REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE PERE MARQUETTE RAILWAY NEAR McDONALD, MICH., ON JANUARY 11, 1923.

February 3, 1923.

To the Commission:

On January 11, 1923, there was a rear-end collision between two freight trains on the Pere Marquette Railway near McDonald, Mich., resulting in the death of one employee.

Location and method of operation.

This accident occurred on Subdivision No. 1, of the Chicago-Petoskey Division, extending between Grand Rapids, Mich., and Porter, Ind., a distance of 136.34 miles. In the vicinity of the point of accident this is a single-track line over which trains are operated by time-table, train orders, and an automatic block-signal system. The accident occurred at a point approximately 1¼ miles south of the station at McDonald; approaching this point from the north there are about 3½ miles of tangent, a 2-degree curve to the left, 1,300 feet in length, followed by 5,180 feet of tangent to the point of accident. The grade for 6,500 feet is ascending, varying from 0.21 to 0.41 per cent, and is then 0.5 per cent descending for 3,300 feet to the point of accident.

The automatic block-signals are of the three-position, upper-quadrant type. Signals 612, 620, 646 and 656 govern southbound movements approaching the point of accident and are located 25,780 feet, 21,280 feet, 6,730 feet, and 2,080 feet respectively, north of the point of accident; a clear view of signal 656 can be obtained for a distance of about 3,400 feet, while signal 646 may be seen nearly 3 miles. The weather was cloudy at the time of the accident, which occurred at about 1.00 a. m.

Description.

Southbound freight train extra 1015 consisted of 66 cars and a caboose, hauled by engine 1015, and was in charge of Conductor Michael and Engineman Bond. It left Grand Junction, 10.96 miles from McDonald, and the last open office, at 11.20 p. m., and had reached a point approximately 1¼ miles south of McDonald, traveling at a

speed estimated to have been between 10 and 15 miles an hour, when the rear end of the train was struck by extra 1024.

Southbound freight train extra 1024 consisted of 13 cars and a caboose, hauled by engine 1024, and was in charge of Conductor Lemon and Engineman Thole. This train left Wyoming, near Grand Rapids, at 8.54 p. m., en route to Benton Harbor, and on account of the turn table at Benton Harbor being too small to turn engine 1024 for the return trip, the engine was turned on the wye at Grand Junction. The train, operated with the engine backing up, departed from Grand Junction at 12.25 a. m., and collided with extra 1015 while traveling at a speed estimated to have been 18 or 20 miles an hour.

The caboose of extra 1015 was demolished and the seven cars ahead of it were derailed to the left. Engine 1024 came to rest about 500 feet south of the point of collision with only the trailer truck wheels and the tender derailed; the first car of extra 1024 was also derailed, but remained upright. The employee killed was the rear brakeman of extra 1015.

Summary of evidence.

Engineman Bond, of extra 1015, stated that considerable trouble was experienced due to poor coal and lack of steam, and that at four points en route to the point of accident, the fire was cleaned, the last point being Gross, 3.35 miles from Mc Donald. Engineman Bond said his train left Gross at about 12.40 a. m., and that after passing McDonald and reaching the beginning of the 0.5 per cent descending grade, he shut off steam and the train was allowed to drift, on account of the lack of steam and the air gauge dropping back, intending to drift far enough to allow the engine to generate enough steam to reach Hartford, 4.5 miles south of McDonald. Engineman Bond estimated the speed of the train at the time of the collision to have been 15 miles an hour.

Gross is a passing track located on the west side of the main track, extending almost the entire distance between signals 612 and 620, which is 4,500 feet. Conductor Michael, of extra 1015, stated that upon stopping between these signals he went to the engine and found that the stop was made to clean the fire. He had previously informed Brakeman Davis that extra 1024 was following, and although no whistle signal was sounded, Brakeman Davis went back to flag, and upon being recalled a few minutes later Brakeman Davis signaled, and the train departed. Conductor Michael did not return to the caboose, but rode on the engine from Gross to the point of accident.

According to the statement of Engineman Thole, of extra 1024, the automatic stoker was causing considerable trouble, and after passing Gross he shut off steam and was helping the fireman clean out the left elevator of the stoker. He stated that the fireman saw signal 612, at the north end of Gross passing track, and that he himself saw signal 620, at the south end of Gross passing track, by hanging to the top of the cab and looking over the tank, and said the indication displayed looked to him to be a green or clear indication. He said that it was difficult to see and distinguish the signals on account of steam rising around the cab from the stoker and from the left injector. At McDonald he was lost and did not see either signal, and upon inquiry the fireman said he could not see anything but that he thought they were near McDonald, the accident occurring immediately afterwards. Engineman Thole admitted the speed was in excess of 15 miles an hour as prescribed by the rules for engines backing up.

Fireman Knapp said signal 612 was clear, but he did not see signal 620 on account of steam from the stoker, which was leaking badly, while the injector pipes were loose and steam was blowing. He said he did not know when they passed McDonald and did not observe the indications of the signals, that the engineman had asked him about the indication of the block signals and he looked out, told the engineman he could not see anything, and resumed his work. He and Engineman Thole were working on the stoker after passing Gross, and he said that finally he cut out the left elevator, and that Engineman Thole had just returned to his seat box preparatory to working steam when the collision occurred. Fireman Knapp estimated the speed at the time of the collision to have been not over 18 or 20 miles an hour.

Conclusions.

This accident was caused by failure properly to observe and obey automatic block-signal indications, for which Engineman Thole is responsible.

No member of the crew of extra 1024 saw signals 646 and 656, and apparently the only reason the engine crew failed to observe the indications of these signals was the fact that they were working on the stoker instead of paying attention to the safe operation of their train Considering the distance between signals, and the average speed of the trains involved, it is believed that signals 646 and 656 were displaying stop indications at the time extra 1024 passed them, also that Engineman Thole was mistaken when he thought signal 620 was displaying a clear indication.

This accident would undoubtedly have been prevented if an adequate automatic train-control system had been in use on this line.

Attention is also called to the fact that the crew of extra 1024 failed to obey the time-table rule restricting the speed of engines backing up to 15 miles an hour. The average speed of the train had been about 20 miles an hour, and according to the estimates this was its approximate speed at the time of the accident. It also appeared that the conductor had no knowledge of the existence of such a rule.

None of the employees involved in this accident had been on duty in violation of any of the provisions of the hours of service law.

Respectfully submitted,

W. P. Borland,

Director.