

In RE: Investigation of accident on the Baltimore & Ohio Railroad at Wheeling Junction, Penna., on April 10, 1914.

On April 10, 1914, there was a head-end collision between two freight trains on the Baltimore & Ohio Railroad, at Wheeling Junction, Pa., resulting in the death of one employee and the injury of one employee.

After investigation of this accident the Chief Inspector of Safety Appliances reports as follows:

This accident occurred on the Pittsburg Division of the Baltimore & Ohio Railroad, in the territory of an electro-pneumatic interlocking plant which is operated from W J tower, the point where the collision occurred being about 185 feet east of W J tower and 1500 feet east of Glenwood station.

The trains involved in this collision were eastbound extra No. 2700, consisting of 55 loaded cars and one empty car, with Conductor Witherite and Engineman Bore in charge, and westbound extra No. 2590, consisting of 56 loaded and one empty car, with Conductor Dwyer and Engineman Beal in charge.

Extra 2700 departed from New Castle Junction, Pa., at 10:03 p. m., April 9, en route from Connellsville, Pa., and passed Laughlin Junction, the last open telegraph station west of W J tower and two miles distant therefrom, at 4:20 a. m., April 11. Extra 2700 was running on track No. 2; the signal on bridge A, located about 990 feet east of Glenwood station, covering the movement of this train, was clear, and the next signal, No. 34L, located 648 feet east of bridge A, was also clear. A brakeman riding on the left side of the locomotive of extra 2700 called both of these signals; the engineman was on the outside of a curve and he could not see the signals until but a short distance from them. Almost immediately after calling the second clear signal the brakeman saw that a train was heading out on to track No. 2 from track No. 3. He called to the engineman and fireman that an engine was coming into them and he and the fireman jumped just as the collision occurred. The engineman applied the brakes and was caught and killed in the collision.

Extra No. 2590 left Connellsville, Pa., at 11:40 p. m., April 9, en route for Glenwood, Pa., and passed Bessemer, the last open telegraph office east of W J tower and six miles distant therefrom, at 4:06 a. m., April 10. This train approached W J tower on track No. 3. At the first signal east of signal bridge C a caution signal indication was received, and as his train approached bridge C Engineman Beal sounded the whistle for the signal at that point; when he came in sight of bridge C he saw that the bottom arm was in the caution position, and he proceeded without stopping, expecting to find a route lined up leading into Glenwood yard; instead, however, he found that the

switches were lined up for a route which would lead him out on to track No. 2, a high-speed track, against the current of traffic. As soon as he discovered that his train had been diverted from the low speed yard route, he shut off steam and made an emergency application of the brakes. At that time his train was running at a speed of approximately five miles an hour, and it had just been stopped, fouling track No. 2, when it was struck by extra 2700.

At the point where the collision occurred there is a four degree curve in the track and a slight grade descending eastward. The speed of extra 2700 at the time of the collision was approximately 15 miles per hour; the collision occurred at about 4:35 a. m., the weather at that time being clear.

The signal on bridge C governing the movement of extra 2590 on track No. 3 was signal No. 16R. It consists of three signal arms, all three of these arms being controlled by the same lever in the tower, the blade operated being determined by the position of the switches and the condition of the track circuits. The top blade governs the route from track No. 3 through switch No. 19 to the westbound main track and controls as far as signal No. 34R on signal bridge B. The middle blade governs the route into Glenwood yard. The top and middle blades can be cleared for these routes only when the switches are properly lined up and the tracks governed are not occupied or fouled. If a train had been given the middle blade and for any reason it became necessary to send another engine out to assist this train, a hand screw release could be operated to restore the middle blade to normal and the engine movement could then be made under an opposing dwarf signal. The bottom blade is an emergency blade and can be cleared, without the necessity of all track circuits being clear, by pressing a button in the tower. This bottom blade governs movements over the routes controlled by both top and middle blades; thus, in addition to governing a movement over the yard route, the bottom blade of signal 16R also governs movements over the route to the westbound main line as far as bridge B, on which signal 34R is located. Signal 34R had to be run in order to foul the main track where the accident occurred. Signal 34L is an eastbound main line signal on track No. 2 opposing signal 34R. The distance between them, however, is very short and gives an engineman very little leeway in case he overruns one of them, as was demonstrated by this accident.

Leverman Keppler who was on duty at W J tower when this accident occurred stated that he lined up the main track switches for extra 2700 east as that train approached his tower; at about the same time extra 2590 was approaching and he received instructions to send this train into the westbound yard. He stated that he lined up the switches, as he thought, leading from track No. 3 to the yard, and pushed the button to throw the lever to

give that train signal 16R. He stated that he locked his levers over a second time to make certain that the route was properly lined up, and that he did not know until after the accident that lever 19 had to be in normal position to complete the yard route and that with lever 19 reversed the bottom arm of signal 16R could be cleared and the route completed to the main track.

The investigation of this accident disclosed that the locking through the switches involved in this accident is made complete, but that it had been a common practice to authorize movements to the yard by the bottom blade of signal 16R. It is apparent that Leverman Keppler understood that the bottom blade governed this route and did not know that lever 19 had to be in normal position to complete the route. He therefore left lever 19 reversed when setting up the yard route, and this error led to the accident. He did not discover his mistake until he saw extra 2590 had been diverted from the yard route and it was then too late to avert the accident.

The direct cause of this accident was the failure of Leverman Keppler to set up a proper route into the yard for extra 2590. The underlying cause of the accident, however, was the bad practice which existed at this point of using the emergency button and the bottom signal arm to control normal movements to the yard, instead of using the middle blade which was provided for that purpose.

While the arrangement of signals at the interlocking plant cannot be said to be improper, it is believed the arrangement would be greatly improved by making signal 34R a three-arm signal with all arms operative, and setting this signal back far enough to control movements through switch No. 19.

With such a layout as exists at this plant it is believed that cert in auxiliaries should be used. If an indicator were placed in the tower to repeat the indication of each blade of signal 16R the towerman would know the position of all blades at all times. At the time of the accident it is doubtful

whether the towerman, under certain conditions, knew the position of these blades, and being in doubt may have led to the practice of not using the middle blade to authorize movements to the yard.

In addition to signal repeating indicators, an illuminated track diagram would be of great assistance, particularly to a new towerman.

Leverman Kepler had had about five years' railroad experience as telegraph operator and leverman and had been employed by the Baltimore & Ohio Railroad as leverman for about ten months. He had worked at a number of interlocking plants on this division and had spent eight or nine days posting up on the plant at Wheeling Junction. This accident occurred during his first night on duty at this point. All the other employees involved in this accident were experienced men, and none of the employees involved were on duty in violation of the hours of service law.