

INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 2534

THE NORTHERN PACIFIC RAILWAY COMPANY

REPORT IN RE ACCIDENT

AT SENTINEL BUTTE, N. DAK., ON

OCTOBER 3, 1941

SUMMARY

Railroad: Northern Pacific
Date: October 3, 1941
Location: Sentinel Butte, N. Dak.
Kind of accident: Rear-end collision
Trains involved: Freight : Freight
Train numbers: Extra 5005 East : 800
Engine numbers: 5005 : 1910
Consist: 70 cars, caboose : 15 cars, caboose
Speed: Standing : 10-12 m.p.h.
Operation: Timetable, train orders and automatic
block-signal system
Track: Single; 3° left curve; 0.821 percent
descending grade eastward
Weather: Cloudy
Time: 11:45 a.m.
Casualties: 2 killed; 1 injured
Cause: Accident caused by failure to provide
adequate flag protection for preceding
train and by failure properly to con-
trol speed of following train in ac-
cordance with automatic block-signal
indication,

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 2534

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

THE NORTHERN PACIFIC RAILWAY COMPANY

December 1, 1941

Accident at Sentinel Butte, N. Dak., on October 3, 1941,
caused by failure to provide adequate flag protection
for preceding train and by failure to control speed
of following train in accordance with automatic block-
signal indication.

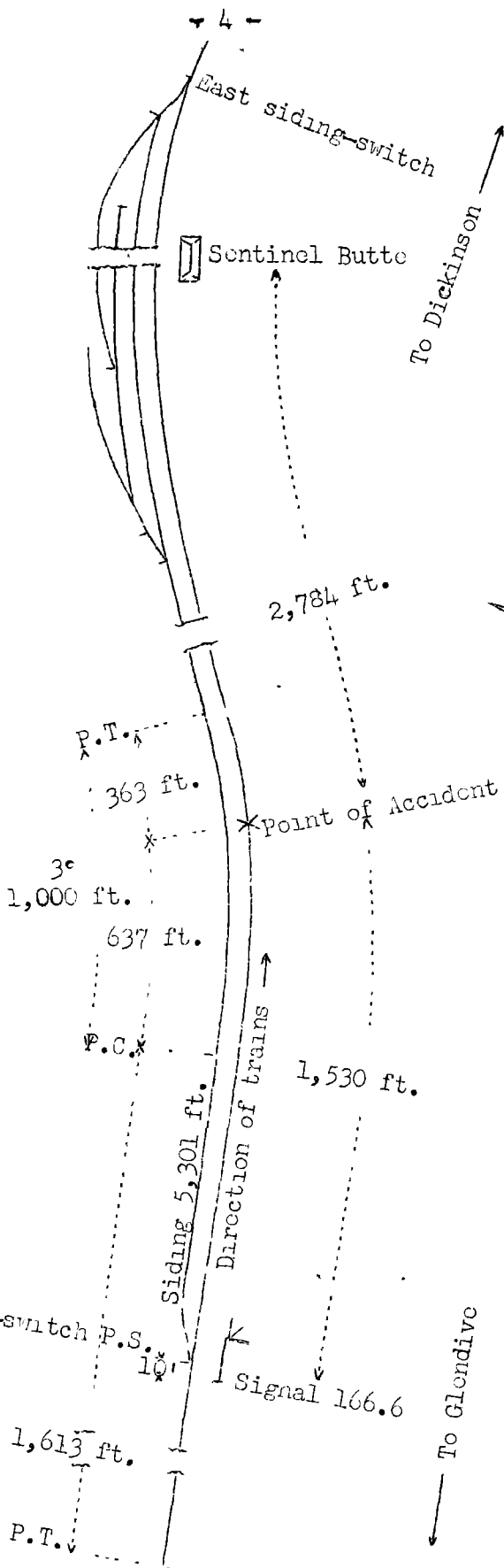
REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On October 3, 1941, there was a rear-end collision be-
tween two freight trains on the Northern Pacific Railway at
Sentinel Butte, N. Dak., which resulted in the death of two
live-stock attendants and the injury of one live-stock
attendant.

¹Under authority of section 17(2) of the Interstate Commerce
Act the above-entitled proceeding was referred by the Commis-
sion to Commissioner Patterson for consideration and dis-
position.

- | | | |
|---|------------------------------|----------|
| ○ | Dickinson, N. Dak. | 56.2 mi. |
| X | Sentinel Butte
(P. of A.) | 3.9 mi. |
| ○ | Chama | 4.5 mi. |
| ○ | Beach, N. Dak. | 41.5 mi. |
| ○ | Glendive, Mont. | |



Inv-2534
 Northern Pacific Railway
 Sentinel Butte, N. Dak.
 October 3, 1941

Location of Accident and Method of Operation

This accident occurred on that part of the Yellowstone Division designated as the Second Sub-Division, which extends between Glendive, Mont., and Dickinson, N. Dak., a distance of 106.1 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable, train orders and an automatic block-signal system. At Sentinel Butte a siding 5,301 feet in length parallels the main track on the north. The west switch of this siding is 4,304 feet west of the station. The accident occurred on the main track at a point 1,520 feet east of the west siding-switch. As the point of accident is approached from the west there are, in succession, a tangent 1,613 feet long and a 30° curve to the left 637 feet to the point of accident and 363 feet beyond. The grade for east-bound trains varies between 0.702 and 1.023 percent descending a distance of about 4,800 feet, and is 0.821 percent at the point of accident. The west end of a cut about 500 feet long is located 384 feet west of the point where the accident occurred. The north slope of this cut rises about 8 feet above the level of the track.

Automatic signal 166.6, governing east-bound movements, is mounted on a mast to the right of the track at a point 10 feet west of the west siding-switch and 1,530 feet west of the point where the accident occurred. This signal is of the 1-arm, 3-position, upper-quadrant, semaphore type and is approach lighted. The involved aspect and the corresponding indication and name are as follows:

<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
Horizontal	Stop, then proceed at restricted speed.	Stop and proceed signal.

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

- (a) On any track signaled for traffic in both directions, at restricted speed through the entire block, * * * .

Definition

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:

Day signals--A red flag,
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. * * *

* * *

GENERAL REGULATIONS.

701. Employees must be alert and devote themselves exclusively to the company's service, attend to their duties during the hours prescribed, * * * They must not absent themselves from duty, exchange duties with, or substitute others in their place, * * * without proper authority.

* * *

Description of Accident

No. 800, an east-bound third-class freight train, consisted at the time of the accident of engine 1910, 12 loaded and 3 empty cars and a caboose. This train departed from Beach, 8.4 miles west of Sentinel Butte and the last open office, at 10:46 a.m., according to the dispatcher's record of movement of trains, 1 hour 31 minutes late, and stopped in the siding at Sentinel Butte at 11:25 a.m. to clear for Second 603, a west-bound second-class train. At Sentinel Butte the conductor received oral instructions from the operator to arrange for Second 603 to occupy the siding and for No. 800 to follow Extra 5005 East from Sentinel Butte.

Extra 5005 East, an east-bound freight train, consisted of engine 5005, 69 loaded cars, 1 empty car and a caboose. Train orders had been issued specifying that Extra 5005 had right over Second 603 and that Extra 5005 would wait at Sentinel Butte until 11:50 a.m. for Second 603. Extra 5005 departed from Beach at 11:17 a.m. and stopped on the main track at Sentinel Butte at 11:39 a.m., with the caboose standing at a point 1,530 feet east of signal 166.6. About 6 minutes later the rear end of this train was struck by No. 800.

Immediately after Extra 5005 passed the west siding-switch at Sentinel Butte, No. 800 backed out of the siding to the main track and stopped with the engine standing at a point a few feet west of signal 166.6. No. 800 then proceeded eastward, passed signal 166.6, which displayed stop-and-proceed, and while moving at an estimated speed of 10 or 12 miles per hour collided with the rear end of Extra 5005.

The fireman, who was the only member of the crew of No. 800 on the engine, was operating the engine at the time the accident occurred. There was no condition of the engine that distracted the attention of the fireman or obscured his vision. The brakes functioned properly at all points where used en route.

The caboose of Extra 5005 was demolished and the trucks were forced under the rear end of the rear car. The second car ahead of the caboose was not derailed or damaged. The front end of the body of the third car from the rear was forced off its truck. The fourth car from the rear was derailed to the right and stopped, slightly damaged, upright and at an angle of about 45 degrees to the track. The fifth car from the rear was derailed to the right and stopped, badly damaged, on its right side and in line with the track. Engine 1910 stopped upright with its front end against the rear of the rear car of Extra 5005. The engine truck and the driving wheels were derailed to the left. The pilot, the engine-truck frame and the smokebox were broken.

The weather was cloudy at the time of the accident, which occurred about 11:45 a.m.

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, and place two torpedoes. In automatic block-signal territory when a train is stopped by a stop-and-proceed indication it may proceed prepared to stop short of train, obstruction, or anything that may require the speed of a train to be reduced. An employee must not absent himself from duty or substitute another in his place without proper authority. All the employees involved understood these requirements.

No. 800, an east-bound third-class train, stopped in the siding at Sentinel Butte at 11:25 a.m. to clear for Second 603, a west-bound second-class train. Train orders

had been issued to Second 603 and Extra 5005 East specifying that Extra 5005 East had right over Second 603 and that Extra 5005 would wait at Sentinel Butte until 11:50 a.m. for Second 603. The operator at Sentinel Butte informed the conductor of No. 800 that Second 603 was to occupy the siding and that the train dispatcher had issued oral instructions specifying that No. 800 was to occupy an industry track, which was connected to the siding. Because there were cars on the industry track, the conductor of No. 800 arranged for his train to back out of the siding and to occupy the main track behind Extra 5005. Extra 5005 stopped on the main track at 11:39 a.m., with its rear end standing 1,520 feet east of the west siding-switch, then No. 800 immediately backed out of the siding, proceeded eastward on the main track and struck the rear end of Extra 5005.

Under the rules, Extra 5005 was required to provide flag protection when it stopped at Sentinel Butte. The flagman of Extra 5005 stated that when his train stopped at Sentinel Butte, he immediately proceeded to the rear and had reached a point about 450 feet west of his caboose when he observed No. 800 approaching about 500 feet distant. He gave stop signals with a red flag but the signals were not acknowledged and No. 800, moving at a speed of about 12 miles per hour, passed him. The rules required that he place torpedoes on the rail but he did not place torpedoes because he thought it was not necessary.

Soon after No. 800 stopped in the siding, the engineer of that train instructed the fireman to take charge of the engine and to operate it, if necessary, to perform switching movements. The engineer then went to the post office, 300 or 400 feet distant. The conductor, who was at the rear of the train, signaled for a back-up movement. The fireman, who was the only member of the crew on the engine, received the signal and operated the engine but did not know the nature of the movement to be made. After Extra 5005 had passed the west siding-switch, No. 800 moved from the siding to the main track and then proceeded eastward. The fireman stated that he saw the stop-and-proceed indication of signal 166.6 but thought Extra 5005 was east of the station. He could not see the track ahead from the right side of the engine because of track curvature and he did not cross to the left side of the engine to observe conditions ahead. His train was moving at a speed of about 10 miles per hour and he thought it was being operated in accordance with the rules; however, the indication displayed by the automatic signal required his train to move prepared to stop short of train or obstruction. He first saw the caboose of the preceding train when his engine was about one car length from it. He immediately moved the brake valve to emergency position but the collision occurred before the brakes became

applied. He did not see the flagman of Extra 5005 at any time prior to the accident.

After the accident, a visual test disclosed that the upper portion of a caboose standing at the point of accident could be seen from the right side of an east-bound engine between points 1,530 feet and 600 feet west of it, then the view was obscured throughout a distance of 450 feet, and for the remaining 150 feet about one-third of the rear of the caboose could be seen. The upper portion of the caboose could be seen from the left side of the engine between points 1,530 feet and 1,050 feet west of it, then the entire rear of the caboose could be seen the remainder of the distance. A flagman standing on the track at a point 500 feet west of the point of accident was visible from the right side of the cab of an east-bound engine throughout a distance of 1,000 feet. A flagman standing on the track at a point 350 feet west of the point of accident was visible from the right side of the engine between points 1,530 feet and 600 feet, then the view was obscured the remainder of the distance.

During the interval of 6 minutes which elapsed between the time Extra 5005 stopped and the time the accident occurred, the flagman of Extra 5005 had reached a point about 450 feet to the rear. If he had proceeded to a point 700 feet to the rear of his train he would have been on tangent track west of the curve involved and would have been visible from either side of the cab of an approaching engine a distance of at least 800 feet. If the flagman had placed torpedoes a sufficient distance to the rear of his train, it is probable this accident would have been averted. If No. 800 had been operated in accordance with the restrictive indication displayed by the automatic signal, this accident would have been averted. If a member of the crew of No. 800 had been observing conditions ahead from the left side of the engine cab, it is probable the caboose of Extra 5005 would have been seen in time to prevent the accident.

Cause

It is found that this accident was caused by failure to provide adequate flag protection for the preceding train and by failure properly to control the speed of the following train in accordance with an automatic block-signal indication.

Dated at Washington, D.C., this first day of
December, 1941.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.