INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY IN RE INVESTIGATION OF AN ACCIDENT WHICH OCCURRED ON THE NEW YORK, NEW HAVEN & HARTFORD RAILROAD AT MANSFIELD, MASS., ON MAY 23, 1926

July 2, 1926.

To the Commission:

On May 23, 1926, there was a side collision between a passenger train and a freight train on the New York, New Haven & Hartford Railroad at Mansfield, Mass., resulting in the death of one employee and the injury of four passengers and four employees. This accident was investigated in conjunction with representatives of the Massachusetts Department of Public Utilities

Location and method of operation

This accident occurred on that part of the Providence Division extending between Readville Transfer, Mass., and Auburn, R. I., a distance of 38.39 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 a controlled-manual block-signal system. The accident occurred within the interlocking limits of Mansfield, on the westbound main track, at the intersection of the Providence Division with the Old Colony Division, the main tracks of the Old Colony Division cross at an angle, from southwest to northeast, and the tracks of the two divisions are connected by means of double-slip switches at the crossing. Approaching the point of accident from either direction on the Providence Division the tracks are tangent for more than 1 mile, while the grade at the crossing is 0.39 per cent descending for westbound trains

Mansfield Tower, known as Signal Station 169, is located north of the tracks and about 100 feet west of the crossing. The signals involved are mechanical interlocking signals 1, 2 and 9, located 3,194.6 feet, 1,013 feet, and 225 feet respectively, east of the crossing. Signal 1 is a distant signal, signal 2 is a home signal and protects a crossover that connects track 1, the westbound main track, with a siding known as track 5,

signal 9 is a home signal and protects the crossing at which the accident occurred. There is also an advance block signal located west of the tower. The interlocking plant is so arranged that both home signals, 2 and 9, and also the advance block signal, must be cleared before a clear indication can be displayed by distant signal 1; otherwise a caution indication will be displayed by this signal. Signals 1 and 2 are wire-connected signals. The speed of trains through the interlocking plant is limited to 35 miles an hour.

The weather was clear at the time of the accident, which occurred at about 11.38 p.m.

Description

Eastbound freight train PL-2 consisted of 19 cars and a caboose, hauled by engine 275, and was in charge of Conductor Hughes and Engineman Elliott. It arrived at Mansfield, shortly before the accident occurred, on the eastbound main track, and was diverted through the double-slip switch at the crossing to the Old Colony Division, being brought to a stop standing on the crossing. Shortly afterwards, or in about one or two minutes, train PL-2 proceeded and it was moving over the crossing at a speed of about 10 miles an hour when the fourth car from the caboose, a steel hopper, was struck by train No. 1.

Westbound passerger train No. 1 consisted of 11 Pullman sleeping cars, all of steel construction, hauled by engine 1370, and was in charge of Conductor Darling and Engineman Durley. This train passed Sharon Heights, 5.4 miles east of Mansfield, at 11.32 p.m., on time, passed East Foxboro, the last open office, 2.3 miles from Mansfield, at 11.36 p.m., according to the train sheet, passed distant signal 1, which was apparently displaying a caution indication, passed home signal 2, which was displaying a clear indication, passed home signal 9, which was in the stop position, although the light on this signal was extinguished, and collided with the fourth car from the caboose of train PL-2, while traveling at a speed estimated to have been between 25 and 35 miles an hour.

The four rear cars and the caboose of the freight train were derailed and badly damaged, two of the cars being thrown against the tower. Engine 1370 came to rest on its right side, across the main tracks, at a point about about 175 feet west of the point of collision; the first five sleeping cars were derailed, the first of these

cars coming to rest on its left side, while the others remained practically upright. The tower was knocked from its foundation, and, together with some of the freight equipment, was burned in a fire which broke out in the wreckage. The employee killed was the fireman of train No. 1.

Summary of evidence

Operator Manning, on duty at Mansfield tower, stated that ordinarily when this freight train had cars to set out at Mansfield the rear of the train would be left on the eastbound, Providence Division, main track while the engine took the cars in question through the crossover and thence into the yard, the engine would then return to its train and the entire train would cross over and continue to Lowell on the tracks of the Old Colony Division. He said he had obtained information to the effect that there was only one car to be set out on this particular night, and when train PL-2 arrived he lined the route for a crossover movement and thence into the yard, with the distant signal governing westbound movements on the Providence Division displaying a caution indication, and signal 9 displaying a stop indication; he cleared signal 2, however, saying it was his practice to clear this signal under such circumstances so as to allow approaching trains to continue as far as signal 9, at the crossing. After the route had been lined for train PL-2, that train started to cross over and then the operator at East Foxboro signalled for an unlock for train No. 1, which he gave him, thus allowing that operator to clear the controlled manual block signal at East Foxboro for train No. 1. In the meantime, however, Operator Manning at Mansfield discovered that the engine of train PL-2 was moving the entire train instead of the one car, and he said he gave the engine crew an "easy" signal with a lantern, in order to give him a chance to ascertain what the crew intended to do. On being informed that they were taking their entire train, with the intention of proceeding on the main track of the Old Colony Division and doing their switching at the opposite end of the yard, Operator Manning changed the route accordingly and told them to hurry along. The train then proceeded and had nearly cleared the crossing. when train No. 1 approached and collided with the cars then on the crossing. Operator Manning did not know that the light on signal 9 was not burning.

Engineman Durley, of train No. 1, stated that distant signal 1 was displaying a clear indication, that Fireman Ridings called the signal indication as "clear" and that he answered him; home signal 2 was also displaying a clear indication. Approaching home signal 9, which

governs movements over the crossing, there was an engine standing on the engine house lead track, which track is just north of and parallels the westbound main track, and steam escaping from that engine obscured the signal, while the light on this signal was extinguished; he made an air-brake application, however, and then inquired of the fireman as to the indication displayed and just as the fireman shouted "red" Engineman Durley said he also saw that the signal was in the stop position, but it was then too late to avert the accident. Engineman Durley estimated the speed of his train to have been about 25 miles an hour at the time of the accident, and he also said that as was customary he had dimmed the headlight on his engine while going through Mansfield, otherwise he would have seen train PL-2 occupying the crossing sooner than he did; as it was, he thought he actually saw the train on the crossing before he saw home signal 9.

Conductor Darling, of train No. 1, stated that he was unaware of anything wrong until the air brakes were applied, just prior to the accident. There was nothing unusual about the speed when approaching Mansfield. After the accident he went back and observed that home signal 9 was in the stop position, with the light out, while home signal 2 was displaying a clear indication. The statements of Head Brakeman Simpson practically corroborated those of Conductor Darling. Flagman Cosgrove, also of train No. 1, stated that after the accident he observed that distant signal 1 was displaying a caution indication.

None of the members of the crew of train PL-2 was aware of anything wrong prior to the accident. Engineman Elliott stated that ordinarily his train is held on the eastbound main track of the Providence Division until after train No. 1 passes over the crossing and both the engineman and Fireman Davis stated that while their train stood at the tower, with the engine opposite the east side of the tower, on the Old Colony Division, and the rear end of the train standing on the crossing, Operator Manning shouted from the window that train No. 1 was approaching. Head Brakeman Elderfield stated that as soon as the engine stopped opposite the tower he immediately ran upstairs, secured the orders for the movement from Mansfield to Lowell, was instructed by the operator to inform the engineman "to pull right along, No. 1 is coming," returned to the engine, instructed Engineman Elliott accordingly, and delivered the orders. Conductor Hughes stated that it was his custom to leave the freight train standing on the Providence Division eastbound main track, clear of the

crossing, while the cars to be set out at Mansfield were being taken to the yard, after which water was taken, the orders secured, and then the engine would return to the train; this was the first time the entire train had started to move over the crossing.

Lampman Harding stated that he attended to all of the lamps at Mansfield on the day prior to the accident with the exception of the one on home signal 9, this lamp was not filled as his oil supply became exhausted. He intended to give this signal attention on the day the accident occurred, but forgot to do so. After the accident he noticed that the light on this signal was extinguished, and on examining the oil cup he found it to be empty.

A check of the damaged interlocking plant disclosed that the levers of the interlocking machine were in the position claimed by Operator Manning, which would give a caution indication at distant signal 1, a clear indication at home signal 2, and a stop indication at home signal 9. There was some question as to whether signal 1 would be cleared when signal 2 was cleared. An examination of the plant, however, disclosed that signal 1 was operated entirely independently of signal 2, and that the arrangement of the interlocking machine was such that signal 1 could be cleared only after signals 2 and 9 and the advance block signal were clear. The only probable cause of signal 1 displaying a clear indication when any of the home signals was in stop position is the possibility of signal 1 sticking in the clear position or being held in that position due to freezing, binding or entanglements of the operating wires. There is a record of this signal being improperly held in the clear position on two occasions during the past five years, but in both cases it was during winter weather and the wire runs were obstructed by sleet or snow. On the night of the accident, however, signal 1 was known to have been operated properly for the preceding train, there were no unfavorable conditions which would have been likely to render it inoperative at the time train No. 1 approached, and so far as could be determined from the condition of the connections, which were damaged by the accident, the signal was in proper operating condition at the time train No. 1 passed, while after the occurrence of the accident it was found to be displaying a caution indication. It is, therefore, probable that Engineman Durley, of train No. 1, misread the indication of signal 1 and that it was in caution position instead of clear when he passed it.

Conclusions

This accident was caused by the failure of Engineman Durley, of train No. 1, properly to observe and obey the caution indication of distant signal 1 and the absence of the signal light as well as the stop indication of home signal 9.

Under the rules, a signal imperfectly displayed, or the absence of a signal at a place where a signal is usually shown, must be regarded as the most restrictive indication that can be displayed by that signal. The light on signal 9 was extinguished at the time train No. 1 approached Mansfield and Engineman Durley said steam escaping from an engine standing on an adjacent track also was a material factor in preventing him from seeing that the signal was in the stop position. Had Engineman Durley properly observed the distant signal indication and governed the speed of his train accordingly, he probably would have discovered that the light was out on home signal 9, and that the signal was at stop, in time to have stopped before passing it, or had the signal light on signal 9 been properly maintained by Lampman Harding, the accident probably would not have occurred.

The rules also require that an operator, after having unlocked the block station in the rear, must not permit train or switching movements that will endanger an approaching train. Operator Manning was of the opinion that only engine 275 and one car of train PL-2 would move over the crossing prior to the arrival of train No. 1, while as a matter of fact, the entire train started over the crossing. Had Operator Manning definitely ascertained what was contemplated, before giving the unlock to East Foxboro for train No. 1, and acted accordingly, the accident could have been averted.

Had this line been equipped with an adequate automatic train stop or train control device at this point this accident would not have occurred.

All of the employees involved were experienced men, and 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 law.

Respectfully submitted,

W. P. BORLAND,

Director.