

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3310
CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC
RAILROAD COMPANY
IN RE ACCIDENT
NEAR FREDONIA, WIS., ON
FEBRUARY 2, 1950

SUMMARY

Date: February 2, 1950

Railroad: Chicago, Milwaukee, St. Paul
and Pacific

Location: Fredonia, Wis.

Kind of accident: Derailment

Train involved: Passenger

Train number: 14

Engine number: 159

Consist: 6 cars

Estimated speed: 63 m. p. h.

Operation: Timetable, train orders and
manual-block system

Track: Single; tangent; 0.82 percent
descending grade eastward

Weather: Clear

Time: 7:19 p. m.

Casualties: 1 killed; 98 injured

Cause: Broken rail

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3310

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

CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC RAILROAD COMPANY

March 27, 1950

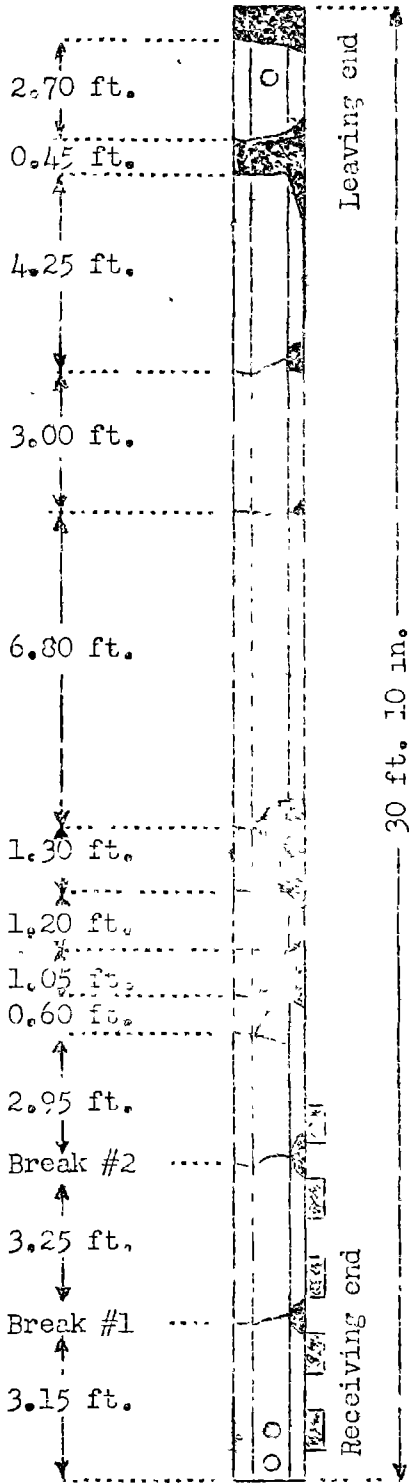
Accident near Fredonia, Wis., on February 2, 1950, caused
by a broken rail.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

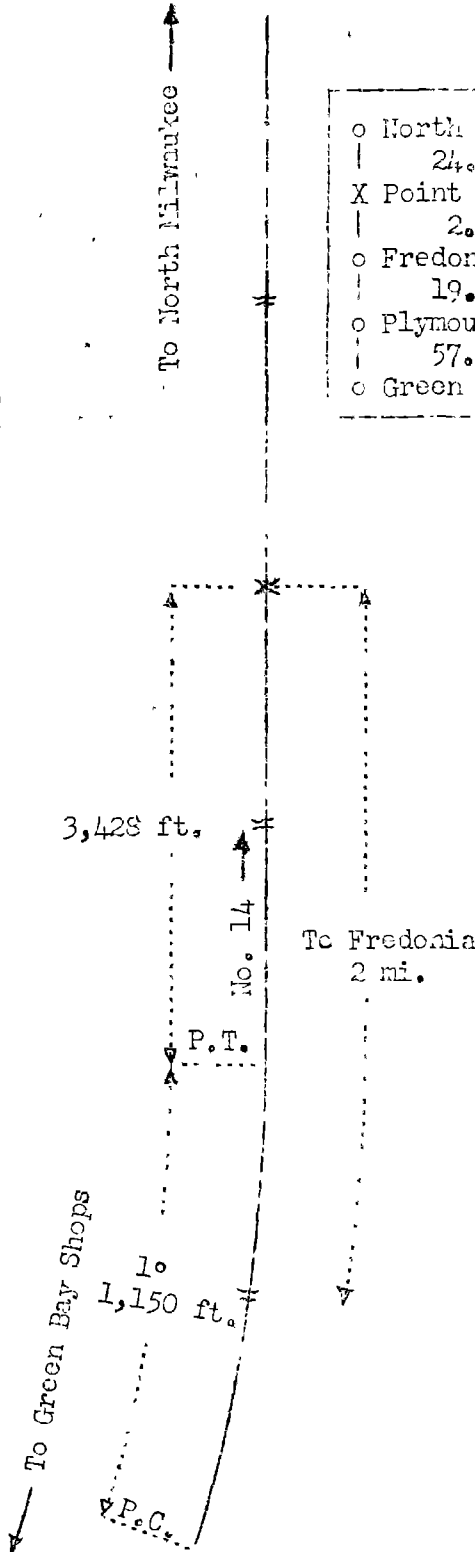
On February 2, 1950, there was a derailment of a passenger train on the Chicago, Milwaukee, St. Paul and Pacific Railroad near Fredonia, Wis., which resulted in the death of 1 passenger, and the injury of 22 passengers, 2 railway-mail clerks, 1 electrician, 1 division storekeeper, 5 dining-car employees and 1 train porter.

¹ 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.



Shaded areas indicate missing portions of rail

Sketch showing broken rail - north side of track



- o North Milwaukee, Wis. 24.4 mi.
- X Point of accident 2.0 mi.
- o Fredonia 19.7 mi.
- o Plymouth 57.9 mi.
- o Green Bay Shops, Wis.

Report No. 3216
 Chicago, Milwaukee, St. Paul and
 Pacific Railroad
 Fredonia, Wis.
 February 2, 1950

Location of Accident and Method of Operation

This accident occurred on that part of the Superior Division extending between Green Bay Shops and North Milwaukee, Wis., 104 miles, a single-track line, over which trains are operated by timetable, train orders and a manual-block system. The accident occurred on the main track 79.6 miles east of Green Bay Shops and 2 miles east of the station at Fredonia. From the west there are, in succession, a 1° curve to the left 1,150 feet in length, and a tangent 3,428 feet to the point of accident and a considerable distance eastward. The grade for east-bound trains is, successively, level 2,100 feet, 0.43 percent ascending 1,700 feet and 0.82 percent descending 1,452 feet to the point of accident and 1,349 feet eastward.

In the vicinity of the point of accident the track is laid in a cut, the walls of which extend about 7 feet above the level of the tops of the rails. The track structure consists of 90-pound cropped rail, 30 feet 10 inches in length, rolled in 1919 and relaid in its present location in 1935 on an average of 20 treated ties to the rail length. It is fully tieplated, single-spiked, provided with 4-hole 24-inch joint bars, and an average of five rail anchors per rail length. It is ballasted with gravel to a depth of about 15 inches. The involved rail section was manufactured by the Illinois Steel Company in May, 1919. The heat number was 40266, Letter F.

A highway crosses the railroad at grade at an angle of 75 degrees 404 feet east of the point of accident. The crossing is of plank construction with flangeways about 2-1/4 inches wide along the gage side of each rail. The planks are beveled downward throughout a distance of about 10 inches at each end of the crossing.

The maximum authorized speed for the train involved was 65 miles per hour.

Description of Accident

No. 14, an east-bound first-class passenger train, consisted of engine 159, a 4-6-2 type, one mail-express car, three coaches, one lounge-dining car and one parlor car, in the order named. All cars were of all-steel construction. This train departed from Green Bay Shops

at 5:14 p. m., 4 minutes late, departed from Plymouth, the last open office, 19.7 miles west of Fredonia, at 6:55 p. m., 7 minutes late, passed Fredonia, and while it was moving at a speed of approximately 63 miles per hour the front driving-wheels of the engine, the rear truck of the first car and the second to sixth cars, inclusive, were derailed.

The front driving-wheels of the engine were rerailed at the rail-highway grade-crossing. The engine, the tender and the first car remained coupled and stopped with the front of the engine 2,382 feet east of the point of derailment. Separations occurred between the first and second cars, the third and fourth cars, and the fourth and fifth cars. The second and third cars stopped on their left sides, parallel to the track and about 20 feet north of it, with the front end of the second car 2,080 feet east of the point of derailment. The fourth car stopped with its front end 1,678 feet east of the point of derailment and 17.5 feet north of the track. The rear end of this car was 16 feet north of the track. The fifth and sixth cars stopped north of the track and adjacent to it, with the front end of the fifth car 692 feet east of the point of derailment. The fifth car stopped on its right side. The sixth car leaned to the north at an angle of 5 degrees. The first and the sixth cars were considerably damaged, and the second, third, fourth and fifth cars were badly damaged.

The weather was clear at the time of the accident, which occurred about 7:19 p. m.

Discussion

No. 14 was moving on tangent track at a speed of about 63 miles per hour, in territory where the maximum authorized speed for this train was 65 miles per hour, when the derailment occurred. The brakes of this train had been tested and had functioned properly en route. The headlight was lighted brightly and the enginemen were maintaining a lookout ahead. The conductor and the front brakeman were in the second car, the baggageman was in the first car and the flagman was in the rear car. Prior to the time the accident occurred, the engine and the cars were riding smoothly and there was no indication of defective equipment or track, nor of any obstruction having been on the track.

After the accident occurred, a broken rail was found on the north side of the track. This rail was broken into many pieces, 12 of which were recovered. There were 12 angular breaks through the head, web and base of the rail. These breaks occurred at points 3.15 feet, 6.4 feet, 9.36 feet, 9.95 feet, 11 feet, 12.2 feet, 13.5 feet, 20.3 feet, 23.3 feet, 27.55 feet, 28 feet, and 30.7 feet from the receiving end of the rail. Break No. 2 occurred between tie locations, and the head of the piece of rail east of this break was considerably battered. There also were deep indentations near the outside edge of the west end of this piece of rail which apparently were caused by flanges. There was no indication of a transverse fissure or other defect in the rail involved. The rim of the left No. 1 driving wheel of the engine was scored. No condition of the engine or cars of No. 14 was found which would have caused or contributed to the cause of the derailment. The battered piece of rail east of break No. 2 indicates that the rail was broken prior to the derailment of No. 14, and the marks on the head of the rail and on the rim of the left No. 1 driving wheel indicate that break No. 1 occurred when the engine-truck wheels of the engine of No. 14 passed over the rail. Apparently, the piece of rail between breaks Nos. 1 and 2 was displaced by the left No. 1 driving wheel and then the derailment occurred.

The track in this vicinity was last inspected by the section foreman about 9 hours before the derailment occurred, and no defective condition was observed. The crew of an east-bound freight train, which passed this point about 5 hours 30 minutes before the accident occurred, observed no defective condition of the track. A rail-defect detector car was last operated over this territory on September 12, 1949, at which time no defective condition of the rail involved was indicated. A chemical analysis of the rail disclosed that its composition was in accordance with specifications in effect at the time of its manufacture.

Cause

It is found that this accident was caused by a broken rail.

Dated at Washington, D. C., this twenty-seventh day of March, 1950.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.