

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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REPORT NO. 3435  
NORTHERN PACIFIC RAILWAY COMPANY  
IN RE ACCIDENT  
AT CARLTON, MINN., ON  
OCTOBER 21, 1951

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SUMMARY

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Date: October 21, 1951

Railroad: Northern Pacific

Location: Carlton, Minn.

Kind of accident: Rear-end collision

Trains involved: Freight : Freight

Train numbers: Extra 1839 East : Extra C.M.St.  
P.& P.  
76 East

Engine numbers: 1839 : Diesel-electric  
units 76A,  
76B and 76C

Consists: Auxiliary water : 75 cars, caboose  
car, 59 cars,  
caboose

Speeds: Standing : 54 m. p. h.

Operation: Timetable, train orders and  
automatic block-signal system;  
yard limits

Track: Single; tangent; 0.70 percent  
descending grade eastward

Weather: Misting

Time: 2:30 a. m.

Casualties: 1 killed; 2 injured

Cause: Failure properly to control speed  
of following train moving within  
yard limits

INTERSTATE COMMERCE COMMISSION

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REPORT NO. 3435

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS  
UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

NORTHERN PACIFIC RAILWAY COMPANY

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January 8, 1952

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Accident at Carlton, Minn., on October 21, 1951, caused  
by failure properly to control the speed of the  
following train moving within yard limits.

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REPORT OF THE COMMISSION<sup>1</sup>

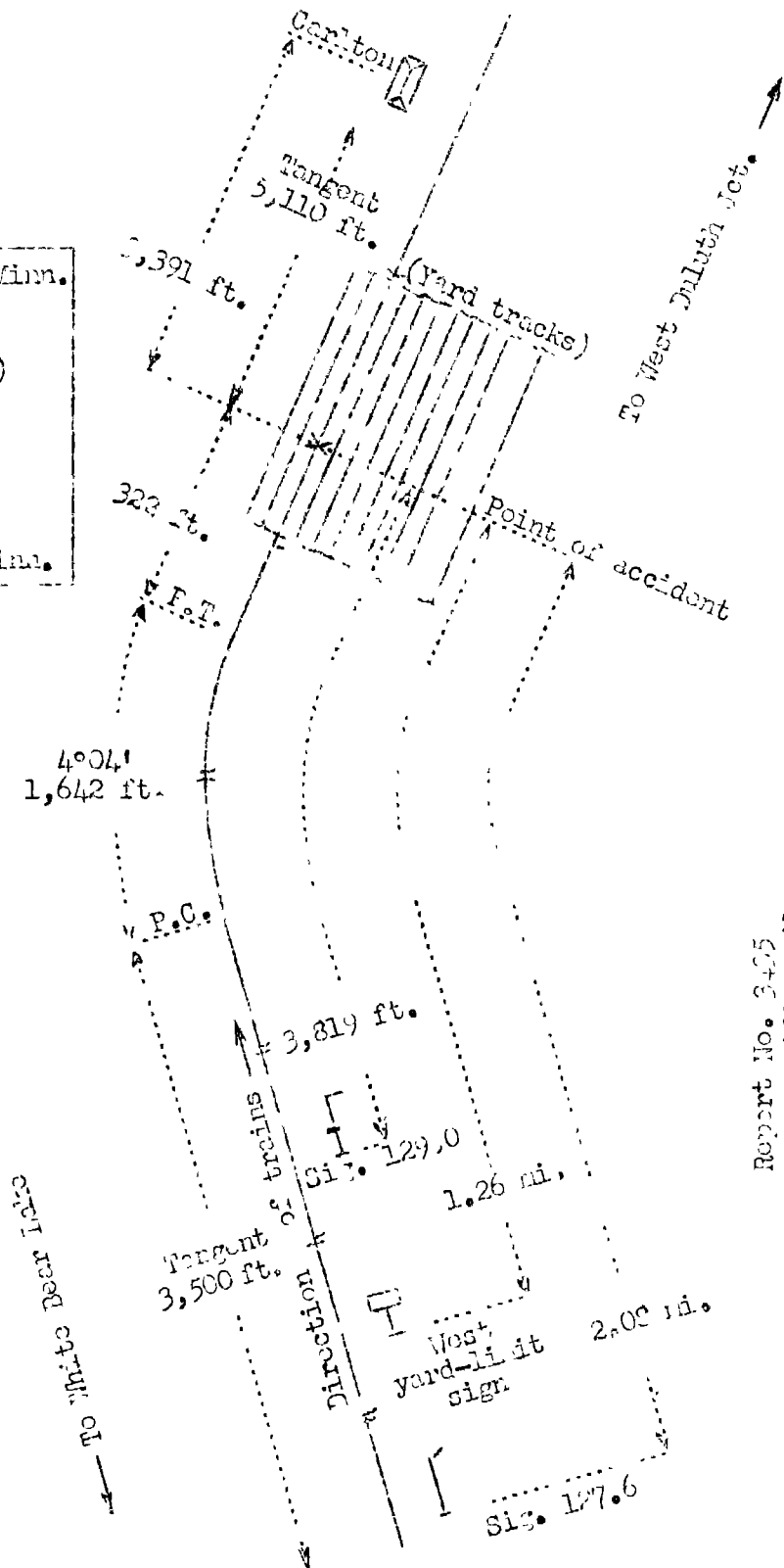
PATTERSON, Commissioner:

On October 21, 1951, there was a rear-end collision between two freight trains on the Northern Pacific Railway at Carlton, Minn., which resulted in the death of one employee, and the injury of two employees. This accident was investigated in conjunction with a representative of the Minnesota Railroad and Warehouse Commission.

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<sup>1</sup>  
Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.

- o West Duluth Jct., Minn.
- | 15.9 mi.
- X Carlton
- | (Point of accident)
- | 17.8 mi.
- o Barnum
- | 4.5 mi.
- o Moose Lake
- | 97.2 mi.
- o White Bear Lake, Minn.



Report No. 3425  
 Northern Pacific Railway  
 Carlton, Minn.  
 October 21, 1951

Location of Accident and Method of Operation

This accident occurred on that part of the Lake Superior Division extending between White Bear Lake and West Duluth Jct., Minn., 135.4 miles. Trains of the Chicago, Milwaukee, St. Paul and Pacific Railroad Company, hereinafter referred to as the C.M.St.P.& P., regularly are operated over this portion of the Northern Pacific Railway. In the vicinity of the point of accident this is a single-track line, over which trains are operated by timetable, train orders and an automatic block-signal system. The accident occurred on the main track 119.5 miles east of White Bear Lake and at a point 1.26 miles east of the west yard-limit sign and 3,391 feet west of the station at Carlton. Yard tracks parallel the main track on the south in the vicinity of the point of accident. From the west there are, in succession, a tangent 3,500 feet in length, a compound curve to the right, having a maximum curvature of  $4^{\circ}04'$ , 1,642 feet, and a tangent 322 feet to the point of accident and 5,110 feet eastward. The grade for east-bound trains varies between 0.70 percent and 0.14 percent descending throughout a distance of 2 miles immediately west of the point of accident and at that point it is 0.70 percent descending eastward.

Automatic signals 127.6 and 129.0, governing east-bound movements, are located, respectively, 2.08 miles and 3,319 feet west of the point of accident. These signals are of the one-arm upper-quadrant semaphore type and are approach lighted. Each signal displays three aspects. The aspects applicable to this investigation and the corresponding indications, names and rule numbers are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>	<u>Rule</u>
127.6	Arm diagonal, yellow light	Proceed pre- pared to stop at next signal. Train exceeding medium speed must at once reduce to that speed.	Approach signal.	501 B
129.0	Arm horizontal, red light over number plate	Stop, then proceed at restricted speed. * * *	Stop and proceed signal.	501 AA

The controlling circuits are so arranged that when the block of signal 129.0 is occupied signal 127.6 indicates Approach and signal 129.0 indicates Stop and Proceed.

This carrier's operating rules read in part as follows:

#### DEFINITIONS.

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

Restricted Speed.--Proceed prepared to stop short of train, obstruction, or anything that may require the speed of a train to be reduced.

34. All members of train and engine crews must, when practicable, communicate to each other by its name, the indication of each signal affecting the movement of their train or engine.

93. \* \* \*

Within yard limits the main track may be used without protecting against second and inferior class, extra trains and engines.

Within yard limits second and inferior class, extra trains and engines must move at restricted speed.

\* \* \*

Note.--Approach or proceed automatic block signal indications do not supersede the provisions of Rule 93.

The maximum authorized speed for freight trains was 50 miles per hour.

#### Description of Accident

Extra 1839 East, an east-bound freight train, consisted of engine 1839, an auxiliary water car, 59 cars and a caboose. This train passed Moose Lake, the last open office, 22.3 miles west of Carlton, at 11:56 p. m., October 20, and stopped on the main track at Carlton about 2:20 a. m., October 21, with the rear end 1.26 miles east of the west yard-limit sign and 3,391 feet west of the station. About 10 minutes later, after

the engine and 20 cars at the front of the train had been detached and moved to the yard tracks, the rear end was struck by Extra C.M.St.P.& P. 76 East.

Extra C.M.St.P.& P. 76 East, an east-bound C.M.St.P.& P. freight train, consisted of Diesel-electric units 76A, 76B and 76C, coupled in multiple-unit control, 75 cars and a caboose. This train departed from Moose Lake at 1:53 a. m., passed signal 127.6, which indicated Approach, passed the west yard-limit sign at Carlton, passed signal 129.0, which indicated Stop and Proceed, and while moving at a speed of 54 miles per hour it struck the rear end of Extra 1839 East.

The caboose and the rear five cars of Extra 1839 East were derailed. The caboose and the rear three cars were demolished. The other two derailed cars were somewhat damaged. Extra C.M.St.P.& P. 76 East stopped with the front end of the train 183 feet east of the point of collision. The Diesel-electric units were derailed and badly damaged. A separation occurred between the first and the second units. The first unit stopped in reverse position, with the front and the rear ends 72 feet and 42 feet, respectively, north of the main track. The front end of the second unit was derailed to the north. The third unit remained in line with the track. The first to the seventeenth cars, inclusive, and the twenty-seventh to the fiftieth cars, inclusive, were derailed and stopped in various positions on or near the track, except the twenty-eighth car, which stopped about 100 feet south of the main track. The first to the fourth cars, inclusive, and the sixteenth, twenty-fifth, twenty-sixth, forty-third and forty-seventh cars were somewhat damaged, and the fifth, sixth, seventeenth and forty-eighth cars were slightly damaged. The other derailed cars were badly damaged or destroyed.

The flagman of Extra 1839 East was killed. The engineer and the front brakeman of Extra C.M.St.P.& P. 76 East were injured.

It was misting at the time of the accident, which occurred about 2:30 a. m.

The Diesel-electric units of Extra C.M.St.P.& P. 76 East were provided with 24-RL and dynamic brake equipment. An emergency valve was provided on each unit.

### Discussion

After Extra 1839 East arrived at Carlton, the engine and the first 20 cars of the train were detached and moved to the yard tracks. The engineer and the fireman were on the engine. The conductor and the front brakeman were in the vicinity of the cars which were to be left at that point and the flagman was in the caboose. The conductor said that before he boarded the engine at Barnum, 17.8 miles west of Carlton, he had observed that the markers at the rear of the caboose were lighted and that the flagman was performing his duties. None of the members of the crew on the engine or in the vicinity of the forward portion of the train saw or heard the following train before the collision occurred.

As Extra C.M.St.P.& P. 76 East was approaching the point where the accident occurred the speed was about 50 miles per hour, as indicated by the tape of the speed recording device. The engineer and the front brakeman were in the control compartment at the front of the first Diesel-electric unit. The fireman was inspecting the operation of the equipment in the second Diesel-electric unit. The conductor and the flagman were in the caboose. The headlight was lighted. The brakes of this train had been tested and had functioned properly when used en route. The engineer said that when he observed that signal 127.6 indicated Approach, he applied the dynamic brake and there was a heavy run-in as the slack closed. He then made a service brake-pipe reduction of about 12 pounds, and a few seconds later made a second reduction of about 8 pounds. He said that the exhaust from the brake valve was short and the speed of the train was not reduced. He then placed the brake valve in emergency position and warned the front brakeman. He said that the emergency application was made at a point about 2,000 feet east of signal 127.6 but the speed of the train was not materially reduced and the dynamic brake was released in the vicinity of the west yard-limit sign. The engineer said that signal 129.0 indicated Stop and Proceed and he sounded a warning on the pneumatic horn from the time he observed it until the rear end of the preceding train came into view and then again warned the front brakeman before the collision occurred.

The front brakeman said that he occupied the fireman's seat after the fireman left the control compartment to make an inspection of the units. He said that he did not see the aspect displayed by signal 127.6 because he was observing the equipment of the train through the side window of the cab.



He thought the caboose of the preceding train was about a half mile distant when he first observed it. He said that he heard the exhaust from the brake valve and became alarmed when the engineer warned him to protect himself against an impact. This was the front brakeman's second trip in that capacity. He had made one other trip in train service. The conductor said that throughout the trip he had observed at frequent intervals that the caboose gauge indicated normal brake-pipe pressure. He said that the brakes were applied in emergency a few seconds before the accident occurred. The flagman said that he had inspected the train at Moose Lake and found no defective condition. He said that he did not see the yard-limit sign when the caboose passed it. He thought that the brakes had been applied in emergency before the collision occurred.

Examination of the first Diesel-electric unit of Extra C.M.St.P. & P. 76 East disclosed that the brake valve was in emergency position and the throttle was closed. The transition lever was in off position. Examination of the tape of the speed-recording device indicated that the brakes functioned to control the speed at various points west of Carlton. At a point 2.67 miles west of the point of accident the speed was 50 miles per hour. The speed then was increased to 54 miles per hour at the point of accident and the deceleration indicates that emergency brake action was obtained either immediately before or at the point of collision. The brakes of the undamaged cars were tested and functioned properly.

This accident occurred within yard limits. Under the rules of this carrier governing the operation of trains within yard limits, Extra C.M.St.P. & P. 76 East was required to be operated in such a manner that it could be stopped short of a preceding train. The indication of the last signal which this train passed placed a similar restriction on its movement.

#### Cause

It is found that this accident was caused by failure properly to control the speed of the following train moving within yard limits.

Dated at Washington, D. C., this eighth day of January, 1952.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,  
Secretary.