INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE SPOKANE, PORTLAND & SEATTLE RAILWAY NEAR LYLE, WASH., ON AUGUST 3, 1926.

September 15, 1926.

To the Commission:

On August 3, 1926, there was a derailment of a passenger train on the Spokane, Portland & Seattle Railway near Lyle, Wash., resulting in the death of one employee, and the injury of one passenger and one employee.

Location and method of operation

This accident occurred on the First Sub-Division of the Vancouver Division, extending between Wishram and Vancouver, Wash., a distance of 96.1 miles; in the vicinity of the point of accident this is a single-track line over which trains are operated by time-table and train orders, no block-signal system being in use. The derailment occurred at a point about 3 miles west of Lyle, at a switch leading off the main track to the North to a spur track known as Swann-Hamann spur. This spur is 970 feet in length and parallels the main track, while the switch is a facing-point switch for eastbound trains, the high switch stand is located on the engineman's side of an eastbound engine. Approaching the point of accident from the west there is a 2° 30' curve to the left 1,308.7 feet in length, followed by 446.9 feet of tangent to the switch; this tangent continues for a considerable distance beyond the switch. The grade is level. The track is laid with 85-pound rails, 33 feet in length, with an average of about 19 ties to the rail-length, and ballasted to a depth of about 18 inches, the track is well maintained.

The weather was clear at the time of the accident, which occurred at about 10.30 a.m.

Description

Eastbound passenger train No. 6 consisted of one baggage car and two coaches, in the order named, hauled by engine 156, and was in charge of Conductor Ryan and Engineman Gutcher. This train passed White Salmon, 9.7 miles west of Lyle, at 10.15 a.m., four minutes late, and was traveling at a speed estimated to have been between 30 and 40 miles an hour when the right main rod on the engine broke and then

struck the connecting rod of the switch leading to the spur, causing the switch points to open under and derail the train.

The entire train was derailed, the engine coming to rest on its left side, south of the main track, almost reversed, at a point about 300 feet east of the switch. The tender and cars were derailed to the north; the tender came to rest on its right side between the spur and main tracks, while the cars came to rest in line with, and on the roadbed of, the spur. The first car was leaning to the left at an angle of about 45°, while the two coached remained practically upright. The employee killed was the fireman.

Summary of evidence

Examination of the track disclosed the first mark to be on the end of a tie on the south side of the track at a point 181 feet west of the switch points. Apparently this was the point at which the main rod became broken, as the indentation in the tie was about 1/8 inch deep and the exact width of a front end brass; the front end key and block were found 25 feet south of the track and 119 feet west of the switch. The south ends of the 20th, 19th, and 6th ties west of the head block of the switch were badly splintered and broken by the main rod, while the double head block was also splintered and broken. The connecting rod of the switch, located between the two head block ties, was bent upward, causing the strap connecting it to the head rod to break off through the eccentric adjusting bolt hole, permitting the switch points to open, resulting in the derailment. Half of the front end main rod brass was found at a point 25 feet south of the track and directly opposite the switch. All of the marks on the ties and the connecting rod of the switch were about 12 inches outside the south rail and were in alinement with the main rod, further indicating that the marks were made by the broken main rod. The first evidence of derailed wheels were marks appearing outside the south main-track and spur-track rails at a point about 24 feet east of the switch points.

Engineman Gutcher stated that water was taken at Cooks, 19.5 miles west of Lyle, at this time he looked the engine over, but found nothing wrong and he noticed no unusual noise or pounding of the rods after passing White Salmon. Approaching the spur track the speed of his train was between 30 and 35 miles an hour, and when near the switch he realized there was something wrong and immediately shut off steam and applied the air brakes. Conductor Ryan and Brakeman Ash estimated the speed to have been about 40 miles an hour at the time of the accident and said that the train traveled about six car-lengths from the time the air brakes were applied until the derailment occurred.

Night Roundhouse Foreman Beltry and Engine Inspector Kruger, stationed at Portland, Ore., stated that they gave engine 156 the usual inspection on the night prior to the accident at about 8 p.m., but that no defect of the rods was observed. Engine Inspector Kruger also said that about 45 minutes was consumed by his inspection and that he looked over all rods.

Roundhouse Foreman Morrison, stationed at Vancouver, Wash., stated that the instructions are to make an inspection of rods after an engine is in the terminal. Two men are assigned to wipe the valve gear and paint the rods, after which the engine inspector inspects the rods and makes a report of any defect or doubtful condition. The instructions also cover the examination of crosshead fits and piston rods on all engines at least every 90 days and also when renewing piston packing. Roundhouse Foreman Morrison said that on numerous occasions he had called the attention of Inspector Livesay to the importance of inspecting rods, but that he did not know whether Inspector Livesay made the required inspection of the main rod which failed on engine 156, nor whether the inspection was made at the time the rods were down or when replaced in the crosshead.

Machinist Englehardt, stationed at Vancouver, stated that he inspected engine 156 on July 8th, at which time the pistons were removed and the rods tested. The front end of the main rod was whitewashed, he did not inspect the main rod after it was painted, only inspecting the piston rod. Laborer Smith, also stationed at Vancouver, stated that he recalled having whitewashed the rods on engine 156.

The statments of Engine Inspector Livesay, stationed at Vancouver, were conflicting. At first he stated that he inspected engine 156 at Vancouver on July 8th, but that he did not recall as to whether or not the pistons rods were whitewashed and tested on that date, or whether or not the rods were taken down on the engine, if they were taken down, then there was no doubt in his mind but that he inspected them. He then said that it was his duty to inspect the rods after they were whitewashed, and that he inspected the main rods on engine 156 after they were whitewashed on that date, but that he noticed no defect, saying that had he found any he would have reported it in writing and also would have personally called it to the attention of the foreman. Later he said that it would have been possible for the piston rods to have been whitewashed and tested without his noticing it,

and that he did not specifically recall having inspected this engine.

Engine 156 is of the 4-6-0 type, class D-5, built in 1904, and has a total weight, engine and tender loaded, of 224,000 pounds. The weight of the engine is distributed as follows: engine truck 27,600 pounds, driving wheels 90,300 pounds. The driving-wheel-base is 11 feet 8 inches and total wheel-base, engine and tender 46 feet 9 inches. This engine was taken out of service for monthly inspection at Vancouver on July 4, 1926, and returned to service on July 13, 1926, since which time it had traveled 5,100 miles. At the time the engine was removed from service on July 4, no report of any defective condition was made relative to the main or side rods, nor was any report in this respect made between the time the engine was returned to service and the time of the accident. The main rod which failed was a solid rod, the front end or jaws having been machined out for the fitting of the brass. This rod measured 108 inches in length from the center of the brass in the back end to the center of the brass in its forward end. There was no manufacturer's mark on it and apparently it had been in service for a number of years. When the rod is in place in the crosshead the key bolt and collar are so arranged as to obstruct vision during inspection, particularly in connection with that part of the rod which failed. The fracture of the front end of the rod occurred first through the 7/8-inch set-screw hole, which is in the bottom of the rod. This fracture appeared 6 inches back from the center of the brass and is 9 7/8 inches back from the extreme forward end of the rod. The break apparently permitted the spreading of the rod or jaws holding the brass and the final and complete fracture occurred through the 5/16-inch oil hole at the top of the rod. The initial fracture appeared to have been an old one, of a progressive nature, finally permitting of the dropping out of the set screw, resulting in the complete failure of the rod. The initial break apparently occurred several days prior to the accident.

Conclusions

This accident was caused by a broken main rod.

Apparently the forward part of the engine passed over the switch points on the main track, then the broken main rod on the right ride of the engine struck the connecting rod of the switch, causing the switch points to open under the train, precipitating the derailment. The initial fracture in the main rod apparently had not developed sufficient-

ly to have been detected at the time the engine was removed from service at Vancouver in July, when the rods were inspected, nor had it developed sufficiently to have been detected by ordinary inspection.

All of the employees involved were experienced men. At the time of the accident none of them had been on duty in violation of any of the provisions of the hours of service laws.

Respectfully submitted,

W. P. Borland

Director.