

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3497
NORTHERN PACIFIC RAILWAY COMPANY
IN RE ACCIDENT
AT BASSETT JUNCTION, WASH., ON
DECEMBER 27, 1952

SUMMARY

Date: December 27, 1952
Railroad: Northern Pacific
Location: Bassett Junction, Wash.
Kind of accident: Derailment
Train involved: Freight
Train number: Extra 1567 West
Engine number: 1567
Consist: 26 cars, caboose
Estimated speed: 20 m. p. h.
Operation: Timetable and train orders
Track: Single; tangent; 0.40 percent
descending grade westward
Weather: Clear
Time: 4:05 a. m.
Casualties: 3 killed
Cause: Defective switch

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3497

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

NORTHERN PACIFIC RAILWAY COMPANY

February 4, 1953

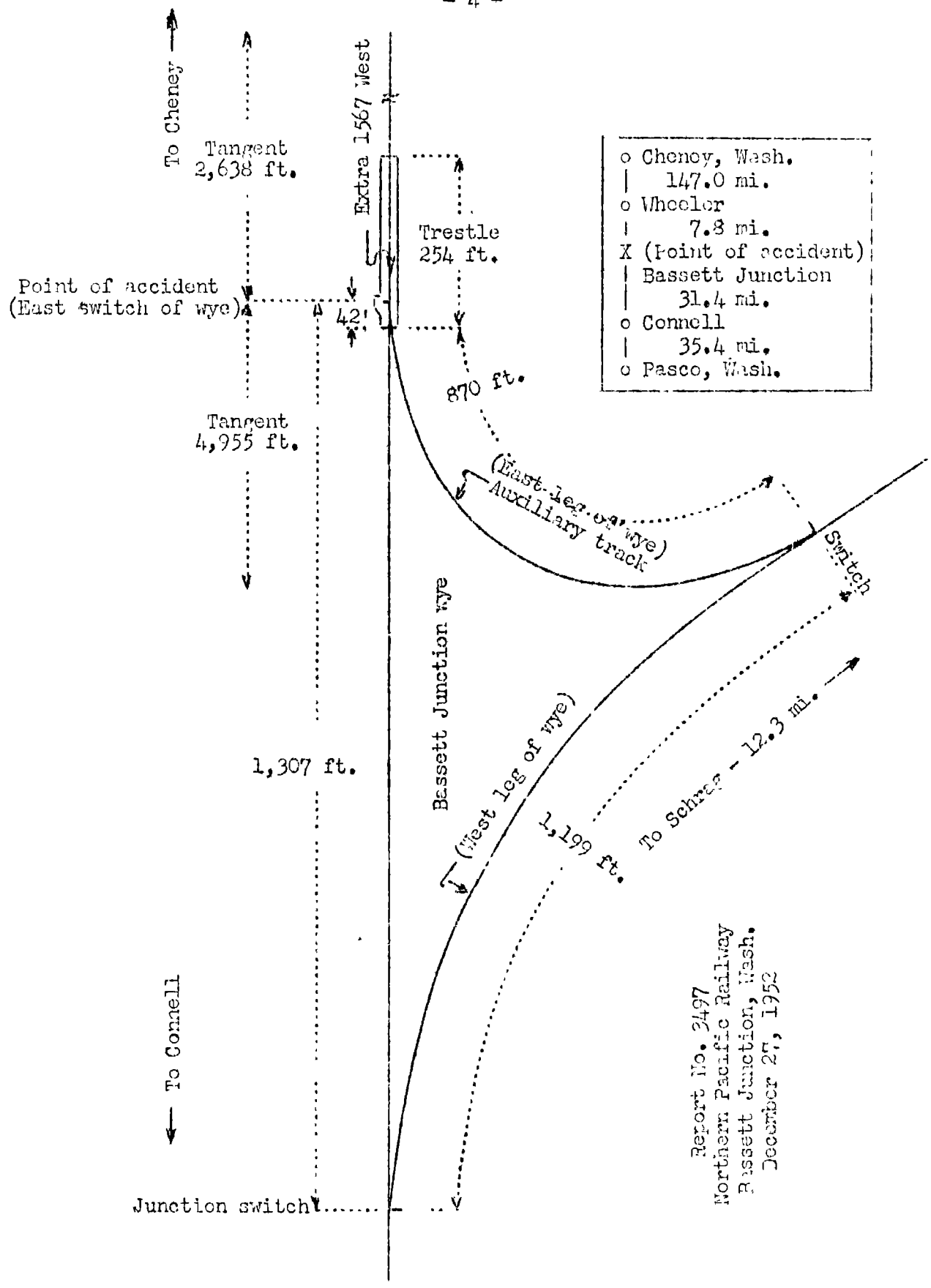
Accident at Bassett Junction, Wash., on December 27, 1952,
caused by a defective switch.

REPORT OF THE COMMISSION¹

PATTERSON, Commissioner:

On December 27, 1952, there was a derailment of a freight train on the Northern Pacific Railway at Bassett Junction, Wash., which resulted in the death of three employees. This accident was investigated in conjunction with a representative of the Department of Labor and Industries of the State of Washington.

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.



- | |
|-----------------------|
| o Cheney, Wash. |
| 147.0 mi. |
| o Wheeler |
| 7.8 mi. |
| X (Point of accident) |
| Bassett Junction |
| 31.4 mi. |
| o Connell |
| 35.4 mi. |
| o Pasco, Wash. |

Report No. 3497
 Northern Pacific Railway
 Bassett Junction, Wash.
 December 27, 1952

Location of Accident and Method of Operation

This accident occurred on that part of the Idaho Division extending between Cheney and Connell, Wash., 186.2 miles, a single-track line, over which trains are operated by timetable and train orders. There is no block system in use. At Bassett Junction, 154.8 miles west of Cheney, a main track diverges to the south from the Cheney-Connell line and extends eastward from Bassett Junction to Schrag, 12.3 miles. The junction switch is trailing-point for west-bound movements. A wye at Bassett Junction is formed by the two main tracks and an auxiliary track 870 feet in length, which extends between a switch in the Cheney-Connell line 1,307 feet east of the junction switch and a switch in the Schrag-Bassett Junction line 1,109 feet east of the junction switch. The accident occurred on the main track of the Cheney-Connell line at the east switch of the wye. From the east there is a tangent 2,638 feet to the point of accident and 4,955 feet westward. The grade is 0.40 percent descending westward at the point of accident.

The east switch of the wye is located 42 feet east of the west end of a pile trestle 254 feet long. Walkways 3 feet in width extend along each side of the trestle. The switch stand is located on a platform, which extends beyond the outer edge of the walkway. Wooden railings 3 feet in height are provided at the outer edges of the walkways and the platform. Immediately west of the trestle the tracks are laid on a fill approximately 50 feet in height.

In the vicinity of the point of accident the track structure of the main track consists of 72-pound rail, 30 feet in length, laid in 1910 on an average of 17 ties to the rail length. It is about 40 percent tieplated and is provided with 4-hole 100-percent joint bars. It is ballasted with sand and cinders to a depth of 3 to 4 inches below the bottoms of the ties. The turnout at the east switch of the wye is constructed of 72-pound switch rails 15 feet in length, 72-pound rails, and a No. 9 rigid clamp-type frog. It is laid on 34 untreated bridge ties and 24 treated switch ties. The turnout is fully tieplated. The main track is single-spiked, and the east leg of the wye is double-spiked. The switch stand is of the hand-throw intermediate-stand type and is located 9 feet 4-1/4 inches north of the center-line of the main track. The operating lever is of the horizontal-throw type. When the switch is lined for entry to the east leg of the wye a circular red target 18 inches in diameter is displayed at right angles to the main track. The center of the target is 5 feet 1-7/8 inches

above the level of the tops of the ties. When the switch is lined for movement on the main track the target is parallel to the track. The switch rails are arranged for a throw of 4-5/4 inches. No switch lamp is provided.

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

104. Conductors are responsible for the position of switches used by them and their trainmen, except where switchtenders are stationed. Switches must be properly lined after having been used.

* * *

When practicable, the engineer must see that the switches near the engine are properly lined.

* * *

104 (A). Unless otherwise provided, the normal position of a main track switch is for main track and must be lined and locked in that position, except when changed for immediate movement through it. * * *

A main track switch must not be left open unless a member of the crew remains near enough to be able to line it upon the approach of a train or engine.

* * *

The maximum authorized speed for freight trains in the vicinity of the point of accident is 20 miles per hour.

Description of Accident

Extra 1567 West, a west-bound freight train, consisted of engine 1567, 26 loaded cars and a caboose. This train departed from Wheeler, 7.8 miles east of Bassett Junction, at 3:40 a. m., according to the conductor's delay report, and while it was moving at an estimated speed of 20 miles per hour the engine and tender, the first seven cars, and the front truck of the eighth car were derailed at the east switch of the wye at Bassett Junction.

The engine stopped on its left side, midway between the main track and the east leg of the wye, with the front end 365 feet west of the switch and about 15 feet below the level of the tracks. The tender remained coupled to the engine. It stopped on its left side, at an angle of about 90 degrees to the engine, with the rear end toward the east leg of the wye.

The cab of the engine was demolished, and both the engine and the tender were considerably damaged. The derailed cars stopped in various positions on or near the track. The first car was badly damaged, and the second to the seventh cars, inclusive, were somewhat damaged.

The engineer, the fireman, and the front brakeman were killed.

The weather was clear at the time of the accident, which occurred at 4:05 a. m.

Engine 1567 is of the 2-8-2 type. The total weight in working order is 269,700 pounds, distributed as follows: engine-truck wheels, 24,300 pounds; driving wheels 208,900 pounds; and trailing-truck wheels, 36,500 pounds. The specified diameters of the engine-truck wheels, the driving wheels, and the trailing-truck wheels are, respectively, 33-1/2 inches, 65 inches, and 45 inches. The driving wheelbase is 16 feet 6 inches long, and the total wheelbase is 34 feet 9 inches long. The distance between the centers of the engine-truck wheels and the No. 1 driving wheels is 9 feet 1 inch. The tender is rectangular in shape and is equipped with two four-wheel trucks. Its capacity is 9,500 gallons of water and 19 tons of coal. The total weight when fully loaded is 194,700 pounds. The tender is equipped with a headlight at the rear. The lens is 17-5/8 inches in diameter. The headlight is provided with a 250-watt bulb.

Discussion

As Extra 1567 West was approaching the point where the accident occurred the speed was about 20 miles per hour. The enginemen and the front brakeman were on the engine. The conductor, the swing brakeman, and the flagman were in the caboose. The headlight was lighted. The surviving members of the train crew said that the brakes of the train were tested at Wheeler and that they apparently functioned properly when used after the train departed from Wheeler. These employees said that as the train approached Bassett Junction the brakes were not applied until they became applied in emergency either immediately before the derailment occurred or as a result of the derailment.

After the derailment occurred it was found that the east switch of the wye at Bassett Junction was lined for entry to the east leg of the wye. The operating lever was properly latched to secure the switch in this position. The padlock was hooked through the keeper, but it was not locked. The condition of the switch indicated that an east-bound train moving on the

main track had trailed through the switch while the switch was lined for entry to the east leg of the wye. When the switch was first examined the rear truck of the eighth car was standing on the switch rails and the switch points were lined for entry to the east leg of the wye. After the car was removed there was a 1/2-inch gap between the stock rail of the main track and the switch point. The opposite switch rail was bent inward at a point 8 feet west of the switch point. The spindle of the switch stand was twisted. The spikes which secure the base of the switch stand to the ties had been loosened and were partially withdrawn, and the switch stand leaned toward the main track. Apparently after the east-bound train trailed through the switch, the switch point did not fit closely against the stock rail of the main track and the flange of a wheel of the engine of Extra 1567 West passed between the switch point and the rail. Marks on the track fastenings indicated that one wheel dropped between the stock rail of the east leg of the wye and the switch rail at a point 13 feet west of the switch point and the companion wheel dropped inside the stock rail of the main track at a point 8 feet 4 inches farther west. The derailed wheels moved in line with the rails of the east leg of the wye until they reached the frog. They were then forced toward the right, and the general derailment occurred 18 feet west of the frog.

When the accident occurred the crew of Extra 1567 West was returning to Pasco, 35.4 miles west of Connell, after having made an east-bound trip from Pasco to Wheeler. On the east-bound trip their train, which was operated as Extra 1567 East, arrived at Bassett Junction about 11:10 p. m., December 26. At that time the train consisted of one car for Schrag, the engine, seven cars for Schrag, five cars for Wheeler, and the caboose, in the order named. The conductor had instructed the other members of the crew to turn the engine and the car ahead of the engine on the wye at Bassett Junction, take the cars for Schrag to their destination, and then return to Bassett Junction with the engine. After the train stopped at Bassett Junction the swing brakeman detached the engine from the cars behind it. The engine, pushing one car, proceeded to the east switch of the wye. The swing brakeman rode on the footboard at the rear of the tender. He thought that the front brakeman rode in the cab of the engine. When the rear of the tender passed the switch, the front brakeman was standing at the switch stand. He lined the switch for movement on the east leg of the wye, and when the movement was started he remained at the switch until after the rear of the tender passed him. The swing brakeman assumed that the front brakeman intended to restore the switch to normal position. When the engine reached the south switch the swing brakeman alighted and lined the switch for movement to the main track of the Schrag-Bassett Junction

line. Before this movement was made he observed the front brakeman walking toward him along the fireman's side of the engine. He said that the movement from the east switch to the south switch was made at a speed which would have permitted the front brakeman to line the east switch to normal position and then board the car being pulled by the engine. It did not occur to him to ask the front brakeman if he had restored the switch to normal position. The engine and car returned to the rear portion of the train via the west leg of the wye. The cars for Schrag were detached from the rear portion of the train, and the engine, in backward motion and pulling the eight cars, proceeded to Schrag. The front brakeman, the swing brakeman, and the flagman accompanied the engine. When the engine returned from Schrag it proceeded directly to the main track of the Cheney-Connell line via the west leg of the wye. It was coupled to the rear portion of the train. The train, with the engine in backward motion, then departed for Wheeler. The swing brakeman said that the headlight on the tender of the engine was lighted before the train departed from Bassett Junction. On the movement from Bassett Junction to Wheeler the enginemen and the front brakeman were on the engine and the other members of the crew were in the caboose. The employees in the caboose did not notice the position of the east switch of the wye. Extra 1567 East was the last train to pass over the switch prior to the time of the accident. It appears that the switch was not restored to normal position after the engine and car were turned on the wye, and that when Extra 1567 East departed from Bassett Junction the employees on the engine failed to observe that the switch was not properly lined.

None of the surviving employees observed the position of the switch involved after the front brakeman lined it for entry to the east leg of the wye. This brakeman entered the service of the carrier as a student brakeman on August 4, 1952. The swing brakeman said he was aware that the front brakeman had had limited experience. However, the front brakeman did not question him concerning his duties in connection with the switching which was to be performed at Bassett Junction, and he assumed that the front brakeman understood the movements which were to be made. For this reason he did not consider it necessary to instruct the front brakeman as to the switches which he was to line or the positions in which the switches were to be left. When the front brakeman remained at the switch after the movement to the east leg of the wye was started, the swing brakeman assumed that he understood that the switch was to be restored to normal position after the engine and car passed over

it and that he was remaining at the switch for that purpose. On the day of the accident the engineer was making his seventh trip as an engineer, and his first trip over the line between Connell and Wheeler as an engineer. He had previously worked in this territory as a fireman, but since September 4, 1948, he had made only one trip in each direction over the line on which the accident occurred.

Cause

It is found that this accident was caused by a defective switch.

Dated at Washington, D. C., this fourth day of February, 1953.

By the Commission, Commissioner Patterson.

(SEAL)

GEORGE W. LAIRD,
Acting Secretary.