

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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REPORT NO. 3474  
NORTHERN PACIFIC RAILWAY COMPANY  
IN RE ACCIDENT  
NEAR KETRON, WASH., ON  
JULY 8, 1952

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SUMMARY

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Date: July 8, 1952

Railroad: Northern Pacific

Location: Ketron, Wash.

Kind of accident: Rear-end collision

Trains involved: Freight : Freight

Train numbers: Extra 6507 West : Extra G.N. 307 West

Engine numbers: Diesel-electric units 6507C, 6507B and 6507A : G.N. Diesel-electric units 307A, 307B and 307C

Consists: 74 cars, caboose : 23 cars, caboose

Estimated speeds: 10 m. p. h. : 28 m. p. h.

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

Tracks: Double; 2°30' curve; 0.20 percent descending grade westward

Weather: Clear

Time: 11:35 p. m.

Casualties: 1 killed; 2 injured

Cause: Failure to operate following train in accordance with signal indications

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3474

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

NORTHERN PACIFIC RAILWAY COMPANY

August 14, 1952

Accident near Ketron, Wash., on July 8, 1952, caused by  
failure to operate the following train in accordance  
with signal indications.

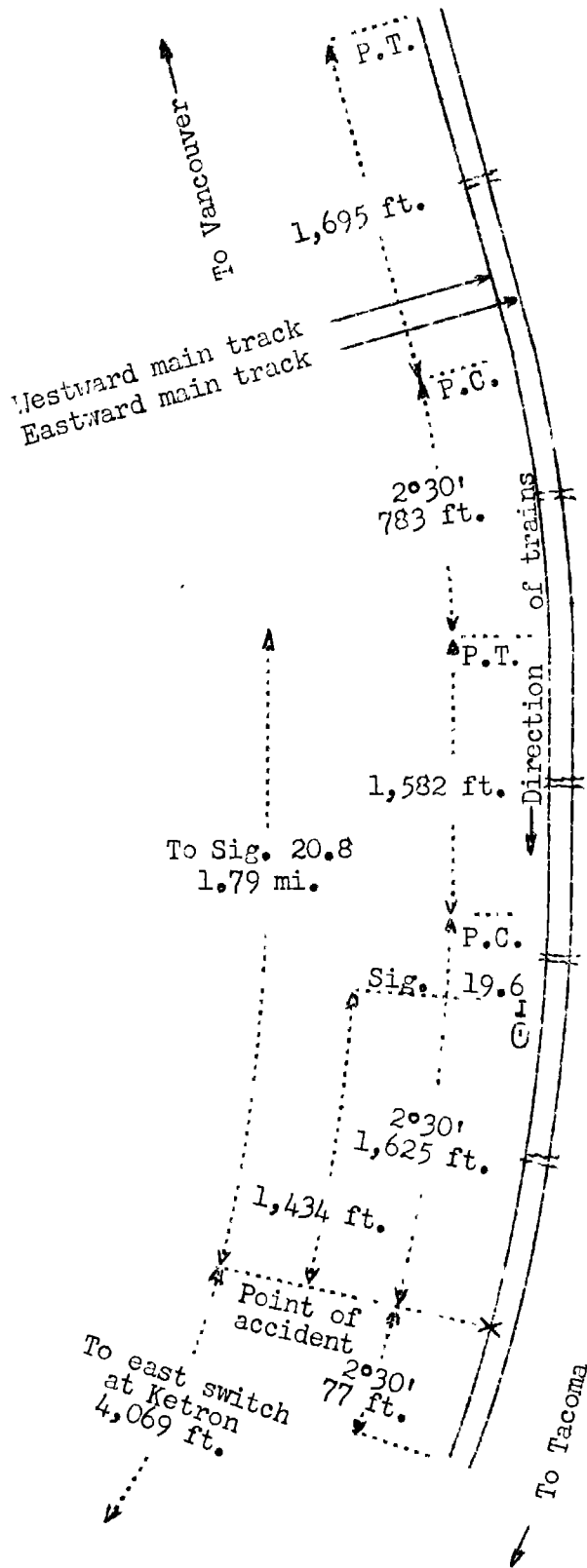
REPORT OF THE COMMISSION<sup>1</sup>

PATTERSON, Commissioner:

On July 8, 1952, there was a rear-end collision between two freight trains on the Northern Pacific Railway near Ketron, Wash., which resulted in the death of one employee, and the injury of two employees. This accident was investigated in conjunction with a representative of the Department of Labor and Industries of the State of Washington.

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<sup>1</sup> 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.



o	Vancouver, Wash.
	111.90 mi.
o	Nisqually
	5.26 mi.
X	Point of accident
	1.44 mi.
o	Ketron
	17.70 mi.
o	Tacoma, Wash.

Report No. 3474  
 Northern Pacific Railway  
 Ketron, Wash.  
 July 8, 1952

Location of Accident and Method of Operation

This accident occurred on that part of the Tacoma Division extending between Vancouver and Tacoma, Wash., 136.5 miles, a double-track line, over which trains moving with the current of traffic are operated by timetable, train orders and an automatic block-signal system. Trains of the Great Northern Railway regularly are operated over this portion of the Northern Pacific Railway. The accident occurred on the westward main track at a point 117.2 miles west of Vancouver and 4,069 feet east of the east switch at Ketron. From the east there are, in succession, a tangent 1,695 feet in length, a 2°30' curve to the right 783 feet, a tangent 1,582 feet, and a 2°30' curve to the right 1,625 feet to the point of accident and 77 feet westward. Through out a distance of 1.7 miles immediately east of the point of accident the grade varies between 0.20 percent and 0.30 percent descending westward, and it is 0.20 percent descending westward at that point.

In the vicinity of the point of accident a bluff parallels the main tracks on the north. The toe of the bluff is approximately 15 feet from the center-line of the westward main track. This bluff rises to a height of about 200 feet on a slope of about 1 to 1. It is covered with trees and other vegetation.

Automatic signals 20.8 and 19.6 governing west-bound movements on the westward main track, are located, respectively, 1.79 miles and 1,434 feet east of the point of accident. These signals are of the color-light type and are approach lighted. The approach lighting circuit of each signal extends to the next signal to the rear. 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>
20.8	Yellow over number plate	Proceed prepared to stop at next signal. Train exceeding medium speed must at once reduce to that speed.	Approach signal.
19.6	Red over number plate	Stop, then proceed at restricted speed. * * *	Stop and proceed signal.

The control circuits are so arranged that when the block of signal 20.8 is unoccupied and the block of signal 19.6 is occupied, signal 20.8 indicates Approach and signal 19.6 indicates Stop and Proceed.

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.

Medium Speed.--A speed not exceeding thirty (30) miles per hour.

11. A train finding a fusee burning red on or near its track must stop and extinguish the fusee, and may then proceed prepared to stop short of train or obstruction within the first mile.

15. The explosion of two torpedoes is a signal to proceed at restricted speed for one mile. \* \* \*

34. All members of train and engine crews must, when practicable, communicate to each other by its name, the indication of each signal affecting the movement of their train or engine.

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. When recalled and safety to the train will permit, he may return.

When the conditions require, he will leave the torpedoes and a lighted fusee.

\* \* \*

When a train is moving under circumstances in which it may be overtaken by another train, the flagman must take such action as may be necessary to insure full protection. By night, or by day when the view is obscured, lighted fuseses must be thrown off at proper intervals.

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

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On any track signaled for traffic in one direction, at once at restricted speed through the entire block.

The maximum authorized speed for the trains involved was 50 miles per hour.

#### Description of Accident

Extra 6507 West, a west-bound Northern Pacific freight train, consisted of Diesel-electric units 6507C, 6507B and 6507A, coupled in multiple-unit control, 74 cars and a caboose. This train passed Nisqually, 5.26 miles east of the point of accident and the last open office, at 11:21 p. m. and stopped on the westward main track with the rear end of the train about 1,000 feet west of signal 19.6. As soon as the brakes could be released the train proceeded westward. It had moved a distance of 400 or 500 feet and was moving at a speed of about 10 miles per hour when the rear end was struck by Extra G.N. 307 West.

Extra G.N. 307 West, a west-bound Great Northern freight train, consisted of Diesel-electric units 307A, 307B and 307C, coupled in multiple-unit control, 23 cars and a caboose. This train passed Nisqually at 11:26 p. m., passed signal 20.8, which indicated Approach, passed signal 19.6, which indicated Stop and Proceed, passed a lighted red fusee, and while moving at a speed of about 28 miles per hour it struck the rear end of Extra 6507 West.

The caboose and the rear three cars of Extra 6507 West were derailed. The caboose and the seventy-fourth car were destroyed. The seventy-second and seventy-third cars remained upright and in line with the track. They were not damaged. The locomotive and the first car of Extra G.N. 307 West are derailed. A separation occurred between the first and second

Diesel-electric units. The first unit stopped with the front end against the foot of the bluff and 151 feet west of the point of collision, and the rear end across the eastward main track. The second unit stopped with the front end against the rear end of the first unit, and the rear end 5 feet north of the center-line of the westward main track. The third unit and the first car stopped approximately in line with the track. The first and second Diesel-electric units were considerably damaged. The third unit was somewhat damaged.

The conductor of Extra 6507 West was killed. The engineer and the fireman of Extra G.N. 307 West were injured.

The weather was clear at the time of the accident, which occurred about 11:35 p. m.

The Diesel-electric units of Extra G.N. 307 West were provided with 24-RL and dynamic brake equipment. An emergency brake valve was located on the fireman's side of the control compartment. At the time of the accident the regulating devices were adjusted to maintain main-reservoir pressure of 135 pounds, and the feed valve was adjusted to supply brake-pipe pressure of 90 pounds. All cars of the train were equipped with AB brakes.

#### Discussion

As Extra 6507 West was approaching the point where the accident occurred the enginemen and the front brakeman were in the control compartment at the front end of the first Diesel-electric unit, the swing brakeman was in the control compartment at the rear of the third Diesel-electric unit, and the conductor and the flagman were in the caboose. Signal 19.6 indicated Approach, and the speed of the train was reduced in compliance with the indication. The train was stopped at a lighted red fusee located about 4,370 feet west of the signal. The fusee burned out as the train stopped. The engineer sounded a proceed signal on the pneumatic horn, and as soon as the brakes could be released the train was started forward. The flagman said that when he became aware that the brakes were applied he threw off a lighted red fusee. He thought that the rear of the train stopped about 1,600 feet west of the fusee. When the train stopped, the conductor remained in the cupola of the caboose and the flagman proceeded eastward to provide flag protection. The flagman had reached a point about 20 feet east of the caboose when the engineer sounded a proceed signal. He continued eastward a distance of about 160 feet and placed a torpedo on the track, returned to the rear of the train and placed a second torpedo, then boarded the caboose as the train started forward. After he entered the caboose he observed the reflection of the headlight of



the following train. Several seconds later he saw that the following train had passed signal 19.6 and would overtake his train. He called a warning to the conductor and then alighted from the caboose immediately before the collision occurred.

As Extra G.N. 307 West was approaching the point where the accident occurred the enginemen were maintaining a lookout ahead from the control compartment at the front end of the first Diesel-electric unit, the front brakeman and the swing brakeman were in the control compartment at the rear of the third Diesel-electric unit, and the conductor and the flaman were in the caboose. The headlight was lighted brightly. The brakes of the train had been tested and had functioned properly when used en route. Signal 20.8 indicated Approach, and the indication was called by the enginemen. The engineer made a light service application of the brakes in the vicinity of the signal, then released the brakes before the speed had been materially reduced. At this time the speed was about 54 miles per hour. As the train approached the tangent immediately east of signal 19.6, the engineer initiated a service application of the brakes. He said he was under the impression that the signal was located beyond the next curve to the west and he thought that a service application of the brakes would stop the train short of the signal. When the locomotive entered the tangent and the engineer obtained a view of the signal, which indicated Stop and Proceed, he immediately placed the brake valve in emergency position. After the front of the train passed signal 19.6 he saw the lighted fuses and the caboose of Extra 6507 West ahead, but there was no further action he could take to reduce the speed of the train. The fireman said that until he saw signal 19.6 he thought the speed of the train was being properly controlled. He saw signal 19.6 and called a warning to the engineer at approximately the same time that the engineer applied the brakes in emergency. The other members of the crew did not observe the aspect of either signal. Both enginemen said that the fuse thrown off by the flaman of Extra 6507 West was west of signal 19.6 and that they did not see the fuse until after they saw the signal. The conductor of Extra G.N. 307 West said that the fuse was west of the point at which his caboose stopped.

On the night of July 14, with weather conditions similar to those which prevailed at the time of the accident, tests were made to determine the maximum distance at which signal 19.6 is visible from the locomotive of a west-bound train.

From a locomotive similar to the locomotive of Extra G.N. 307 West, the signal became visible when the locomotive reached a point 2,114 feet east of the signal and 3,548 feet east of the point at which the collision occurred. A caboose standing at the point of accident became visible when the locomotive reached a point 635 feet east of the caboose. According to the tape of the speed recording device, Extra G.N. 307 West maintained a speed of 53 to 55 miles per hour throughout a distance of 2 miles immediately east of the point at which the brakes were applied in emergency. The speed then decreased from 55 miles per hour to 28 miles per hour within a distance of about 3,000 feet. The train was moving at a speed of approximately 28 miles per hour when the collision occurred.

The rules of this carrier provide that when a train passes a signal indicating Approach the speed must be reduced immediately to not exceeding 30 miles per hour and must be so controlled that the train can be stopped before passing the next signal. The enginemen of Extra G.N. 307 West understood these requirements, but effective action to reduce the speed was not taken until the train had moved over 1 mile beyond signal 20.8.

Cause

It is found that this accident was caused by failure to operate the following train in accordance with signal indications.

Dated at Washington, D. C., this fourteenth day of August, 1952.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARIEL,  
Secretary.