INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3523

CHICAGO, MILWAUKEE, ST. PAUL AND PACIFIC RAILROAD COMPANY

IN RE ACCIDENT

NEAR SUPERIOR, MONT., CN

MAY 31, 1953

SUMMARY

Date:	May 31, 1953
Railroad:	Chicago, Milwaukee, St. Paul and Pacific
Location:	Superior, Mont.
Kind of accident:	Derailment
Train involved:	Passenger
Train number:	16
Engine number:	Electric locomotive E-22
Consist:	10 cars
Speed:	62 m. p. h.
Operation:	Timetable, train orders and automatic block-signal system
Track:	Single; tangent; 0.29 percent ascending grade eastward
Weather:	Clear
Time:	5:03 a. m.
Casualties:	86 injured
Cause:	Broken rail

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3523

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

July 16, 1953

Accident near Superior, Mont., on May 31, 1953, caused by a broken rail.

REPORT OF THE COMMISSION[1]

JOHNSON, Chairman:

On May 31, 1953, there was a derailment of a passenger train on the Chicago, Milwaukee, St. Paul and Pacific Railroad near Superior, Mont., which resulted in the injury of 69 passengers, 8 dining-car employees, 3 coach attendants, 1 sleeping-car employee, 3 Pullman Company employees, and 2 train-service employees.

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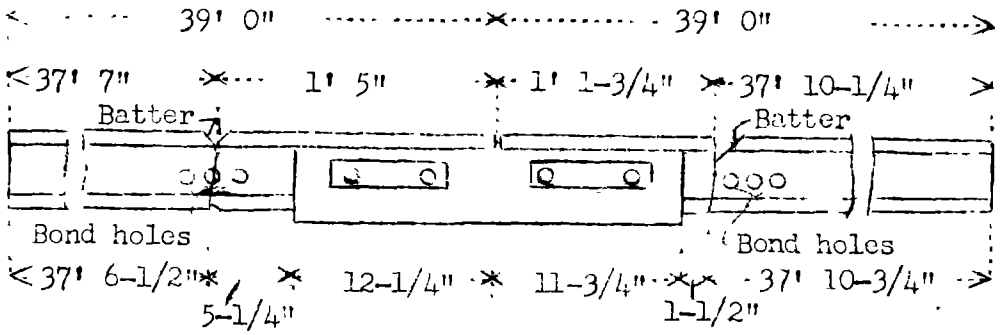
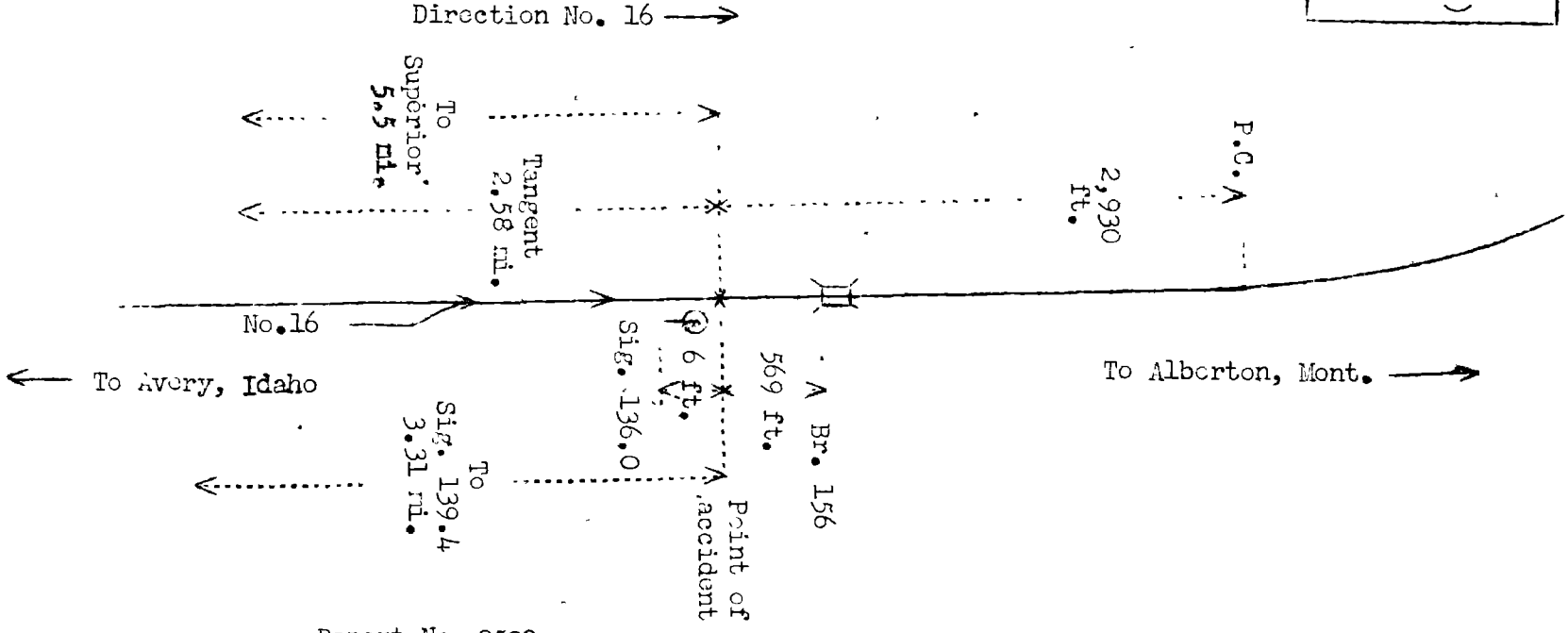
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Chairman Johnson for consideration and disposition.



Sketch showing broken rail-south side of track



Alberton, Mont.
25.4 mi.
(Point of accident)
5.5 mi.
Superior, Mont.
69.4 mi.
Avery, Idaho

Report No. 3523
Chicago, Milwaukee, St. Paul and Pacific Railroad
Near Superior, Mont.
May 31, 1953

Location of Accident and Method of Operation

This accident occurred on that part of the Rocky Mountain Division extending between Avery, Idaho, and Alberton, Mont., 100.3 miles, a single-track line, over which trains are operated by timetable, train orders, and an automatic block-signal system. This line is equipped with a catenary system for the electric propulsion of trains. The accident occurred on the main track at a point 74.9 miles east of Avery and 5.5 miles east of Superior, Mont. The track is tangent throughout a distance of 2.58 miles immediately west of the point of accident and 2,930 feet eastward. The grade is 0.29 percent ascending eastward at the point of accident.

In the vicinity of the point of accident the track is laid on a fill approximately 18 feet in height. The track structure consists of 90-pound rail, 39 feet in length, laid new in 1926 on an average of 24 treated soft wood ties to the rail length. It is fully tieplated with single-shoulder tie-plates and is spiked with two spikes per intermediate plate and four spikes per joint plate. It is provided with 4-hole 24-inch joint bars and an average of nine rail anchors per rail. It is ballasted with pit run gravel to a depth of 15 inches below the bottoms of the ties.

Automatic signals 139.4 and 136.0, governing east-bound movements, are located, respectively, 3.31 miles and 6 feet west of the point of accident.

The maximum authorized speed for passenger trains on this line is 79 miles per hour, but it is restricted to 70 miles per hour in the vicinity of the point of accident.

Description of Accident

No. 16, an east-bound first-class passenger train, consisted of electric locomotive E-22, one dormitory car, three coaches, one cafe-lounge car, one dining car, three sleeping cars, and one lounge-sleeping car, in the order named. All cars were of lightweight steel construction. All units of the train except the locomotive were equipped with tightlock couplers. This train departed from Avery, the last open office, at 2:55 a. m., 15 minutes late, and while moving at a speed of 62 miles per hour the third to the tenth cars, inclusive, were derailed at a point 5.5 miles east of Superior.

Separations occurred between the second and third cars and between the fifth and sixth cars. The knuckle at the rear end of the second car was opened when some object struck the uncoupling lever during the derailment. The coupler shank at the rear end of the fifth car was broken. There were no other separations between the units of the train. The locomotive and the first two cars stopped with the front end of the locomotive approximately 1,800 feet east of the point of derailment. The third, fourth, and fifth cars stopped upright and approximately in line with the track. The front end of the third car was 780 feet east of the point of derailment. The sixth, seventh, and eighth cars overturned to the south and stopped on their right sides at the foot of the fill. The front end of the sixth car was opposite the rear end of the fifth car. The ninth car leaned to the south at an angle of about 60 degrees, and the tenth car leaned to the south at an angle of about 45 degrees. The rear end of the tenth car was several feet south of the track structure. The rear end of the fourth car and the front end of the fifth car stopped on a pile trestle 55.6 feet in length. The fifth car was equipped with two electric generators operated by Diesel engines. Fuel for the engines was carried in two tanks having a total capacity of 300 gallons. One of the tanks was punctured during the derailment, escaping fuel and the pile trestle became ignited, and both the fourth and fifth cars were badly damaged by fire. The second and third cars were slightly damaged, and the other derailed cars were considerably damaged.

The conductor and the front brakeman were injured.

The weather was clear except for pockets of fog, and it was daylight at the time of the accident, which occurred at 5:03 a. m.

Discussion

As No. 16 was approaching the point where the accident occurred the speed was 62 miles per hour. The enginemen and a traveling engineer were maintaining a lookout ahead from the control compartment at the front of the locomotive. The members of the train crew were in various locations in the cars of the train. Signals 139.4 and 136.0 each indicated Proceed. The members of the crew said that before the derailment occurred the locomotive and the cars were riding smoothly and there was no indication of defective track or equipment. The employees on the locomotive said they noticed nothing unusual when the locomotive passed the point at which the derailment occurred. They were not aware that anything was wrong until the brakes became applied in emergency as a result of the derailment.

Examination of the locomotive and the cars after the accident occurred disclosed no condition which could have caused or contributed to the cause of the derailment. There was no indication of dragging equipment nor of an obstruction having been on the track.

After the accident occurred two adjoining rails in the south side of the track were found to be broken. The west rail was broken over a tie at a point 17 inches west of the leaving end of the rail. The east rail was broken at a point 13-3/4 inches east of the receiving end of the rail. Both breaks were square. Batter on the head on each side of the break in the west rail indicated that movements in each direction had passed over the rail after the break occurred. The tie under this break was plate-cut and somewhat deteriorated under the tie plate. The next tie to the east, which was directly under the joint between the rails, was sound and firmly tamped. Apparently when the wheels of the locomotive of No. 16 struck and depressed the broken end of the west rail, the east rail was broken beyond the tie under the joint. The bolts and joint bars remained in place, but after the east rail was broken the 30-3/4-inch section of rail between the breaks was displaced from the track. The rail in which the initial break occurred was manufactured by the Inland Steel Company in July 1925. It bore heat number 4, 16767 G. The surfaces of the fracture were battered and worn to the extent that it was impossible to ascertain whether a fissure existed. From the examination which could be made, it appeared that the rail was free from defects.

The joint between the broken rails was insulated. In territory on this line over which trains are propelled by electric current, three bond wires are used on each side of each insulated joint. These wires are attached to the rail by channel pins inserted in 3/8-inch holes through the web. The rail in which the initial break occurred was broken through the middle hole. The bond wire west of the break remained in place, and as a result the operation of the automatic block-signal system was not affected.

A west-bound freight train passed the point of accident about 6 hours 30 minutes before the accident, and a west-bound passenger train passed about 5 hours before the accident occurred. The crews of these trains reported no unusual condition of the track. This section of track was last inspected

by the section foreman 2 days before the accident occurred. No defective condition was observed. A rail-defect detector car was operated over this territory on May 7, 1953. No defective condition of the rails involved was indicated.

Cause

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

Dated at Washington, D. C., this sixteenth day of July, 1953.

By the Commission, Chairman Johnson.

(SEAL)

GEORGE W. LAIRD,

Acting Secretary.