

1001.

INTERSTATE COMMERCE COMMISSION.

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE PHILADELPHIA & READING RAILWAY NEAR NICETOWN, PA., ON NOVEMBER 1, 1933.

December 3, 1933.

To the Commission:

On November 1, 1933, there was a derailment of a milk train on the Philadelphia & Reading Railway near Nicetown, Pa., resulting in the death of three employees.

Location and method of operation.

This accident occurred on that part of the Philadelphia Division extending between Berks Street, Philadelphia, and West Manayunk, Pa., a distance of 8.7 miles. In the vicinity of the point of accident this is a double-track line over which trains are operated by time-table train orders, and an automatic block-signal system, the accident, however, occurred on a yard track on which this block system is not in effect. The accident occurred about 1.54 miles south of the station at Nicetown, at a facing-point switch which leads from the yard track, which is known as the 3rd track, to the west to the stub siding of the Lloyd Coal Company, this siding being 240 feet in length. The yard track extends from Fairhill Junction, 1.5 miles north of Berks Street, to Broad Street, a distance of 6,540 feet, and parallels the main tracks on the west, the accident occurring at a point 3,137 feet north of its southern end. This switch is not equipped with a light, the turnout has a curvature of $39^{\circ}30'$. Approaching the point of accident from the south on the yard track, there is a $1^{\circ}30'$ curve to the right 1,830 feet long, followed by 2,420 feet of tangent, the accident occurring on this tangent at a point 437 feet from its southern end. The grade for northbound trains is ascending, varying from 0.28 to 0.881 per cent, being 0.604 per cent at the point of accident. The track is laid with 90-pound rails, 33 feet in length, with 16 ties to the rail-length, single-siked, tie-plated, and ballasted with cinders about 12 inches in depth, six hole angle bars are used, fully bolted. The track is well maintained. The weather was clear at the time of the accident, which occurred at about 2.11 a.m.

Description.

Northbound milk train No. 81 consisted of five rail cars and a coach, hauled by engine 1533, and was in charge of Conductor Young and Engineer Williams. This train left Fairhill Junction at 3.08 a.m., 3 minutes ahead of its schedule, moving over the 3rd track in order to avoid delay, there being two extra trains occupying the Northbound main track at Picetown, and was derailed at the switch leading to the Lloyd Coal Company's spur while traveling at a speed estimated to have been about 15 or 20 miles an hour.

The engine and tender fell into the empty coal bins below the trestle, while the forward track of the first car was derailed. The employees killed were the engineer, fireman and head brakeman.

Summary of evidence.

The first indication Conductor Young, or Flagman Newman had of anything wrong was when the accident occurred, at which time they were riding in the rear car. The conductor estimated the speed to have been about 15 or 20 miles an hour at this time, and the flagman about 20 miles an hour. Immediately after the accident Conductor Young examined the switch and found it lined for the spur with the lever latched in the ~~socket~~.

Yanmaster Bowditch stated that on arriving at the scene of the accident, very shortly after its occurrence, he found the switch lock fastened to the chain, and laying on the head block tie. He also stated that it is customary to use the 3rd track under conditions such as existed in this instance, and was of the opinion that had there been a light on the switch the accident would not have occurred.

Inspection disclosed the first mark of derailment to be a distinct flange mark on top of the guard rail at a point directly opposite the frog, this mark extended northward diagonally across the guard rail. The next mark was on a tie, 6 feet 3 inches north of the first mark and 1 foot 1 inch east of the west rail, this mark appearing on each tie for a short distance, beyond which point the track was torn up for a considerable distance. The frog is a No. 4 frog, laid new in 1911, at the time of this investigation the extreme tip of the point had been worn or battered down until the top of it was $3/4$ inch below the level of the rails, the point was level with the rails 8 inches back from the tip. The ~~gauge~~ was also found to be tight at the frog.

Examination of the switch lock disclosed it to be defective and it could be opened without a key when turned in a certain position. There were no marks on it to indicate that it had been opened by force. The switch could be locked when closed, but could not be locked when lined for the spur on account of the length of the lock chain and the manner in which it was staked to the switch block.

The last time this switch was used by authorized employees was in the afternoon of the day prior to the accident by a yard crew, and the testimony is to the effect that it was not only left properly set for the 3rd track by that crew, but that during the switching operations same immediately afterwards the yard engine and cars passed over it several times.

Engine 1695 is of the 2-3-0 type, having a weight on the driving wheels of 211,150 pounds, its driving-wheel base is 16 feet 6 inches, and total wheel base 25 feet 6 inches. It is designed for a maximum track curvature of 30°. No information could be obtained as to whether the headlight was burning properly at the time of the accident.

The yard track on which this accident occurred is about 1-1/4 miles in length, within which distance there are 15 switches, not including the main-track switches at either end, 7 of these switches are facing-point switches for northbound trains, while none of the 15 are equipped with lamps. This track is used whenever it is desired to run trains around other trains which may be occupying either or both of the two main tracks. Trains moving in either direction are so detoured, one of the yardmasters stating the number so handled to be approximately 30 per week, the majority being southbound movements. These movements are made on the verbal authority of a yardmaster, no train orders being used, nor are there any bulletins or written instructions of any kind covering the use of this track, it being a practice which has developed and has been in existence for years.

Conclusions.

This accident was caused by turning a train into an improperly set switch without warning to the engineer.

The curvature of the turnout was 39° 30', while the engine drawing train No. 81 was not designed to be operated on curves of more than 20°, the tendency to be derailed thus presented undoubtedly was increased by the worn condition of the point of the frog and the tightness in the gauge

at the frog.

Examination of the switch made by employees immediately after the accident showed that the switch was lined for the spur, with the lever latched in the socket, while the lock, still fastened to the chain, was on the head block tie. The evidence indicates that the switch was left properly set for the 3rd track the last time it was used and that it had been passed over on several occasions since that time by a switch engine and cars. The lock, however, was defective and could be opened without a key when turned in a certain position, but it was not ascertained when or by whom the lock was opened and the switch lined for the spur. Not being equipped with a switch lamp, the engineman could have no advance warning of the fact that the switch was not properly set.

In view of the frequent use of this so-called 3rd track as a sort of auxiliary main track, and the number of facing-point switches to be encountered by a train moving on it in either direction, it is thought that the necessary safeguards have not been provided for the movement of these trains. Not only is there a possibility of a recurrence of an accident of this character, particularly in view of the fact that none of the switches is equipped with lamps, but the operation of trains over this track through verbal instructions affords opportunity for mistakes which are likely to cause serious accidents. Steps should be taken to correct the unsafe conditions here referred to.

The employees involved were experienced men, at the time of the accident they had been on duty approximately 8 hours, after more than 15 hours off duty.

Respectfully submitted,

W.P. BORLAND,

Director.