

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3476
GREAT NORTHERN RAILWAY COMPANY
IN RE ACCIDENT
NEAR SUMMIT, MONT., ON
AUGUST 2, 1952

SUMMARY

Date: August 2, 1952

Railroad: Great Northern

Location: Summit, Mont.

Kind of accident: Head-end collision

Trains involved: Freight : Passenger

Train numbers: Extra 414D West : 4

Engine numbers: Diesel-electric units 414D and 414C : Diesel-electric units 361C, 361B and 361A

Consists: 36 cars, cabooses : 14 cars

Speeds: Undetermined : Undetermined

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

Track: Single; 8°12' curve; 0.30 percent ascending grade westward

Weather: Cloudy

Time: 5 p. m.

Casualties: 14 injured

Cause: Train occupying main track on time of opposing superior train without protection

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3476

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

GREAT NORTHERN RAILWAY COMPANY

September 11, 1952

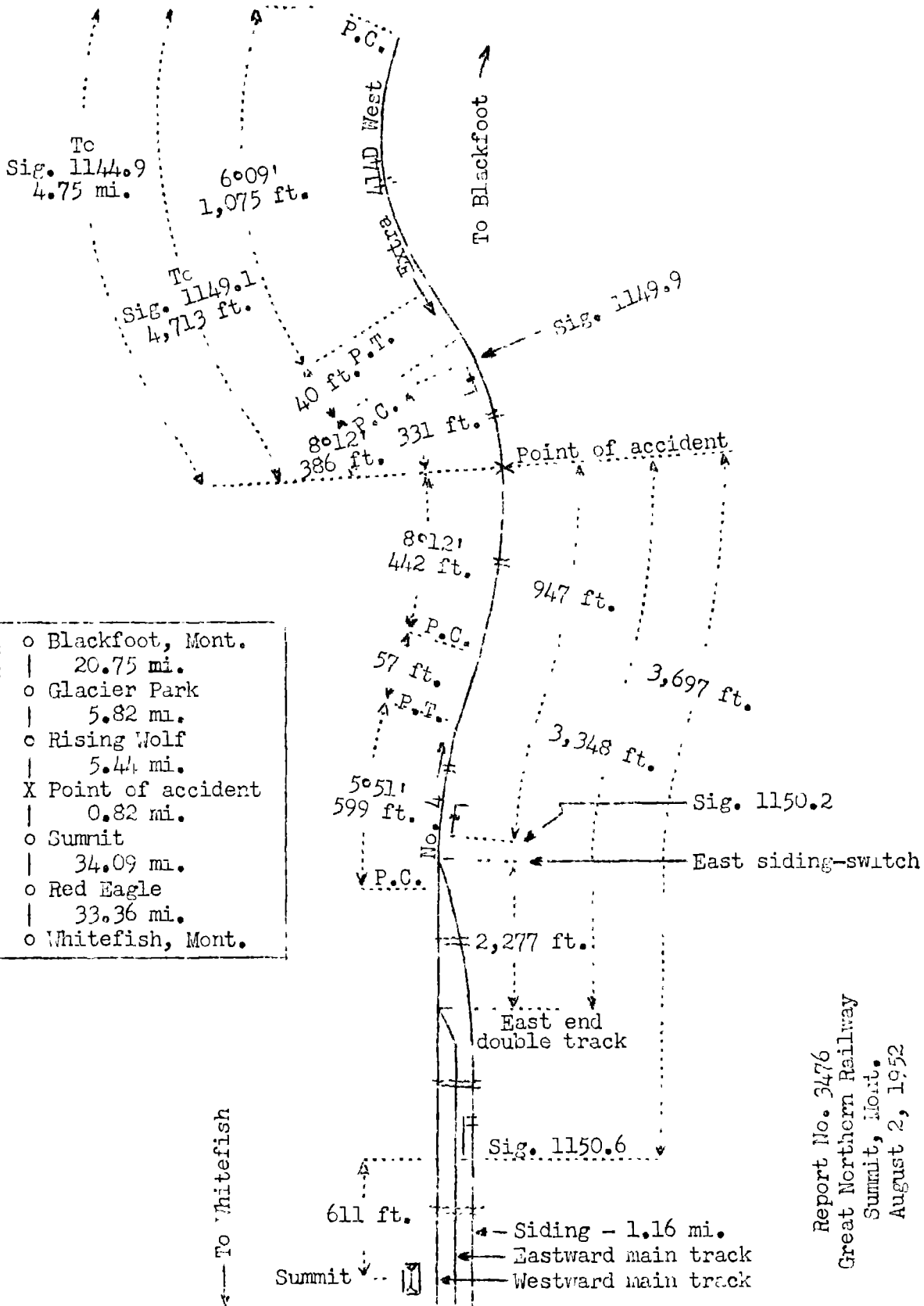
Accident near Summit, Mont., on August 2, 1952, caused by
a train occupying the main track on the time of an
opposing superior train without protection.

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REPORT OF THE COMMISSION

PATTERSON, Commissioner:

On August 2, 1952, there was a head-end collision
between a freight train and a passenger train on the Great
Northern Railway near Summit, Mont., which resulted in the
injury of 12 passengers, 1 dining-car employee, and 1
train-service employee.

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



- | | |
|---|-------------------|
| o | Blackfoot, Mont. |
| | 20.75 mi. |
| o | Glacier Park |
| | 5.82 mi. |
| o | Rising Wolf |
| | 5.44 mi. |
| X | Point of accident |
| | 0.82 mi. |
| o | Summit |
| | 34.09 mi. |
| o | Red Eagle |
| | 33.36 mi. |
| o | Whitefish, Mont. |

Report No. 3476
 Great Northern Railway
 Summit, Mont.
 August 2, 1952

Location of Accident and Method of Operation

This accident occurred on that part of the Kalispell Division extending between Blackfoot and Whitefish, Mont., 100.28 miles. Between Blackfoot and Summit, 32.83 miles west of Blackfoot, this is a single-track line. Between Summit and Red Eagle, 34.09 miles west of Summit, it is a double-track line. Trains in both directions on the single track and trains moving with the current of traffic on the double track are operated by timetable, train orders and an automatic block-signal system. At Rising Wolf, 6.26 miles east of Summit, a siding 1.21 miles in length parallels the main track on the north. At Summit a siding 1.16 miles in length, designated as the eastward siding, parallels the main tracks on the south. The east siding-switch is 2,277 feet east of the end of double track. The accident occurred on the single track at a point 3,348 feet east of the end of double track at Summit. From the east there are, in succession, a 6°09' curve to the left 1,075 feet in length, a tangent 40 feet, and an 8°12' curve to the right 386 feet to the point of accident and 442 feet westward. From the west there are, in succession, a 5°51' curve to the right 599 feet in length, a tangent 57 feet, and the curve on which the accident occurred. The grade is 0.80 percent ascending westward at the point of accident.

Immediately west of the point of accident the track is laid in a hillside cut. The north wall of the cut, which rises to a height of about 25 feet on a slope of about 1 to 1, restricts the range of vision between opposing movements to a distance of about 360 feet.

Automatic signal 1144.9, governing west-bound movements, is located 4.75 miles east of the point of accident. Automatic signals 1149.1 and 1149.9, the fourth and fifth signals west of signal 1144.9, are located, respectively, 4,713 feet and 331 feet east of the point of accident. Semi-automatic signal 1150.6, governing east-bound movements from the eastward main track to the single track at Summit, and automatic signal 1150.2, governing east-bound movements on the single track, are located, respectively, 3,697 feet and 947 feet west of the point of accident. Signal 1150.6 is of the two-arm upper-quadrant semaphore type, and the other signals are of the one-arm upper-quadrant semaphore type. Each signal displays three aspects. Aspects applicable to this investigation and the corresponding indications and names are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
1144.9) 1149.1)	Vertical	Proceed on main route. * * *	Clear signal.
1149.9) 1150.2)	Horizontal over number plate	Stop, then proceed at restricted speed. * * *	Stop and proceed signal.
1150.6	Horizontal over horizontal	Stop. * * *	Stop signal.

The controlling circuits of the automatic block-signal system east of the end of double track are arranged to permit following movements between stations and to provide station-to-station protection for opposing movements. Blocks for following movements extend between consecutive signals which govern movements in the same direction. Blocks for opposing movements extend between stations. When a west-bound train enters the block at signal 1144.9, located immediately west of the west siding-switch at Rising Wolf, while that signal displays an aspect to proceed, all opposing signals to and including signal 1150.6 are caused to display their most restrictive aspects regardless of the position of the lever controlling signal 1150.6. If an east-bound train passes signal 1150.6 after a west-bound train has passed signal 1144.9, all signals between the two trains are caused to display their most restrictive aspects.

Interlocking limits at Summit extend between signal 1150.6 and a point 1,398 feet east of that signal. The switch at the end of double track is power operated. The control machine of the interlocking is located in the station, 611 feet west of signal 1150.6. Visual and audible indicators are provided which indicate track occupancy of the eastward approach circuit, track occupancy of the block extending between signal 1144.9 and signal 1150.6, and whether controlled signals display aspects to proceed.

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

73. Extra trains are inferior to regular trains.

S-87. An inferior train must keep out of the way of opposing superior trains and failing to clear the main track by the time required by rule must be protected as prescribed by Rule 99.

Extra trains must clear the time of opposing regular trains not less than five minutes * * *

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 * * *

* * *

The front of the train must be protected in the same way when necessary by the forward brakeman, fireman, or other competent employe.

* * *

509 (B). When a train is stopped by a Stop and proceed indication, it may proceed:

On any track signaled for traffic in both directions, at restricted speed through the entire block. Where the Stop and proceed signal is located at the leaving end of a siding, the Stop-indication may be due to an opposing train proceeding in the same **block** on an Approach-signal indication and every precaution consistent with train rights and the track ahead should be taken before proceeding, to insure safe movement through the block.

* * *

663. When a train or engine is stopped by an interlocking Stop-indication, it may proceed at restricted speed after receiving a hand signal from the signalman * * *

663 (E). Unless otherwise provided, in automatic block signal territory, when a train or engine has moved through the interlocking limits * * * on hand signals * * * it must proceed as provided by Rule 509 (B) * * *

Timetable special instructions read in part as follows:

Where Automatic Block and Interlocking Rules and Signal Indications require movements at RESTRICTED SPEED, such movements must be made prepared to stop short of train, obstruction, or switch not properly lined and on the lookout for broken rail or anything that may require the speed of a train to be reduced, but not exceeding 15 MPH or as much slower as necessary and where conditions require the movement must be controlled so stop can be made in time to avoid accident.

In the vicinity of the point of accident the maximum authorized speeds are 40 miles per hour for passenger trains and 35 miles per hour for freight trains.

Description of Accident

Extra 414D West, a west-bound freight train, consisted of Diesel-electric units 414D and 414C, coupled in multiple-unit control, 36 cars and a caboose. This train departed from Glacier Park, 12.03 miles east of Summit and the last open office, at 4:10 p. m. and passed Rising Wolf, the last station east of Summit at which it could clear the main track to meet No. 4, about 4:38 p. m., the time that No. 4 was due to leave Summit. It passed signal 1144.9 and the next four signals, each of which indicated Proceed, and stopped at signal 1149.9, which indicated Stop and Proceed. It immediately proceeded westward. At a point 331 feet west of signal 1149.9 and 5,348 feet east of the end of double track at Summit this train either struck No. 4 before it could be stopped or was struck by No. 4 immediately after it stopped.

No. 4, an east-bound first-class passenger train, consisted of Diesel-electric units 361C, 361B, and 361A, coupled in multiple-unit control, one mail-baggage car, one baggage car, five coaches, one lounge car, one dining car, four sleeping cars, and one observation-sleeping car, in the order named. The third car was of conventional all-steel construction, and the other cars were of lightweight steel construction. All cars except the second and the third were equipped with tightlock couplers. This train departed from Whitefish at 2:52 p. m., 12 minutes late, and stopped at Summit at 4:53 p. m. After the enginemen received permission from the operator to pass signal 1150.6, which indicated Stop, the train departed at 4:54 p. m., 16 minutes late. It stopped at signal 1150.2, which indicated Stop and Proceed, and immediately proceeded eastward. It either struck Extra 414D West before it could be stopped or was struck by Extra 414D West immediately after it stopped.

Two rails in the south side of the track were canted outward by the force of the impact, and the front truck of the first car of No. 4 was derailed. There was no damage to the equipment of either train except a broken coupler on the locomotive of Extra 414D West and small slid flat spots on the wheels of the rear four cars of No. 4.

The train baggageman of No. 4 was injured.

The weather was cloudy at the time of the accident, which occurred about 5 p. m.

Discussion

No. 4 was due to leave Summit at 4:38 p. m. and to leave Rising Wolf at 4:48 p. m. Under the rules, unless Extra 414D West was protected as prescribed by rule No. 99 it was required to enter the interlocking limits at Summit not later than 4:33 p. m., if it proceeded to that station to meet No. 4. If it remained at Rising Wolf to meet No. 4 it was required to clear the main track not later than 4:48 p. m. All members of the crew so understood.

On the day of the accident the crew of Extra 414D West reported for duty at Blackfoot at 10 a. m. Because the train included a number of cars on which the journals had previously been overheated, two members of the car department were assigned to accompany the train and assist the crew if any journals should again become overheated. After leaving Blackfoot the train entered sidings at two stations east of Glacier Park and also at Glacier Park to meet or to be passed by other trains. At each of these stations the crew found that journals on several cars were becoming overheated and required attention. After the train departed from Glacier Park the enginemen and the front brakeman were in the control compartment at the front of the locomotive, and the conductor, the flagman, and the members of the car department were in the caboose. The crew had received no train order that affected the movement of their train with respect to No. 4. Because of the condition of the cars the speed of the train was restricted to about 15 miles per hour, and the crew was maintaining a careful lookout for indications of overheated journals. Each signal east of signal 1149.9 indicated Proceed. Signal 1149.9 indicated Stop and Proceed, and the train was stopped at that signal. The engineer said it was unusual to pass signal 1149.1 while that signal indicated Proceed and then find that signal 1149.9 indicated Stop and Proceed, but he assumed that signal department

employees or maintenance-of-way employees at Summit may have operated a switch after his train passed signal 1149.1. The train proceeded immediately after it stopped, and it had attained a speed of about 5 miles per hour when the employees on the locomotive observed the approach of No. 4. The engineer immediately made an emergency application of the brakes. The employees on the locomotive thought that their train stopped and was struck by No. 4, but their attention was concentrated on the opposing train and they were not certain that their train was not in motion when the collision occurred. Each member of the crew said that until the collision occurred he had overlooked the schedule of No. 4. These employees could not account for their oversight unless it was due to the fact that they were concerned about the condition of the cars and were devoting their attention to the running gear of the train.

When No. 4 arrived at Summit it was stopped west of signal 1150.6, which indicated Stop. The operator informed the enginemen that the signal was out of order that there was no west-bound train between Rising Wolf and Summit, and that No. 4 should proceed. The train proceeded from signal 1150.6 to signal 1150.2, stopped at the latter signal, which indicated Stop and Proceed, and then proceeded eastward. After the train departed from Summit the enginemen and a train master 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 throughout the cars of the train. The enginemen said that the engineer made an emergency application of the brakes immediately after Extra 414D West became visible to them. They thought that their train stopped and was struck by Extra 414D West, but their attention was concentrated on the opposing train and they were not certain that their train was not in motion when the collision occurred. According to the tape of the speed recording device, the train was moving at a speed of 21 miles per hour when the brakes were applied. The engineer said that after the train departed from Summit he was maintaining a lookout for defective track and was not watching the speed indicating device. As the train entered the curve on which the accident occurred, he noticed that the speed was in excess of 15 miles per hour and he initiated a light service application of the brakes. Immediately afterward he observed the opposing train and made an emergency application of the brakes.

The operator at Summit said that according to the indicators in her office No. 4 entered the approach circuit at 4:36 p. m. and Extra 414D West passed Rising Wolf at 4:38 p. m. When she informed the train dispatcher that these trains were approaching, the dispatcher told her that he did not think there was a west-bound train between Rising Wolf and Summit. Because the indicator had indicated track occupancy between Rising Wolf and Summit on several previous occasions when the block was unoccupied, the operator assumed that the same condition prevailed on this occasion. After another employee inspected the switches of the interlocking to see that they were properly lined for the movement of No. 4, the operator told the enginemen of No. 4 that signal 1150.6 was out of order, that there was no train in the block, and that No. 4 should proceed.

The conversation between the operator and the dispatcher took place about 4:40 p. m. No. 4 was due to leave Summit at 4:38 p. m., and at 4:40 p. m. Extra 414D West could not, under the rules, occupy the main track west of the east siding-switch at Rising Wolf without flag protection. For this reason the dispatcher concluded that Extra 414D West would not proceed beyond Rising Wolf to meet No. 4, and he informed the operator that there should be no west-bound train between Rising Wolf and Summit. He then called the signal maintainer and notified him that apparently the signal system in the vicinity of Summit was not functioning properly.

The signal system between Rising Wolf and Summit was tested several days after the accident occurred. It was found that the voltage at the controlling relay of one of the signals was lower than normal. This condition might, under certain circumstances, cause signal 1150.6 and several signals east of that signal to display their most restrictive aspects while the blocks of the signals were unoccupied. In this event the indicator in the station at Summit would indicate that the block between Summit and Rising Wolf was occupied. No other condition was found that would cause an improper operation of the signal system.

Although this accident was caused primarily by the failure of Extra 414D West to clear the schedule time of No. 4, the information which the enginemen of No. 4 received from the operator at Summit undoubtedly was a contributing factor. The trains collided within a block in which each train was

required to move at restricted speed. The rules require that extra precautions be taken before a train enters a block which may be occupied by an opposing train, but in the instant case the enginemen of No. 4 had been informed that the block was not occupied by an opposing train.

Cause

It is found that this accident was caused by a train occupying the main track on the time of an opposing superior train without protection.

Dated at Washington, D. C., this eleventh day of September, 1952.

By the Commission, Commissioner Patterson.

(SEAL)

GEORGE W. LAIRD,
Acting Secretary.