INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3460

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE RAILROAD COMPANY

IN RE ACCIDENT

NEAR FALKIRK, N. DAK., ON

APRIL 8, 1952

SUMMARY

Date:	April 8, 1952
Railroad:	Minneapolis, St. Paul & Sault Ste. Marie
Location:	Falkirk, N. Dak.
Kind of accident:	Derailment
Train involved:	Passenger
Train number:	257
Engine number:	2703
Consist:	2 cars
Estimated speed:	25 m. p. h.
Operation:	Timetable and train orders, and manual-block system for passenger trains following passenger trains
Track:	Single; 2° curve; 0.2 percent descending grade westward
Weather:	Clear
Time:	7:30 a. m.
Casualties:	2 killed; 1 injured
Cause:	Washout

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3460

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

MINNEAPOLIS, ST. PAUL & SAULT STE. MARIE RAILROAD COMPANY

May 23, 1952

Accident near Falkirk, N. Dak., on April 8, 1952, caused by a washout.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On April 8, 1952, there was a derailment of a passenger train on the Minneapolis, St. Paul and Sault Ste. Marie Railroad near Falkirk, N. Dak., which resulted in the death of two train-service employees, and the injury of one passenger.

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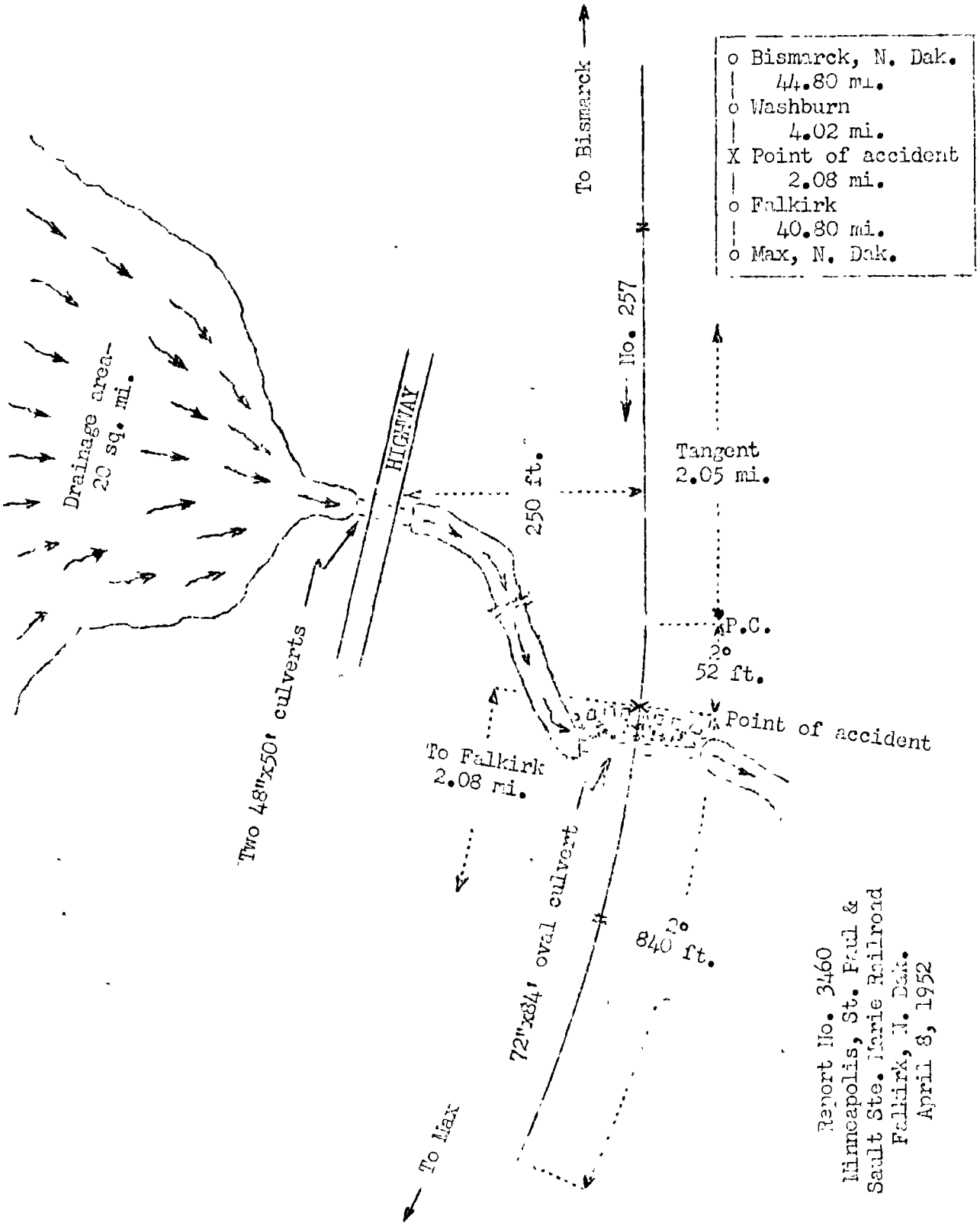
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



Report No. 3460
Minneapolis, St. Paul &
Sault Ste. Marie Railroad
Falkirk, N. Dak.
April 8, 1952

Location of Accident and Method of Operation

This accident occurred on that part of the Minnesota Division extending between Bismark and Max, N. Dak., 91.7 miles, a single-track line, over which trains are operated by timetable and train orders, and by a manual-block system for passenger trains following passenger trains. The accident occurred on the main track at a point 48.82 miles west of Bismark and 2.08 miles east of the station at Falkirk. The track at this point extends approximately north and south. Timetable directions are east and west, and these directions are used in this report. From the east there is a tangent 2.05 miles in length and a 2° curve to the right 52 feet to the point of accident and 840 feet westward. The grade is 0.2 percent descending westward at the point of accident.

In the vicinity of the point of accident the track structure consists of 80-pound rail, 30 feet in length, rolled in 1899 and laid in its present location in 1946. It is laid on an average of 17 ties to the rail length, fully tieplated, single-spiked, and is provided with 4-hole 24-inch joint bars and an average of 4 rail anchors per rail. It is ballasted with gravel to a depth of 9 inches below the bottoms of the ties.

In the immediate vicinity of the point of accident the track is laid on a fill about 300 feet in length. The fill is composed of clay with a topping of 19 inches of pit run gravel. The accident occurred approximately 100 feet west of the east end of the fill. At this point the fill is 97 feet wide at the base and 14 feet wide at the top, and the track is about 25 feet above the level of the adjacent ground. A 72-inch oval concrete culvert 84 feet in length is located at the point of accident. The waterway area of the culvert is 28 square feet. The flow line is 28.5 feet below the base of the rail. This culvert was installed in 1921.

In this vicinity a gravel-surfaced highway is located about 250 feet north of the track and approximately parallel to it. The highway also is located on a fill. Two 48-inch corrugated-metal culverts 8 feet apart are provided under the highway and are located about 825 feet northeast of the culvert under the track. Each culvert is 50 feet in length. The surface of the highway in the vicinity of the two culverts is 11.3 feet below the level of the base of the rail of the track, and the flow lines of the culverts are 10 feet below

the surface of the highway. Water from an area of approximately 20 square miles north of the highway drains through the culverts under the highway and thence through the railroad culvert to the south side of the track. Except during periods in which snow is melting or during periods of rainy weather, there is no run-off from this area.

The maximum authorized speed for passenger trains is 45 miles per hour, but at the time of the accident it was restricted to 30 miles per hour between points 4.02 miles east and 42.88 miles west of the point of accident, because of high water at various locations.

Description of Accident

No. 257, a west-bound first-class passenger train, consisted of engine 2703, one baggage car, and one combination mail-baggage-passenger car, in the order named. Both cars were of all-steel construction. This train departed from Washburn, 4.02 miles east of the point of accident, at 7:19 a. m., 9 minutes late, and while it was moving at an estimated speed of 25 miles per hour the engine, the tender and the first car were derailed at a point 2.08 miles east of the station at Falkirk.

The engine stopped on its left side, 56 feet south of the track and parallel to it, with its front end 132 feet west of the point of derailment. The tender was separated from the engine. It stopped with its front end 10 feet south of the center-line of the track and 89 feet west of the point of derailment and its rear end about 5 feet south of the center-line of the track. The first car was suspended across a washout through the fill, and it stopped with its front end against the rear of the tender. The engine was badly damaged, and the tender and the first car were somewhat damaged.

The engineer and the fireman were killed.

The weather was clear at the time of the accident, which occurred at 7:30 a. m.

Discussion

As No. 257 was approaching the point where the accident occurred the speed was about 25 miles per hour. The enginemen were on the engine, and the members of the train crew were in various locations in the cars of the train. The brakes of the

train had been tested and had functioned properly when used en route. The members of the train crew said that the brakes became applied in emergency either immediately before or at the time the derailment occurred. The enginemen died as a result of injuries incurred in the accident.

Examination of the fill after the accident occurred disclosed that a section 27 feet in depth, 22 feet in width at the bottom, and 30 feet in width at the top had been washed away. The material of the fill had been washed away from the east side of the culvert throughout the length of the culvert. After the accident occurred a considerable amount of water continued to flow through the culvert and through the gap in the fill immediately east of the culvert.

The fill was last inspected about 15 hours before the accident occurred. At that time there was no indication of any defective condition of the fill, and water was flowing freely through the culvert. Members of the section force said that water from the drainage area north of the highway had been flowing under the highway and through the culvert under the track for several days prior to the day of the accident. Four or five days before the accident occurred water had washed away a portion of the material around and between the culverts under the highway and formed an opening through the highway fill. The surface of the highway was not disturbed. The opening had become larger after it was first formed, and on the day of the accident it measured approximately 16 feet in width and 6 feet in height. There had been a considerable flow of water through the culverts under the highway and through the opening around the culverts after the opening was formed. Members of the section force inspected the fill on which the accident occurred about 7 a. m., April 7, and again about 4:40 p. m. the same day. The water level was about 1 foot below the level of the top of the culvert during each inspection. The shoulders of the fill bore no indication of any unusual condition. These employees said that it was not unusual for the water level to rise 2 or 3 feet above the level of the top of the culvert during the time that snow was melting and during periods of heavy rains. They thought that the water level during the afternoon of April 7 was not a cause for concern. The section foreman said that he had experienced no difficulty in maintaining the cross level and alinement of the track over the culvert and he had no knowledge of any previous failure of the fill on which this accident occurred.

Inspection after the accident occurred disclosed that the water level had risen above the level of the top of the culvert at some time prior to the accident, but it was not definitely determined when this occurred. Apparently there was sufficient seepage along the outside of the culvert to saturate the material of the fill throughout the length of the culvert, and after water began to flow outside the culvert, the upper portion of the fill was undetermined by the action of the water.

Cause

It is found that this accident was caused by a washout.

Dated at Washington, D. C., this twenty-third day of May, 1952.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.