

INTERSTATE COMMERCE COMMISSION  
WASHINGTON

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INVESTIGATION NO. 2568  
THE UNION PACIFIC RAILROAD COMPANY  
REPORT IN RE ACCIDENT  
AT FIR, OREG., ON  
FEBRUARY 7, 1942

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SUMMARY

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Railroad: Union Pacific  
Date: February 7, 1942  
Location: Fir, Oreg.  
Kind of accident: Derailment and side collision  
Trains involved: Freight : Freight  
Train numbers: Extra 2521 East : Second 255  
Engine numbers: 2521 : 2209  
Consist: 64 cars, caboose : 59 cars, caboose  
Speed: Standing : 20-30 m p. h.  
Operation: Timetable and train orders  
Track: Single; tangent; 0.2 percent  
ascending grade westward  
Weather: Misty  
Time: 6:10 p. m.  
Casualties: 2 killed; 1 injured  
Cause: Accident caused by broken rail

INTERSTATE COMMERCE COMMISSION

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INVESTIGATION NO. 2568

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

THE UNION PACIFIC RAILROAD COMPANY

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March 18, 1942

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Accident at Fir, Oreg., on February 7, 1942, caused by  
broken rail.

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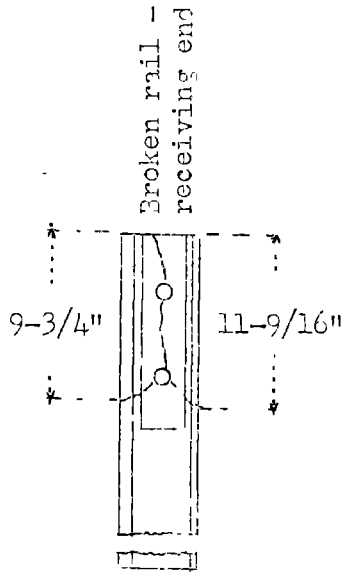
REPORT OF THE COMMISSION<sup>1</sup>

PATTERSON, Commissioner:

On February 7, 1942, there was a derailment of a freight train on the Union Pacific Railroad at Fir, Oreg., and the derailed cars collided with a freight train on a siding. This accident resulted in the death of two employees and the injury of one employee.

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1

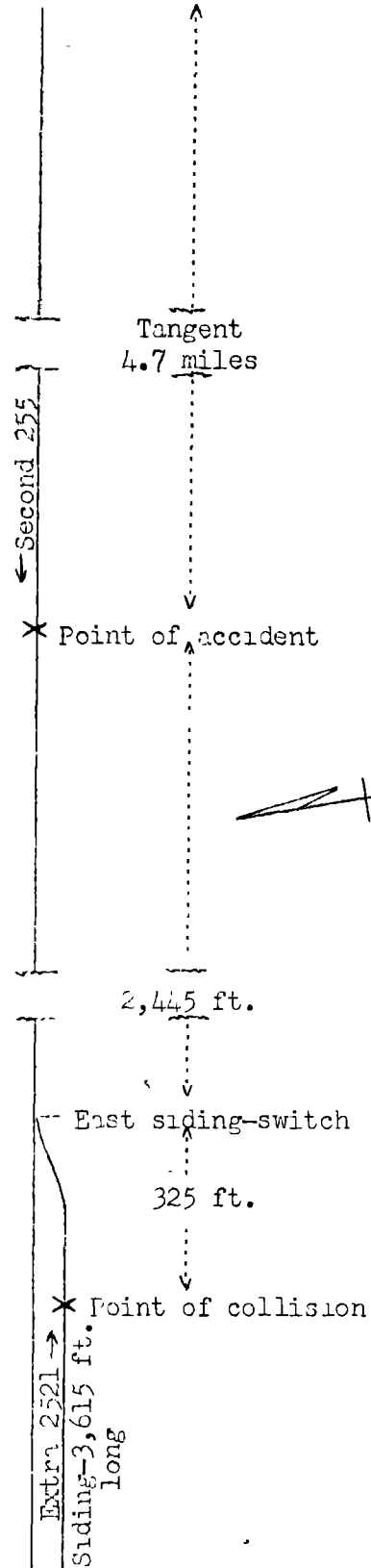
Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.



- o The Dalles, Oreg. 60.5 mi.
- o Troutdale 3.5 mi.
- X Point of accident 1.2 mi.
- o Fair 6.7 mi.
- o Peninsula Jct., Oreg.

→ To The Dalles

← To Peninsula Jct.



Inv-2568  
Union Pacific Railroad  
Fir, Oreg.  
February 7, 1942

### Location of Accident and Method of Operation

This accident occurred on that part of the Fourth Subdivision of the Oregon Division, designated as the freight line, which extends between Troutdale and Peninsula Jct., Oreg., a distance of 16.4 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by timetable and train orders. There is no block system in use. At Fir a siding 3,615 feet in length parallels the main track on the south. The derailment occurred on the main track at a point 2,445 feet east of the east siding-switch, and the collision occurred on the siding at a point 325 feet west of the east siding-switch. As the point of accident is approached from the east the track is tangent a distance of 4.7 miles to the point of accident and some distance beyond. At the point of accident the grade for west-bound trains is 0.2 percent ascending.

The track structure consists of 90-pound rail, 33 feet in length, rolled in January, 1911, and laid during the same year on 18 ties to the rail length; it is fully tieplated, single-spiked, equipped with 27-inch, 4-hole continuous angle bars, and 6 rail anchors to each rail. The track is ballasted with gravel to a depth of 12 inches.

In the vicinity of the point of accident the maximum authorized speed for all trains is 30 miles per hour.

### Description of Accident

Extra 2521 East, an east-bound freight train, consisted of engine 2521, 5 loaded and 59 empty cars and a caboose. This train departed from St. Johns Jct., 8.5 miles west of Fir and the last open office, at 4:25 p. m., according to the dispatcher's record of movement of trains, entered the siding at Fir and cleared the main track about 5:10 p. m., according to the statement of the conductor, and stopped with the engine standing about 325 feet west of the east siding-switch. About 1 hour later engine 2521 was struck by derailed equipment of Second 255.

Second 255, a west-bound second-class freight train, consisted of engine 2209, 44 loaded and 14 empty cars, 1 coach and a caboose. After a terminal air-brake test was made this train departed from The Dalles, 78.2 miles east of Fir, at 3:45 p. m., according to the dispatcher's record of movement of trains, 3 hours 15 minutes late, and passed Troutdale, 9.7 miles east of Fir and the last open office, at 5:50 p. m., 2 hours 20 minutes late. While this train was moving at an estimated speed of 25 to 30 miles per hour the thirtieth car was derailed to the south at a point 2,445 feet east of the east siding-switch at Fir and it continued to a point 325 feet west of the east siding-switch where it collided with Extra 2521 East.

Engine 2209 and the first 29 cars of Second 255 remained coupled and stopped with the engine standing about 2,400 feet west of the east siding-switch. The thirty-first to thirty-ninth cars, inclusive, became derailed at the east siding-switch and stopped in various positions across the main track and the siding. The wreckage was contained within a distance of 250 feet. The thirtieth and thirty-first cars were demolished. Engine 2521 and its tender were overturned to the right by the impact of the derailed cars and were badly damaged.

Throughout a distance of 1,500 feet east of the point where the derailment occurred, there was no indication of dragging equipment or of any obstruction having been on the track. The gage was regular and the greatest variation in crosslevel was 1/4 inch. A rail on the south side of the track was found broken. The fracture occurred through the head and the base at points, respectively, 9-3/4 inches and 11-9/16 inches west of the receiving end of the rail. The first mark of derailment was on the top of a tie inside the north rail at a point 14.7 feet west of the fracture. At a point 16.5 feet west of the fracture, wheel marks appeared on the tops of the ties outside the south rail. These marks indicated that the thirtieth car only was derailed at the broken rail and that it continued in line with the track until it encountered the turnout at the east siding-switch.

It was misting at the time of the accident, which occurred about 6:10 p. m.

The employees killed were the fireman and the swing brakeman of Extra 2521, and the employee injured was the engineer of Extra 2521.

#### Data

The rail involved was a 33-foot, 90-pound ARA rail, manufactured by the Colorado Fuel & Iron Corporation, in January, 1911. The heat number was 471. Tests of the rail involved disclosed it to be of sound metal and free from structural defects.

#### Discussion

Second 255 was moving at a speed of 25 or 30 miles per hour on tangent track in territory where the maximum authorized speed was 30 miles per hour when the thirtieth car became derailed. This car continued on the ties and in line with the track throughout a distance of 2,445 feet until it encountered a turnout to the left, and then the general derailment occurred. Prior to the time of the accident the train was proceeding smoothly and there was no indication of defective equipment or of any obstruction on the track. As the train was approaching the point where the accident occurred the enginemen and the front brakeman were main-

taining a lookout ahead. When the engine of Second 255 was about 3,000 feet west of the point where the accident occurred the engineer made a 6-pound brake-pipe reduction, because a lighted yellow fusee had been dropped by the flagman of First 255. Immediately afterward the brakes became applied in emergency as a result of brake-pipe hose becoming separated during the derailment at the east siding-switch. When the engine passed the point where the derailment occurred, the members of the crew on the engine felt no indication of defective track, and the first the members of the crew on the engine were aware of anything wrong was when the derailment at the east siding-switch occurred. The conductor, the flagman and the swing brakeman of Second 255, who were in the caboose, did not observe any indication of derailed equipment prior to the time their train stopped. Extra 2521 East was in the clear on the siding at Fir and the front brakeman of this train observed fire flying near the middle of the approaching train. Before this portion of Second 255 reached his location the general derailment occurred.

After the accident occurred, inspection of the rail involved disclosed that a piece of rail 11-9/16 inches in length was broken from the receiving end of a rail on the south side of the track. This break disclosed an old fracture in the web extending from the end of the rail through both bolt holes. This was a progressive fracture, the origin of which was near the first bolt hole. The remainder of the fracture from the second bolt hole upward through the head and downward through the base was new. The bolt holes were elongated. The first bolt was somewhat worn in the area where it had been in contact with the web of the rail. The angle bars had been applied about six weeks prior to the day of the accident. The top portion of the broken section was found 10 feet south of the track and about 51 feet west of its original location. The division engineer thought that during the passage of Second 255 this portion bounced from the angle bars to the top of the rail where it acted as a derail for the thirtieth car.

The track involved was last inspected about 3:10 p. m. on the day of the accident by the section foreman from a track motor car. At that time there was no indication of defective track. Apparently the old fracture was concealed by the angle bars. A detector car was last operated over this territory about 4 hours before the occurrence of the accident. The detector-car operator said that the detector car used on the day of the accident indicates on the recording tape each rail joint, and that the recording for the rail involved was the usual recording for a joint.

Tests of the broken rail disclosed it to be of sound metal and free from any structural defect. In view of the elongation of the bolt holes and the worn condition of the first bolt, apparently the fracture was a result of service stresses that were

localized at the first bolt hole. Probably stress was provided either by improper alinement of the angle-bar bolt holes with the rail bolt holes or by excessive tightening of the nuts.

Cause

It is found that this accident was caused by a broken rail.

Dated at Washington, D. C., this sixteenth  
day of March, 1942.

By the Commission, Commissioner Patterson.

W. P. BARTEL,

(SEAL)

Secretary.