

BUREAU OF SAFETY

REPORT NO. 1942

Railroad: Boston & Maine
Date: November 5, 1934.
Location: Clinton, Mass.
Kind of accident: Side collision.
Trains involved: Light engine and freight train.
Casualties: 4 killed; 1 injured.
Cause of accident: Light engine fouled main track directly
in front of approaching freight train.

1942

INTERSTATE COMMERCE COMMISSION

REPORT OF THE DIRECTOR OF THE BUREAU OF SAFETY CONCERNING
AN ACCIDENT ON THE BOSTON & MAINE RAILROAD AT CLINTON,
MASS., ON NOVEMBER 5, 1934.

December 20, 1934.

To the Commission:

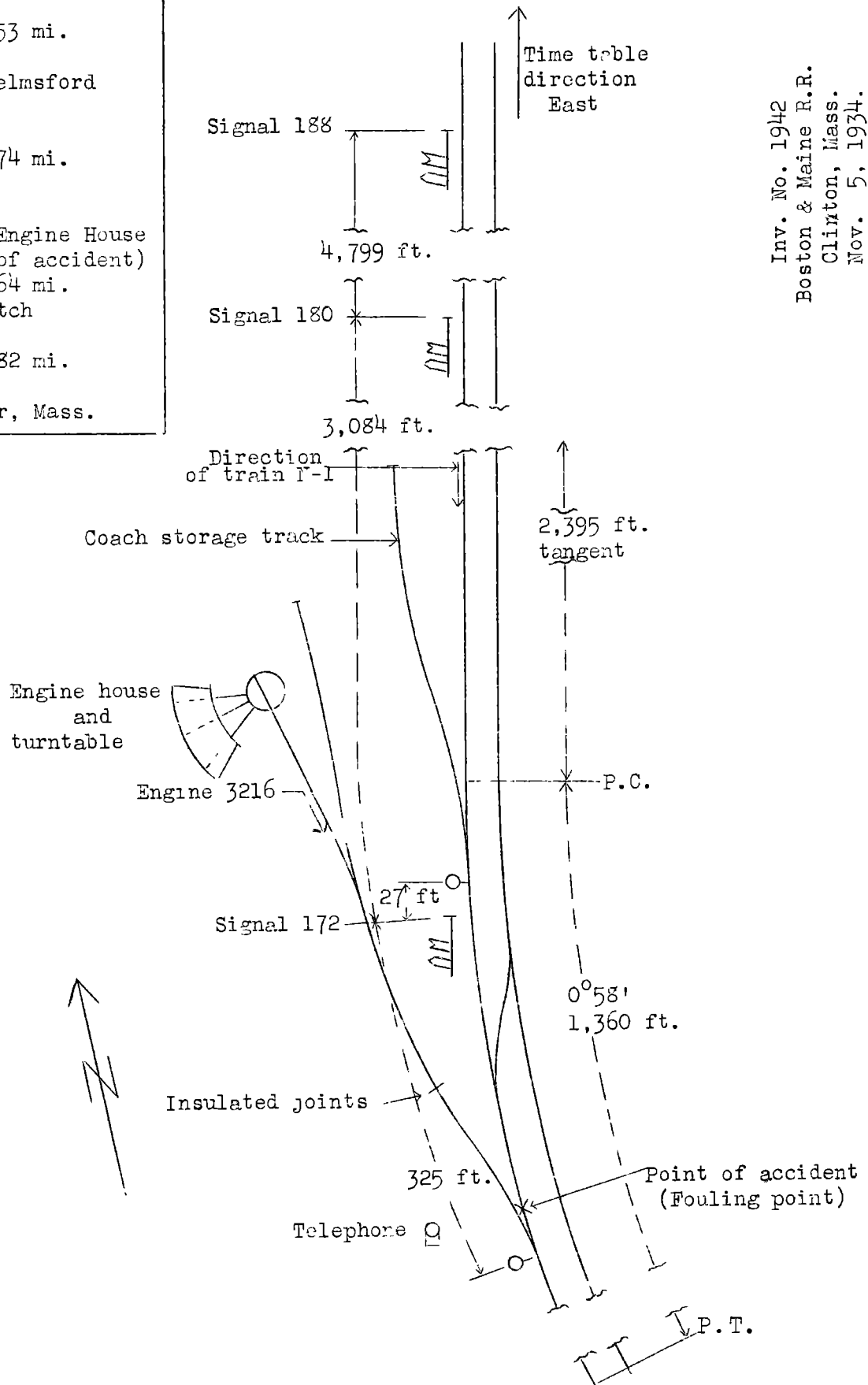
On November 5, 1934, there was a side collision between a light engine and a freight train on the Boston & Maine Railroad at Clinton, Mass., which resulted in the death of 4 employees and the injury of 1 employee. This accident was investigated in conjunction with the Massachusetts Department of Public Utilities.

Location and method of operation

This accident occurred on that part of the Portland Division extending between Lowell Junction and Worcester, Mass., a distance of 52.75 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 occurred at a point about 3,200 feet east of the station at Clinton, at the fouling point of the engine-house track with the west-bound main track; approaching this point from the east, the track is tangent for a distance of 2,395 feet, followed by a $0^{\circ} 58'$ curve to the left 1,360 feet in length, the accident occurring on this curve at a point about 375 feet from its eastern end. The grade is 0.67 percent ascending for west-bound trains at the point of accident.

The signals involved are automatic block signals 172, 180, and 188, located 325 feet, 3,409 feet, and 8,203 feet, respectively, east of the engine-house track switch; these signals are of the 2-arm, 2-position, lower-quadrant, semaphore type. Signal 172 is situated between the engine-house track switch and the coach-storage track switch, 27 feet west of the latter switch, these switches being trailing-point switches for west-bound trains. The switch stands are of the Ramapo high type and are located on the engineman's side of a west-bound train; they are equipped with switch lamps, night indications being green when the switch is closed, and red when open. When the coach-storage track switch is opened it causes signal 180 to assume the stop position and signal 188 the caution position, and when an engine passes the insulated joints on the engine-house track, 176 feet from the switch points, it causes signal 172 to assume the stop position and signal 180 the caution position.

• Lowell Jct., Mass.
11.53 mi.
• North Chelmsford
23.74 mi.
✕ Clinton Engine House (Point of accident)
1.64 mi.
• East switch
15.82 mi.
• Worcester, Mass.



Inv. No. 1942
Boston & Maine R.R.
Clinton, Mass.
Nov. 5, 1934.

Under rule 513, automatic block signal rules, a train moving from a siding to a main track protected by block signals must wait 3 minutes after opening the main-track switch, this rule not relieving employees from protecting as per rule 99, and under special instructions contained in the time table the conductors of all trains, before entering the main track or using cross-over switches at Clinton, must ascertain the location of trains in both directions.

The weather was foggy at the time of the accident, which occurred at 6:46 a.m.

Description

Train No. 3104, an east-bound passenger train, originates at Clinton engine house at 6:55 a.m. It was in charge of Conductor Howard and Engineman Moore and was in process of being made up when the accident occurred. The engine, 3216, was on the engine-house track and it was intended to move the engine out upon the main track and then make a back-up movement to the coach-storage track and couple to the cars that were to make up the train. Trainman Maguire opened the coach-storage track switch, Train N-1 having at that time passed signal 180, and then crossed over to the engine-house track and boarded engine 3216 just as it started to head out of that track. The engine passed the fouling point and stopped on the frog of the engine-house track switch, being struck immediately afterwards by Train N-1.

Train N-1, a west-bound freight train, consisted of 84 loaded cars and a caboose, hauled by engines 2664 and 3024, and was in charge of Conductor Campbell and Enginemen Winslow and Flagg. This train departed from North Chelmsford, 24.44 miles east of Clinton, at 5:49 a.m., and passed signals 188 and 180, both of which were displaying proceed indications; it then ran through the open coach-storage track switch and passed signal 172 in the stop position, the signal having gone to that position directly in front of the train, and collided with engine 3216 while traveling at a speed estimated to have been between 25 and 35 miles per hour.

All three engines involved were overturned and badly damaged and the first five cars in Train N-1 were practically destroyed. The employees killed were the engineman of light engine 3216, the engineman and fireman of lead engine 2664, and a trainman on Train N-1, while the employee injured was the engineman of engine 3024, the second engine of Train N-1.

Summary of evidence

Fireman C. M. Smith, of engine 3216, stated that the movement intended was of regular occurrence, saying that it was customary for the trainman to go down and open the main line switch and ascertain whether the way was clear while the engine was being backed out of the engine house and turned on the turntable, and in the event there was a train en route the dispatcher would notify them and give them the approximate time it would reach Clinton engine house; provided there was ample time at their disposal they would make the movement ahead of the approaching train. In this particular instance he saw signal 172 displaying a proceed indication a few minutes before engine 3216 started to head out and did not again look at the signal until shortly after the engine started to head out, and although he was not positive he thought it then was displaying a proceed indication. After the engine fouled the main track he again looked at signal 172 and it was then displaying a stop indication and he assumed that the main line switch had been opened. The cylinder cocks on his engine were open and due to escaping steam and foggy weather he could not see clearly and was not certain when the engine reached the fouling point, but he heard the trainman, who was riding on the step on the right side of the engine, tell the engineman that the switch was closed. The engineman, however, did not make any attempt to stop until told a second time that the switch was closed, when he applied the brakes and stopped the engine, the accident occurring immediately afterwards. Fireman Smith said it was customary for the engineman to move the engine two or three times during the process of oiling it and he thought that was what the engineman was going to do when he first started to move the engine; the engineman had always been very careful about signal indications and he could not understand why he started out this time unless it was that he unintentionally moved the engine beyond the fouling point. Fireman Smith further stated that he saw the conductor talking with the engineman before starting out; he did not know what the conversation was about, and he personally had not had any conversation either with the engineman or with the conductor and did not know anything about Train N-1.

Trainman Maguire, of engine 3216, making his first trip on this run, stated that he was standing beside his engine on the engine-house track after it had left the turntable and that about 6:42 a.m. the conductor came over and spoke directly to the engineman, telling him that Train N-1 was due there about 6:50 a.m., and then told Trainman Maguire the same thing; from what the conductor had said he understood they were to give Train N-1 a chance to get by, but in spite of this understanding Trainman Maguire opened the coach track switch, between 6:44 and

6:45 a.m., maintaining that he did so as a matter of extra precaution, knowing that it would cause signal 180 to assume the stop position and signal 188 to assume caution position and saying that in the event the approaching train did not arrive at the time stated his own engine then would have additional protection when it made the movement from the engine-house track to the coach-storage track. Immediately after opening that switch he boarded the engine on the fireman's side and crossed over and got down on the step on the engineman's side, just as the engine started to move, fully expecting that the engineman would stop it in the clear, and provided the freight train had not arrived by 6:47 a.m. he would then open the engine-house switch, which would cause signal 172 to assume the stop position, following which the engine would remain in the clear for 3 minutes, bringing the time to 6:50 a.m., and then the conductor would send out the flagman and their engine would be ready to make the movement, the trainman saying that he did not want to wait until 6:50 a.m. to open the engine-house switch and then wait an additional 3 minutes. Instead of his engine remaining in the clear, however, it continued out beyond the fouling point, where upon Trainman Maguire said he shouted to the engineman that the switch was closed and the engineman then looked out of the front window and applied the brakes, immediately following which the trainman jumped and the collision occurred. Trainman Maguire understood from the information given by the conductor that their engine had no right to the main track until 6:50 a.m. and said he told the engineman that the coach track switch was open. It was his opinion that the engineman did not realize the exact location of his engine at the time of the accident.

Conductor Howard, of engine 3216, said the dispatcher told him Train N-1 would arrive at 6:48 or 6:50 a.m., but did not say anything about remaining into clear and giving them a chance. The conductor then went over to where the engine stood and told the engineman and trainman that Train N-1 would arrive about 6:48 or 6:50 a.m., and he felt satisfied that they understood him and that his engine would remain in the clear until 6:50 a.m. The conductor then walked over to the cars on the coach track, went inside and left his bag, and had come outside and stepped down on the step in order to tell the flagman what it was intended to do when he saw the reflection from the headlight of the lead engine of Train N-1 as it appeared through the dense fog. The rays of the headlight shone upon the switch stand of the coach track switch and he then saw the switch target turn as Train N-1 ran through the switch, following which he heard the crash caused by the collision, although on account of the fog he could not actually see the engines when the accident occurred. Conductor Howard was not aware that the trainman had opened the coach track switch and said it was not the practice to depend on the automatic block signals for protection in making the movement

from the enginehouse track to the coach-storage track; the line-up received over the telephone from the dispatcher was given merely as information to be used for the guidance of the crew in making the movement. It also appeared from his statements that since the accident happened at 6:46 a.m., obviously there was no violation of the 5-minute clearance rule on the part of the crew of Train N-1, as they had until 6:50 a.m. to clear at Clinton engine house, owing to the fact that Train No. 3104 is not scheduled in the time table to leave that point until 6:55 a.m. Conductor Howard further stated that Engineman Moore appeared normal in every respect at the time he told the engineman about the approaching train, and although he did not specifically instruct the engineman to remain in the clear until 6:50 a.m. before opening the engine-house switch, and then wait 3 minutes longer as required by the rules, nevertheless the movement was of regular occurrence and he felt the engineman fully understood what to do. Conductor Howard was of the opinion that the coach-track switch was opened by the trainman after Train N-1 passed signal 130, and he thought that his own engineman must not have realized his location when he fouled the main track; he could not advance any reason, however, for the trainman having opened the coach-track switch, saying that his own train could have been made up and then departed on schedule time had the engine remained in the clear until after Train N-1 had passed. The statements of Flagman Parker did not bring out anything additional of importance except that he said he intended to let Train N-1 pass without flagging it, provided it passed that point at or before 6:50 a.m., after which time he was going to afford flag protection; he also said that from his position about 500 feet east of signal 172 he saw the headlight of Train N-1 and on looking westward he saw signal 172 at that time displaying a proceed indication. He heard his own engine work steam and the idea flashed through his mind that his engine might be starting out, consequently he gave an emergency stop signal about the time the engines of Train N-1 passed him.

The engine crew of lead engine 2664, of Train N-1, were killed in the accident; Engineman Flagg, of engine 3024, the second engine, stated that signals 188 and 180 were displaying proceed indications for his train. Dense fog was encountered, and just before reaching signal 172 he saw the indication of the signal change from proceed to stop, with engine 3216 fouling the main track directly in front of his train and the driving wheels spinning as the engine moved ahead, although the switch was still closed; the brakes were applied in emergency from the lead engine and the collision occurred immediately afterwards, at which time the speed of his train was about 30 miles per hour. Engineman Flagg also said that there was ample time for his train to have cleared Clinton engine house for train No. 3104 by the 5 minutes

required under the rules. Fireman Leighton, also of engine 3024, was riding on his seat box and saw the proceed indication displayed by signal 188, but he did not see the indications displayed by signals 180 and 172; his other statements were similar to those of Engineman Flagg as to what transpired. Other surviving members of the crew of Train N-1 were not aware of anything wrong prior to the accident; Conductor Campbell said that his train stopped at 6:46 a.m., and Flagman C. P. Smith estimated the speed to have been between 25 and 35 miles per hour at the time of the accident.

Conclusions

This accident was caused by light engine 3216 fouling the main track directly in front of Train N-1.

Engineman Moore, of engine 3216, who was on his regular run, was killed as a result of the accident, consequently it is not known why he permitted his engine to foul the main track directly in front of the approaching freight train instead of remaining in the clear until it had passed. Under rule 513, applicable to automatic block-signal territory, it is required that after a main line switch has been opened, a train must wait 3 minutes before moving from a siding to the main track, and yet Engineman Moore had moved out far enough to foul the main track with the switch still in the closed position. His action becomes even more difficult to understand when consideration is given to the fact that the conductor had told him Train N-1 would arrive about 6:50 a.m. Fireman C. M. Smith, also on his regular run, was not paying sufficient attention to know that the engine was fouling the main track while the switch still was closed; in fact, he did not know just when his engine reached the fouling point nor did he know anything about Train N-1.

Trainman Maguire said he opened the coach-track switch as a matter of precaution, saying that if Train N-1 did not arrive by 6:50 a.m. his engine then would have additional protection when it finally made the movement from the engine-house track to the main line and thence to the coach track. Taken in connection with the fireman's statement that the engineman usually moved the engine two or three times while oiling it, but did not do so on this occasion, the statements of Trainman Maguire raise a question as to whether it was not the intent of these employees to make the entire movement before the expected arrival of Train N-1, figuring that after the coach-track switch had been thrown about 3 minutes would elapse before they could open the engine-house switch and start out on the main track, thus affording a measure of compliance with the provision of rule 513 referred to above.

Respectfully submitted,
W. J. PATTERSON,
Director.