normal position, lined for movements on the eastward main track. Shortly thereafter, the locomotive stopped on the fouling track circuit of the west end of the upper house track The conductor then proceeded to the east end of the cut of 17 cars to determine whether there was sufficient room for the locomotive and 17 cars to move farther eastward and clear the fouling track circuit of the west end of the upper house track without occupying the fouling track circuit at the east end. Soon afterward, in response to a signal from the conductor, the locomotive pushed the cut of 17 cars a few feet eastward and stopped clear of the fouling track circuit of the west end of the upper house track At this time, however, the conductor thought the east end of the cut of 17 cars had stopped on the fouling track circuit of the east end of the upper house track, and he decided that the locomotive and cars could not fit on the upper house track without occupying either the east or west fouling track circuit He also decided that the yard locomotive and cars could not properly clear the eastward main track for No 6 unless the yard locomotive pushed the cars onto the outside house track

It was intended to move the locomotive and cars a sufficient distance eastward onto the west end of the outside house track. For this purpose, the conductor gave a signal for the locomotive and cars to move westward on the upper house track The front yard brakeman, who was standing about 120 feet east of the locomotive, relayed this signal to the engineer while the rear brake-

man proceeded to the west switch of the outside house track The yard locomotive with the cut of 17 cars then moved westward and reoccupied the fouling track circuit of the west end of the upper house track A few moments later, about 9 07 a m , it passed the fouling point of the eastward main track and the west end of the upper house track, and stopped on the west end of the upper house track with the front, or west, end fouling the eastward main track A few seconds later, the engineer heard the locomotive horn of No 6 being sounded The yard locomotive was struck by No 6 before the engineer could take further action

The yard conductor was unaware of anything wrong until he saw No 6 come into view on the curve located a short distance west of the collision point He called a warning to the front and rear brakemen, and the collision occurred immediately thereafter.

The engineer of the yard locomotive was injured. In addition, 52 passengers, 9 railway post office employees, 10 dining-car employees, 1 train baggageman, 2 train attendants, and the engineer and fireman of No 6 were injured.

No. 6 left Minneapolis, Minn , at 7 43 a m. on the day of the accident and as it departed, the engineer tested the cab signal apparatus of the locomotive and found that it was functioning properly He then cut out the cab signal apparatus The train, consisting of 3 diesel-electric units and 15 cars, left St Paul, Minn , at 8 21 a m., and passed St Croix Tower, the last open office, at 8.47 a.m , 24 minutes late. In the vicinity of Hastings, 1 2 miles east of St. Croix Tower, it entered the cab signal territory involved and the engineer cut in the cab-signal apparatus without again testing it as prescribed by Section 136.587 of the Commission's signal rules, standards and instructions (Ex Parte No. 171)

At approximately 9 05 a m., No 6 approached signal 372.6 at 70 miles per hour, as indicated by the speed-recording tape, and both enginemen saw that signal 372 6 was displaying an Approach aspect. The engineer made a service brake application and as the train closely approached it, the enginemen saw the aspect of that signal change to Clear The train then passed signal 372 6 and approached signal 16R at 42 miles per hour. Both enginemen said that signal 16R displayed a Clear aspect as the locomotive approached and passed it, and they called this aspect to each other. Soon afterward, as the train proceeded on the curve located a short distance west of the collision point, the fireman

heard the warning whistle of the cab signal apparatus start to sound and saw the Clear aspect displayed by the cab signal change to Stop. At this time, both the engineer and fireman saw yard locomotive 907 fouling the eastward main track a short distance ahead, at the west turnout of the upper house track at Red Wing. The engineer said that because he was sounding the locomotive horn at this time he did not hear the warning whistle of the cab signal apparatus or notice whether the aspect of the cab signal had changed However, he immediately initiated an emergency brake application, and the speed of the train was reduced to 28 miles per hour at the time of the collision.

According to statements of crew members of yard locomotive 907, it was common practice for Red Wing yard locomotives to occupy a main track on the time of a first-class train without protection In such cases, crew members of yard locomotives relied upon the Red Wing operator to warn them of an approaching first-class train, by operating the station train order signal, when an annunciator sounded in the station, as a result of the approaching train moving over a hot box detector located a considerable distance from Red Wing

The Red Wing operator stated that on the day of the accident he did not operate the train order signal to warn the crew members of the yard locomotive that No 6 was approaching, and further stated that he had not made any arrangements to do so According to the operator's statements, he manipulated controls of the traffic control machine at 8 42 a m. to clear signal 16R for No 6 However, the yard locomotive occupied the block of signal 16R at this time and caused the signal to display a Stop aspect At 9 04 a m , lights of the traffic control machine indicated the aspect of signal 16R had changed to Clear, indicating to the operator that the yard movement had cleared the eastward main track at this time

Measurements made after the accident disclosed that the length of the upper house track between the fouling track circuits at the east and west ends was 852 feet, and that the overall length of the yard locomotive and cut of 17 cars was 810 feet

FINDINGS

The investigation disclosed that when the yard locomotive and cut of 17 cars stopped for the second time on the upper house track they apparently were between, and clear of, the fouling track

circuits at both ends of that track At this time, signals 372 6 and 16R evidently displayed Clear aspects. The conductor, however, erroneously thought that the easternmost car had stopped on the fouling track circuit of the east end of the upper house track He further thought this caused signals 372.6 and 16R to display Approach and Stop aspects, respectively, and decided that the yard movement could not properly clear the eastward main track for No 6 unless the cut of 17 cars was pushed onto the outside house track He then signaled the locomotive to move the cars westward on the upper house track so that they could be pushed onto the outside house track instead. The locomotive moved westward with the cut of cars, reentered the fouling track circuit of the west end of the upper house track and stopped on the west end of that track with the front, or west, end fouling the eastward main track on the time of No. 6 without protection Immediately thereafter, No 6 struck the front of the yard locomotive

It is apparent the enginemen of No 6 saw the aspect of signal 372.6 change from Approach to Clear about the time that the yard locomotive and cut of 17 cars stopped on the upper house track clear of the fouling track circuits at the ends of that track The train passed both signals 372.6 and 16R while those signals displayed Clear aspects, and the enginemen were unaware of anything wrong before they saw the yard locomotive fouling the eastward main track at the west turnout of the upper house track The engineer immediately applied the train brakes in emergency, but there was insufficient distance for the train to stop short of a collision. The yard locomotive reentered the fouling track circuit at the west end of the upper house track and fouled the eastward main track after the locomotive of No 6 passed signal 16R. It is also apparent that the common practice of Red Wing yard locomotives occupying a main track on the time of a first-class train without protection, and relying on the operator to provide a warning of the approach of a first-class train by signaling with the train order signal, contributed to the cause of this accident

Appropriate action has been taken with respect to the violation of the Commission's signal rules, standards and instructions (Ex Parte No. 171) as disclosed in this case.

CAUSE

This accident was caused by a yard movement fouling the eastward main track immediately in front of an approaching first-class train

RECOMMENDATION

It is recommended that the Chicago, Milwaukee, St Paul and Pacific Railroad Company take immediate action to enforce its operating rules.

Dated at Washington, D C , this 7th day of February 1966
By the Commission, Railroad Safety and Service Board

H NEIL GARSON
Secretary

(SEAL)

Appendix

Tracks

From the west on the eastward main track there are, in succession, a tangent 279 feet, a 3°10' curve to the right 303 feet, a tangent 926 feet, a 5°00' curve to the left 845 feet, and a tangent 364 feet to the collision point and 1,161 feet eastward The grade is level in the collision area.

Signals

Automatic signal 372,6 and controlled signal 16R are of the upper quadrant semaphore and color-light types, respectively. The aspects applicable to this investigation and the corresponding indications and names are as follows

Signal	*Aspect*	*Indication*	*Name*
372 6	Yellow with semaphore arm in diagonal position	Proceed prepared to stop at next signal Train exceeding medium speed must at once reduce to that speed	Approach
	Green with semaphore arm in vertical position	Proceed	Clear
16R	Green	Proceed	Clear
	Red	Stop	Stop

The controlling circuits are so arranged that when the blocks of signals 372 6 and 16R are unoccupied and the Red Wing operator causes signal 16R to display a Clear aspect, signal 372 6 also displays a Clear aspect Under these circumstances, the cab signal of an eastbound locomotive entering the block of signal 372 6 displays a Clear aspect If a locomotive or car occupies either of the fouling track circuits of the east and west ends of the upper-house track after the Red Wing operator has caused signal 16R to display a Clear aspect, the aspect of signal 16R changes to Stop and signal 372.6 displays an Approach aspect

In this event, the cab signal of an eastbound locomotive in the block of signal 372 6 also displays an Approach aspect

Operating Rules

Medium Speed —A speed not exceeding thirty (30) miles per hour

Restricted Speed —Proceed prepared to stop short of train, obstruction, or any thing that may require the speed of a train or engine to be reduced.

11 A train or engine finding a fusee burning red on or near its track must stop, and may then proceed at restricted speed for one mile.

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15. The explosion of two torpedoes is a signal to immediately reduce speed to twenty (20) miles per hour or as much slower as conditions require and be prepared to close lookout for train or obstruction ***

93 Within yard limits the main track may be used, clearing first class trains when due to leave the last station where time is shown. In case of failure to clear the main track, protection must be given as prescribed by rule 99

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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

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The front of the train must be protected in the same way when necessary by the forward trainman or other competent employee.

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99B. When a train requires flag protection, the engineer must immediately whistle out flagman. ***

Train Involved

No. 6 consisted of car-body type diesel-electric units 103A, 102B and 32C, coupled in multiple-unit control, 2 mail cars, 1 baggage car, 2 sleeping cars, 6 coaches, 1 dome car, 1 dining car, and 2 parlor cars, in that order The cars were of all-steel construction and were equipped with tightlock couplers The train brakes had been tested and had functioned properly when used en route. The headlight was lighted

As the train approached the collision point, the engineer and fireman were in the control compartment at the front of the locomotive. The other crew members were at various locations in the cars.

Damages

The locomotive and first car of the yard movement were derailed The locomotive was moved about 85 feet eastward by the impact. It stopped upright across the eastward main track and upper house track, and with the front end against the south side of the second diesel-electric unit of No 6. The derailed car stopped upright, in a 45-degree leaning position, on the south side of, and in line with, the upper house track. The yard locomotive was heavily damaged, and the derailed car was somewhat damaged.

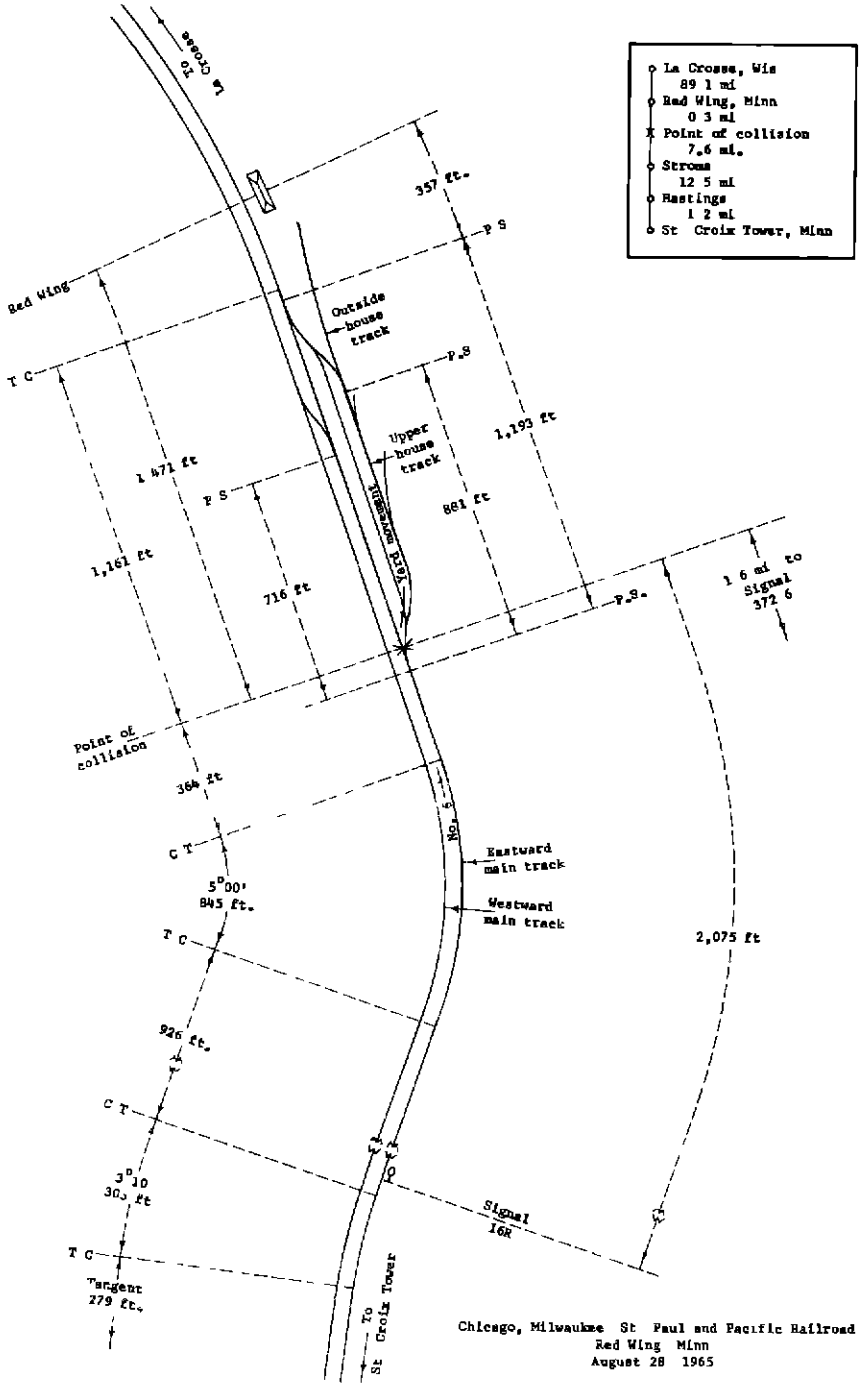
No 6 stopped with the front end 144 feet east of the collision point. The three diesel-electric units and the front truck of the first car were derailed There were no separations The derailed equipment stopped upright, in leaning positions, on and in line with the structure of the main tracks. The first and second diesel-electric units were heavily damaged. The third unit and first car were slightly damaged

Other Factors

The accident occurred at 9 07 a.m., in clear weather.

The maximum authorized speed for passenger trains in the territory involved is 90 miles per hour, but is restricted to 40 miles per hour within the Red Wing city limits

Because of track curvature and several buildings along the north side of the track structure, the view between a locomotive at the west end of the upper house track and an eastbound train approaching on the eastward main track is restricted to about 800 feet.



Chicago, Milwaukee St Paul and Pacific Railroad
Red Wing Minn
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