INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 2670

THE NORTHERN PACIFIC RAILWAY COMPANY

REPORT IN RE ACCIDENT

NEAR GOLD CREEK, MONT., ON

JANUARY 30, 1943

SUMMARY

Railroad:	Northern Pacific	
Date:	January 30, 1943	
Location:	Gold Creek, Mont.	
Kind of accident:	Rear-end collision	
Trains involved:	Freight	: Freight
Train numbers:	Extra 5125 West	: Extra 5123 West
Engine numbers:	5125	: 5123
Consist:	92 cars, caboose	: 86 cars, caboose
Estimated speed:	Standing	: 8-10 m. p. h.
Operation:	Timetable, train orders and automatic block-signal system	
Track:	Double; tangent; 0.41 percent descending grade westward	
Weather:	Clear	
Time:	About 2:32 a. m.	
Casualties:	1 killed; 1 injured	
Cause:	Accident caused by failure properly to control the speed of following train in accordance witn automatic block-signal indications and flagman's signals	

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2670

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

THE NORTHERN PACIFIC RAILWAY COMPANY

April 7, 1943.

Accident near Gold Creek, Mont., on January 30, 1943, caused by failure properly to control the speed of following train in accordance with automatic block-signal indications and flagman's signals.

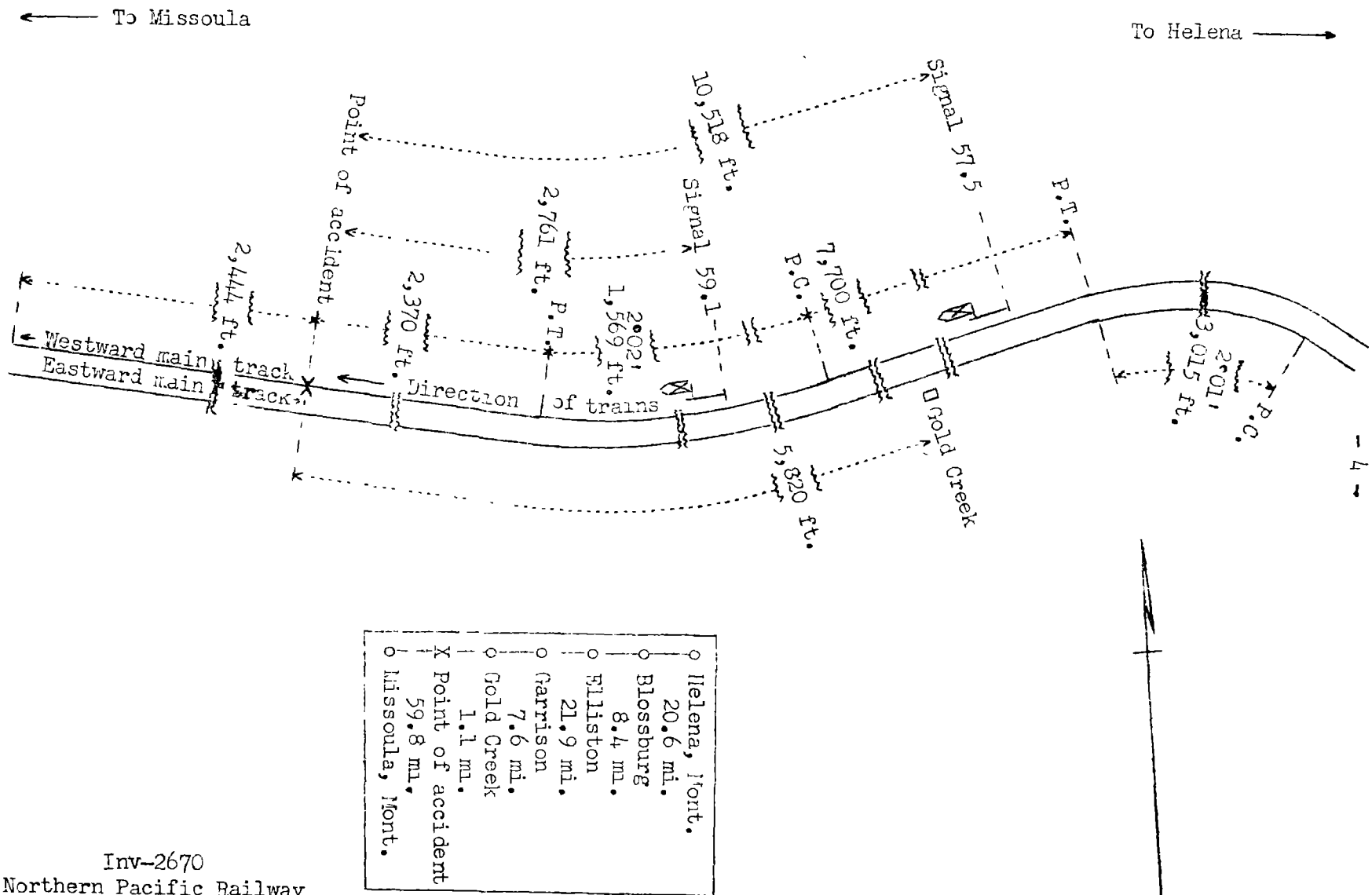
REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On January 30, 1943, there was a rear-end collision between two freight trains on the Northern Pacific Railway near Gold Creek, Mont., which resulted in the death of one train-service employee off duty and the injury of a road-master. 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.



Inv-2670
Northern Pacific Railway
Gold Creek, Mont.
January 30, 1943

Location of Accident and Method of Operation

This accident occurred on that part of the Rocky Mountain Division designated as the Third Sub-division and extending between Helena and Missoula, Mont., a distance of 119.4 miles. In the vicinity of the point of accident this is a double-track line over which trains are operated by timetable, train orders and an automatic block-signal system. The accident occurred on the westward main track at a point 1.1 miles west of the station at Gold Creek. Approaching from the east there are, in succession, a 2°01' curve to the left 3,015 feet in length, a tangent 7,700 feet, a 2°02' curve to the right 1,569 feet and a tangent 2,370 feet to the point of accident and 2,444 feet beyond. The grade for west-bound trains varies between 0.325 and 0.41 percent descending throughout a distance of 2.05 miles immediately east of the point of accident, and is 0.41 percent descending at that point.

Automatic signals 57.5 and 59.1, which govern west-bound movements on the westward main track, are located, respectively, 10,518 and 2,761 feet east of the point of accident. These signals are of the one-arm, three-position, upper-quadrant, semaphore type, and are continuously lighted. The involved aspects and corresponding indications and names of these signals are as follows:

Aspect	Indication	Name
45 degrees, yellow.	Approach next signal prepared to stop. Block is clear; second block in advance is not clear.	Approach signal.
Horizontal, red.	Stop, then proceed at restricted speed.	Stop and proceed signal.

DEFINITIONS.

* * *

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

* * *

Operating rules read in part as follows:

35. The following signals will be used by flagmen:

* * *

Night signals--A red light,
Torpedoes and Fusees.

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, placing two torpedoes, and when necessary, in addition, displaying lighted fusees. * * *.

* * *

1060. A terminal test of air brakes on all trains * * * must be made by * * * trainmen before departing from terminals. A similar test is required on all cars added to train between terminals.

1069. Freight conductors must know by the caboose gauge that the air is cut into the caboose and train is being controlled safely, * * *.

* * *

In the vicinity of the point of accident the maximum authorized speed for freight trains hauled by the class of engines involved is 45 miles per hour.

Description of Accident

Extra 5125 West, a west-bound freight train, departed from Helena, 58.5 miles east of Gold Creek, at 3:45 p. m., January 29, according to the dispatcher's record of movement of trains. At Elliston, 20.5 miles east of Gold Creek, cars were added to the train and the brakes were tested. This train, consisting of engine 5125, 92 loaded cars and a caboose, departed from Elliston at 7:52 p. m., departed from Garrison, 7.6 miles east of Gold Creek and the last open office, at 1:50 a. m., January 30, and, because of an undesired emergency air-brake application, stopped about 2:27 a. m., according to the statement of the engineer, with the rear end standing 2,761 feet west of signal 59.1. About 5 minutes later the rear end was struck by Extra 5123 West.

After a terminal air-brake test was made, Extra 5123 West, a west-bound freight train, departed from Helena at 8:35 p. m., January 29, according to the dispatcher's record of movement of trains. At Elliston cars were added to the train and the

brakes were tested. This train, consisting of engine 5123, 84 loaded and 2 empty cars and a caboose, departed from Elliston at 1:22 a. m., January 30, passed Garrison at 2:13 a. m., passed signal 57.5, which displayed approach, passed signal 59.1, which displayed stop-and-proceed, and while moving at a speed estimated as 8 to 10 miles per hour it collided with the rear end of Extra 5125 West. The brakes had functioned properly at all points where used east of Gold Creek. A caboose standing at the point where the accident occurred can be seen from the right side of a west-bound engine a distance of about 2,900 feet.

The caboose of Extra 5125 West was demolished and the first, third, fourth and fifth cars ahead of the caboose were damaged. The front end of engine 5123 was damaged.

It was clear and a deep snow covered the ground at the time of the accident, which occurred about 2:32 a. m.

Data

The investigation disclosed that a broken branch pipe to the K type triple valve of the fifty-second car of Extra 5125 West caused an undesired emergency application of the brakes. In tests made after the accident, the brake equipment of the engine and all the cars of the following train functioned properly.

After the accident, a braking test was conducted with a train consisting of practically the same number of cars and tonnage as that of Extra 5123. As the test train approached signal 57.5 the speed was 42 miles per hour. At a point 500 feet east of this signal a 10-pound brake-pipe reduction was made and, about 250 feet before the train stopped, a further 5-pound reduction was made. The train stopped in a distance of 5,020 feet, or 2,237 feet east of signal 59.1 and 4,998 feet east of the point of accident.

Discussion

The rules governing operation on the line involved provide that 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. Under the rules governing operation in automatic block-signal territory an approach indication requires a train to be stopped short of the next signal. A stop-and-proceed indication requires a train to stop short of that signal, then it may proceed but must be prepared to stop short of a preceding train or obstruction. All employees involved understood these requirements.

Extra 5125 West was moving at a speed of 42 miles per hour, in territory where the maximum authorized speed is 45 miles per hour, when a defective brake-pipe branch pipe caused an undesired emergency application of the brakes, and it stopped abruptly about 2:27 a. m., with the rear end standing at a point 0.52 mile west of signal 59.1. About 5 minutes later the rear end of this train was struck by Extra 5123 West.

As Extra 5123 West was approaching the point where the accident occurred the speed was 42 miles per hour, the headlight was lighted and the members of the crew on the engine were maintaining a lookout ahead. Brake-pipe pressure of 90 pounds was being maintained. When the engine reached a point about 1,000 feet east of signal 57.5 the fireman called its indication as being approach, and about 200 feet farther west the engineer made a 10-pound brake-pipe reduction. The engineer said that the first reduction did not appear to be effective, and at a point about 1,300 feet west of signal 57.5 he made another 10-pound reduction. At a point 3,500 feet farther west, a third 10-pound reduction was made. When the engine was about 2,500 feet east of signal 59.1, the engineer observed that this signal displayed stop-and-proceed, and he made another 10-pound reduction. When the engine was near signal 59.1, he saw a lighted fusee west of the signal and, since the speed was then 25 miles per hour, he became alarmed and placed the brake-valve in emergency position and placed the reverse lever in position for backward motion, but the distance was not sufficient for Extra 5123 to stop short of the preceding train. The speed was about 3 or 10 miles per hour at the time of the collision. The fireman and the front brakeman said that several brake-pipe reductions were made prior to the emergency application made at signal 59.1, but neither one observed the amount of these reductions. The engineer said that proper brake application was not obtained by the series of brake-pipe reductions totaling 40 pounds which he said were made. He thought there was an obstruction in the brake-pipe as the brake-pipe exhaust did not respond until after the second brake-pipe reduction was made. However, the conductor said he was in the cupola of the caboose and first observed that the brakes were applied when the caboose was opposite a point 4,846 feet east of signal 59.1. Since the length of Extra 5123 was about 3,500 feet, the engine would be about 1,300 feet east of signal 59.1 when the conductor felt a heavy service application. The brakes of this train had been tested and had functioned properly at six points between Elliston, where 27 cars had been added to the train, and the point of accident. Several minutes after the accident, the engineer placed the brake valve in running position and, as the conductor proceeded to the front of his train, he observed

that all brakes released properly. After the accident, tests disclosed that the air-brake equipment of this train functioned properly. A braking test made after the accident disclosed that a train of practically the same equipment and tonnage as Extra 5125 could be stopped from a speed of 42 miles per hour in a distance of 5,020 feet, or 2,237 feet short of signal 59.1, by a 10-pound brake-pipe reduction made at a point 500 feet east of signal 57.5 and followed by a 5-pound reduction 250 feet before the train stopped. If Extra 5123 had been operated in accordance with the approach indication displayed by signal 57.5, this accident would have been prevented.

When Extra 5125 stopped, the flagman was required to proceed to the rear a sufficient distance to provide adequate protection. Just prior to the time that Extra 5125 stopped west of signal 59.1, the flagman was in the cupola of the caboose. Because of the undesired emergency application of the brakes and the train stopping abruptly, the flagman was unable to drop off a lighted fusee before his train stopped. Immediately afterward, he started back to provide flag protection. It was zero and a deep snow covered the ground. From the time Extra 5125 stopped until the collision occurred about 5 minutes elapsed. The flagman said that he observed Extra 5123 approaching. He gave stop signals with a lighted fusee, proceeded eastward and had reached a point about 1,200 feet to the rear of his train when Extra 5123 passed him. During the same interval, the conductor was able to proceed forward about the same distance to ascertain the cause of the stop.

In 1933, the Association of American Railroads adopted revised specifications for power brakes for freight equipment, and subsequently established a 10-year program, beginning January 1, 1935, in which member carriers are required to provide their freight equipment in interchange service with the improved brakes, designated as the AB type. On January 1, 1943, 80 percent of the 10-year period had elapsed, but the progress of installing AB brakes on freight cars is only 37.24 percent complete. Of the 86 cars in Extra 5123, only 34 were equipped with AB brakes. Had a majority been equipped with AB valves, an emergency application of the brakes could have been obtained regardless of previous service brake-pipe reductions and, no doubt, Extra 5123 could have been stopped short of the preceding train and the accident would have been averted. This carrier has not kept pace with the program of equipping cars in service with AB brakes within the 10-year period, and has equipped only 39.3 percent of its cars with AB brakes. Progress in installing AB brake equipment should be greatly accelerated.

Cause

It is found that this accident was caused by failure properly to control the speed of a following train in accordance with automatic block-signal indications and flagman's signals.

Dated at Washington, D. C., this seventh day of April, 1943.

By the Commission, Commissioner Patterson.

W. P. BARTEL,

(SEAL)

Secretary.