

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3458
GREAT NORTHERN RAILWAY COMPANY
IN RE ACCIDENT
AT FORT BELKNAP, MONT., ON
APRIL 4, 1952

SUMMARY

Date: April 4, 1952

Railroad: Great Northern

Location: Fort Belknap, Mont.

Kind of accident: Head-end collision

Trains involved: Passenger : Passenger

Train numbers: 28 : 27

Engine numbers: Diesel-electric : Diesel-electric
units 350A, 350B units 360A,
and 350C 360B and 360C

Consists: 14 cars : 18 cars

Estimated speeds: 1 m. p. h. in : 60 m. p. h.
backward motion

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

Track: Single; tangent; 0.30 percent
descending grade eastward

Weather: Clear

Time: 2:51 a. m.

Casualties: 2 killed; 22 injured

Cause: Train occupying main track
immediately in front of
opposing train

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3458

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

GREAT NORTHERN RAILWAY COMPANY

May 15, 1952

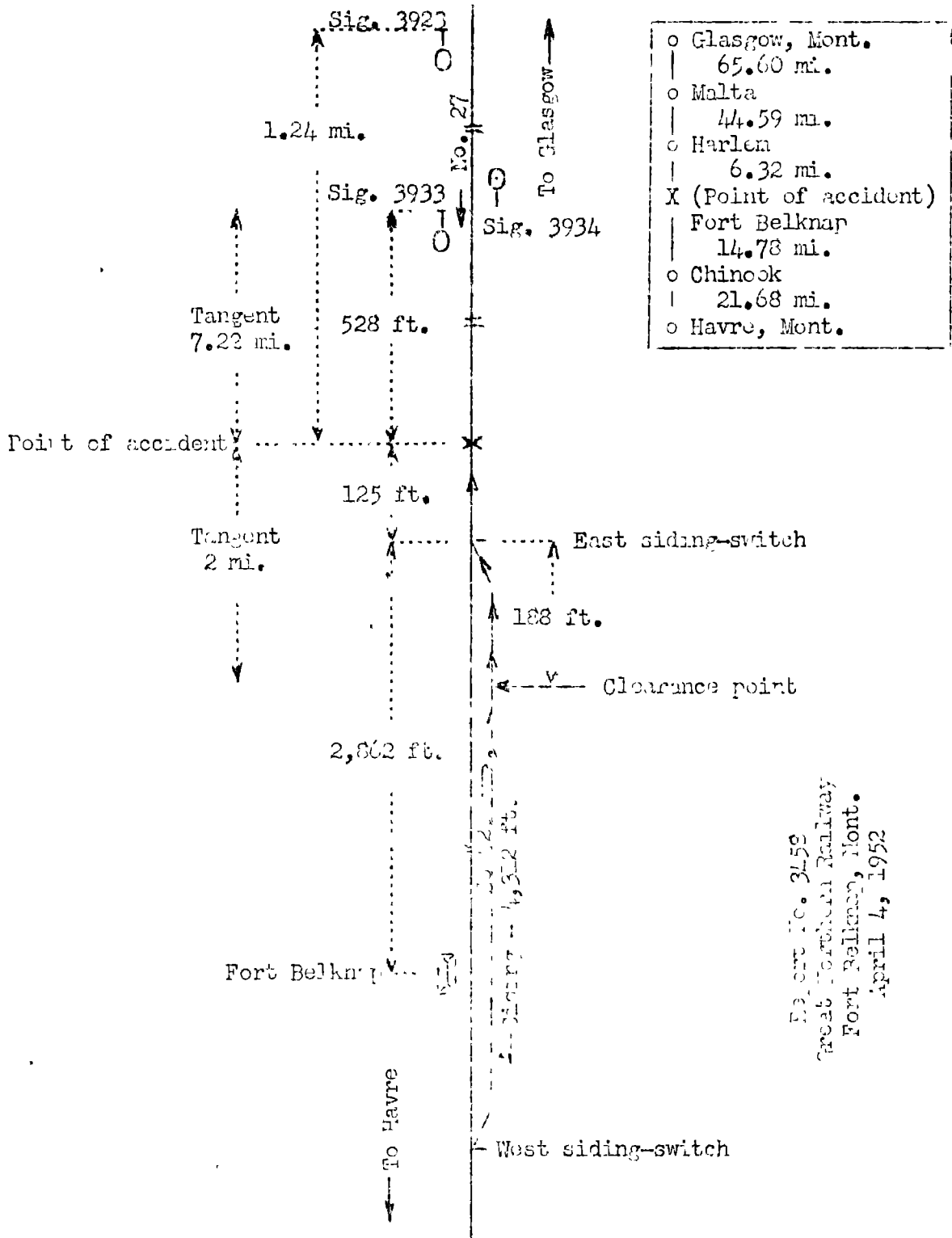
Accident at Fort Belknap, Mont., on April 4, 1952, caused
by a train occupying the main track immediately in
front of an opposing train.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On April 4, 1952, there was a head-end collision between two passenger trains on the Great Northern Railway at Fort Belknap, Mont., which resulted in the death of 2 train-service employees, and the injury of 3 passengers, 6 railway-mail clerks, 8 dining-car employees and 5 train-service employees. This accident was investigated in conjunction with a representative of the Montana Board of Railroad Commissioners and Public Service Commission.

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.



Location of Accident and Method of Operation

This accident occurred on that part of the Butte Division extending between Havre and Glasgow, Mont., 152.97 miles. In the vicinity of the point of accident this is a single-track line, over which trains are operated by time-table, train orders and an automatic block-signal system. At Fort Belknap, 36.46 miles east of Havre, a siding 4,812 feet in length parallels the main track on the south. The east switch of this siding is 2,662 feet east of the station. The accident occurred on the main track at a point about 125 feet east of the east siding-switch. The track is tangent throughout a distance of about 2 miles west of the point of accident and 7.22 miles eastward. From the west siding-switch, on the main track and on the siding, the grade for east-bound trains is, successively, 0.20 percent ascending a distance of 567 feet, level 300 feet, 0.20 percent descending 1,000 feet, 0.30 percent descending 2,445 feet to the east siding-switch, and 0.30 percent descending 125 feet to the point of accident and 430 feet eastward. The grade for west-bound trains throughout a considerable distance immediately east of the point of accident varies between 0.20 percent descending and 0.30 percent ascending.

Automatic signals 3923 and 3933, governing west-bound movements, are located, respectively, 1.24 miles and 528 feet east of the point of accident. These signals are of the color-light type and are approach lighted. Each signal displays three aspects. The 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>
3923	Green	Proceed on main route.	Clear signal.
3933	Green	Proceed on main route.	Clear signal.
	Red over number plate	Stop, then proceed at restricted speed.	Stop and proceed signal.

The controlling circuits of these signals are arranged on the absolute-permissive block principle. When the block of signal 3933 is occupied, or any portion of the siding between the clearance point and the east siding-switch is occupied, signal 3923 indicates Approach and signal 3933 indicates Stop and Proceed. The approach-lighting circuit of signal 3933 extends 3,000 feet east of the signal.

The switch stand of the east siding-switch at Fort Belknap is located on the south side of the main track. A switch lamp is not provided.

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

DEFINITIONS.

* * *

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

17. The headlight must be displayed to the front of trains by night * * *. It must be extinguished when a train turns out to meet another train and has stopped clear of the main track * * *

104. * * *

* * *

A train or engine must not foul a main track until switches connected with a movement are properly lined * * *

* * *

105. Unless otherwise provided, trains using a siding must proceed at restricted speed.

* * *

FORMS OF TRAIN ORDERS.

S-A.

Fixing Meeting Points for Opposing Trains.

(1) No 1 meet No 2 at B.

* * *

Trains receiving these orders will run with respect to each other to the designated points and there meet in the manner prescribed by the rules.

Timetable special instructions read in part as follows:

27. OSCILLATING EMERGENCY RED HEADLIGHT will be immediately displayed by day or night when a train is * * * over-running clearance point at meeting * * * points * * *

* * *

The maximum authorized speed for passenger trains was 75 miles per hour.

Description of Accident

No. 28, an east-bound first-class passenger train, consisted of Diesel-electric units 350A, 350B and 350C, coupled in multiple-unit control, three mail cars, two express cars, one mail-express car, one coach, one baggage-express car, one mail car, three express cars, one baggage-express car and one business car, in the order named. The first to the third cars, inclusive, the fifth to the seventh cars, inclusive, and the ninth and the fourteenth cars were of conventional all-steel construction, and the other cars were of steel underframe construction. At Chinook, the last open office, 14.78 miles west of Fort Belknap, the crew received copies of train order No. 9 reading as follows.

Order No. 70 of April 3rd
is annulled
No. 27 Eng 360-A meet
No. 28 Eng 350-A at
Fort Belknap
No. 28 take siding

This train departed from Chinook at 2:27 a. m., 1 hour late, entered the siding at Fort Belknap at the west switch and stopped about 2:44 a. m., with the rear end of the train east of the clearance point at the west end of the siding. After the flagman had restored the west siding-switch to normal position the train moved eastward; it passed the clearance point at the east end of the siding, trailed through the east siding-switch and stopped on the main track about 2:50 a. m., with the front end of the locomotive about 135 feet east of the east siding-switch. A reverse movement was then started, but the train had moved westward only about 8 feet when the front end was struck by No. 27.

No. 27, a west-bound first-class passenger train, consisted of Diesel-electric units 360A, 360B and 360C, coupled in multiple-unit control, three mail cars, one express car, one mail car, one coach, five mail cars, one express car, one dormitory car, two dining cars, one mail car and two express cars, in the order named. The second, fourth, fifth, sixth, eighth, ninth and the eleventh to the seventeenth cars, inclusive, were of conventional all-steel construction, and the other cars were of steel underframe construction. At Malta, 50.91 miles east of Fort Belknap, the crew received copies of train order No. 9. This train passed Malta at 2 a. m., 20 minutes late, passed Harlem, the last open office, 6.32 miles east of Fort Belknap, at 2:46 a. m., 18 minutes late, passed signal 3923, which indicated Proceed, passed signal 3933, which indicated Stop and Proceed, and while moving at an estimated speed of 60 miles per hour it struck the front end of No. 28.

The first two Diesel-electric units of No. 28 were derailed to the south and the train was moved westward about 8 feet by the force of the impact. No other equipment of this train was derailed. A separation occurred between the sixth and the seventh cars. The first two Diesel-electric units were badly damaged and the third unit was somewhat damaged. Some of the cars of this train were slightly damaged. The first Diesel-electric unit of No. 27 was derailed to the south and the trailing units were derailed to the north. The first Diesel-electric unit stopped on its left side, in reverse position and south of the track. The second and third Diesel-electric units stopped side by side, at an angle of about 60 degrees to the track and partly on the roadbed. The first three cars were derailed to the north. The fourth car stopped at right angles to and across the track. The fifth car was derailed to the south and stopped about in line with the track. The ninth and tenth cars and the front truck of the eleventh car were derailed. The ninth car was telescoped by the tenth car. The first two Diesel-electric units were badly damaged and the third unit was considerably damaged. The first, second and ninth cars were destroyed. The fourth, eighth, eleventh and thirteenth cars were somewhat damaged and the fifth, sixth, fourteenth and fifteenth cars were slightly damaged.

The engineer and the fireman of No. 27 were killed. The engineer and the fireman of No. 28, and the conductor, the front brakeman and the flagman of No. 27 were injured.

The weather was clear at the time of the accident, which occurred about 2:51 a. m.

Diesel-electric unit 350A was provided with 24-RL brake equipment. An emergency valve was located in the control compartment on the fireman's side. This unit was equipped with an oscillating red headlight controlled by a switch in the control compartment.

Discussion

The crews of both trains held copies of train order No. 9, which established Fort Belknap as the meeting point between No. 27 and No. 28. The order included the instruction that No. 28 take siding. Under the rules, No. 28 was required to enter the siding at the west siding-switch and remain clear of the main track until No. 27 arrived.

No. 28 entered the siding at Fort Belknap at the west siding-switch and stopped near the west end of the siding when the rear end was clear of the main track. The engineer and the fireman were in their respective positions in the operating compartment at the front of the locomotive. A traveling engineer was occupying the center seat in the operating compartment. The conductor and the front brakeman were in the seventh car and the flagman was in a baggage car immediately ahead of the rear car of the train. The headlight was lighted brightly. The brakes of this train had been tested and had functioned properly when used en route. After the flagman had restored the west siding-switch to normal position, he boarded the train and gave a proceed signal. The train then moved eastward on the siding. The engineer said that, soon after the eastward movement on the siding began, the traveling engineer extinguished the headlight and he was unable to distinguish landmarks in the vicinity of the tracks. The headlight of No. 27 was visible and the engineer opened his window to obtain better visibility. He thought the speed of his train through the siding was about 15 miles per hour. The traveling engineer called a warning when the locomotive entered the turnout and the engineer immediately applied the brakes. The engineer said that No. 27 was about a half mile distant when his train stopped on the main track and it did not occur to him to display the oscillating red signal light. He released the brakes and, assisted by the traveling engineer, started a reverse movement of the train. The traveling engineer said that he had dimmed the headlight and then extinguished it while No. 28 was moving eastward on the siding so that No. 27 would not be delayed. He had observed the headlight of No. 27 approaching and was concerned that its speed might be reduced unnecessarily. He said that he called a warning as No. 28 approached the clearance point of the siding and

then attempted to shove the brake-valve handle to emergency position. The traveling engineer turned on the headlight and, when the train stopped, placed the reverse lever in position for backward movement. The fireman said that he was unaware that the train was near the clearance point at the east end of the siding until the traveling engineer called a warning. He said that he alighted from the locomotive to line the switch for a reverse movement into the siding but the train was moving backward before he reached the siding-switch. The employees on the locomotive alighted a few seconds before the collision occurred. The conductor of No. 28 said that when his train stopped he alighted on the north side from the rear of the seventh car. He immediately observed that the locomotive of his train was occupying the main track and that No. 27 was closely approaching. He said that about 1 minute after his train stopped a reverse movement was started and it had been moved westward about 8 feet when the collision occurred.

As No. 27 was approaching the point where the accident occurred the speed was 73 miles per hour as indicated by the tape of the speed-recording device. The engineer and the fireman were on the locomotive. The conductor and the front brakeman were in the sixth car and the flagman was in the baggage car at the rear of the train. The headlight was lighted brightly. The brakes of this train had been tested and had functioned properly when used en route. After the train had passed the west siding-switch at Harlem the conductor sounded the meeting-point signal on the communicating signal system and heard the response sounded on the horn of the locomotive. When the train was about 1 mile east of Fort Belknap the conductor proceeded to the vestibule to identify No. 28 at the meeting point. He said that when his train was about 3/4-mile east of the siding he felt a momentary reduction in the speed and when he looked ahead he observed that the headlight of No. 28 was lighted brightly. He thought that No. 28 then was on the siding. A few seconds later the brakes of No. 27 were applied in emergency. The front brakeman said he observed that the headlight of No. 28 was lighted while that train was on the siding. Apparently No. 27 had entered the approach-lighting circuit of signal 3933, which indicated Proceed, before the headlight of No. 28 was displayed. Examination of the tape of the speed-recording device of the locomotive of No. 27 indicates that the brakes were applied in emergency about 1,975 feet east of the point of accident and the speed was reduced to about 60 miles per hour when the collision occurred.

After the accident occurred signals 3923 and 3933 were found to be displaying the proper aspects. Examination of the signals disclosed no defective condition of the signal system.

The engineer of No. 28 had been assigned to passenger service in the territory in which the accident occurred for 32 days. Previously he had been assigned to passenger service in another territory for a period of 6 years. He had not operated a passenger train through the siding at Fort Belknap previous to the instant case. After the headlight was extinguished during the movement on the siding he was unable to see the track ahead clearly but he took no action to stop the train until the traveling engineer called a warning. The traveling engineer, who was familiar with the physical characteristics of the siding, extinguished the headlight while the train was moving and there was no conversation between those in the control compartment while the train was moving on the siding.

Cause

It is found that this accident was caused by a train occupying the main track immediately in front of an opposing train.

Dated at Washington, D. C., this fifteenth day of May, 1952.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.