

RAILROAD ACCIDENT INVESTIGATION

REPORT NO. 4135

THE PENNSYLVANIA RAILROAD COMPANY

HUNTINGDON, PA.

OCTOBER 4, 1967

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION

Washington

Summary

DATE:	October 4, 1967	
RAILROAD:	Pennsylvania	
LOCATION:	Huntingdon, Pa.	
KIND OF ACCIDENT:	Rear-end collision	
TRAINS INVOLVED:	Freight	Freight
TRAIN NUMBERS:	Extra 6314 West	Extra 2352 West
LOCOMOTIVE NUMBERS:	Diesel-electric units 6314, 6319, 6026	Diesel-electric units 2352, 3802, 2616
CONSISTS:	104 cars, caboose	122 cars, caboose
ESTIMATED SPEEDS:	Standing	25 m p.h.
OPERATION:	Signal indications	
TRACKS:	Three; tangent; 0.42 percent ascending grade westward	
WEATHER:	Foggy	
TIME:	7:32 a.m., dawn	
CASUALTIES:	1 killed; 2 injured	
CAUSE:	Failure of the conductor and flagman of the preceding train to provide adequate flag protection against following trains, and failure of the engineer and front brakeman to operate the following train in accordance with signal indications	

DEPARTMENT OF TRANSPORTATION
FEDERAL RAILROAD ADMINISTRATION
RAILROAD SAFETY BOARD

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Synopsis

On October 4, 1967, a rear-end collision occurred between two Pennsylvania Railroad freight trains near Huntingdon, Pa , resulting in death to one, and injury to two, train-service employees

The accident was caused by failure of the conductor and flagman of the preceding train to provide adequate flag protection against following trains, and failure of the engineer and front brakeman to operate the following train in accordance with signal indications

Location and Method of Operation

The accident occurred on that part of the Allegheny Division extending between View and Altoona, Pa , a distance of 117 2 miles In the accident area this is a three-track line over which trains moving with the current of traffic on tracks No 1 and No 3, and either direction on track No 2, operate by signal indications of an automatic block-signal system, supplemented by a cab-signal system From

the south, the main tracks are designated as No 1 eastward passenger, No 2 eastward freight, and No 3 westward

The collision occurred on track No 2, 81 3 miles west of View and 2 1 miles east of Huntingdon Ardenheim, a small community not shown in the timetable, is near the collision point

An interlocking, designated as Hunt, is at Huntingdon Semi-automatic signal 10L, is 1 9 miles west of the collision point It is controlled by the Hunt interlocking operator and is the home interlocking signal for westbound trains approaching the interlocking on track No 2

Automatic signals 1981 and 2003, governing westbound movements on track No 2, are 2 2 miles and 526 feet east of the collision point, respectively These signals, and signal 10L, are of the position-light type and are mounted on signal bridges

Details concerning the tracks, signals, carrier's operating rules and timetable special instructions, trains involved, damages and other factors are set forth in the appendix

The accident occurred under foggy weather conditions, which materially restricted the view of the members of the train crew involved

Description and Discussion

Extra 6314 West, a westbound freight train consisting of 3 diesel-electric units, 104 cars loaded with ore, and a caboose, left Enola Yard at Banks, Pa, 5.7 miles east of View, at 3:59 a m the day of the accident About 30 minutes later, it entered track No 2 at View and proceeded to the vicinity of Wall, 38 1 miles west of View, where it stopped because of sticking brakes When the brakes were released, the train again proceeded westward at various speeds under forty miles per hour, passing Jacks, 10 9 miles east of Huntingdon and Hunt interlocking, at 7:12 a m It passed signal 1981 about ten minutes later, then approached signal 2003, the approach signal to signal 10L As the train neared signal 2003, which displayed on Approach aspect, the Hunt interlocking operator radio-telephoned the engineer and advised him to approach signal 10L slowly, as that signal was displaying a Stop aspect due to a route having been lined within the interlocking for Extra 2353 East, an eastbound freight train, to enter track No 1 via track No 2 Soon afterward, Extra 6314 West passed signal 2003 and stopped on track No 2 with the rear end 526 feet west of that signal and the front end 4,965 feet short of signal 10L, which the engineer was unable to see because of the foggy weather conditions He stopped this distance short of signal 10L because of grade conditions which would facilitate restarting the train later At 7:32 a m., within a few minutes after Extra 6314 West stopped, and while it was standing on track No 2, the rear of the train was

stuck by Extra 2352 West, 526 feet west of signal 2003 and 2 1 miles east of Huntingdon

The conductor and flagman of Extra 6314 West were in the cupola of the caboose as their train passed Jacks. They said it was very foggy at this time, and estimated that the fog restricted their range of vision to about 500 or 600 feet. According to their statements, the train proceeded westward from Jacks at 23 or 25 miles per hour and reduced speed to about 15 miles per hour nearing signal 2003. They stated that as the train neared this signal they overheard the radio-telephone conversation between the engineer and the Hunt interlocking operator, but could not understand what was being said and thus were unaware that the train was going to stop short of signal 10L. They further stated that they did not drop any lighted fuses onto the track structure while their train was moving en route from View, or while it was reducing speed in preparation for the stop short of signal 10L. The conductor and flagman descended from the caboose cupola when the train stopped in the block of signal 2003 and short of signal 10L, and at this time Extra 2353 East was passing the caboose on track No. 1. About one minute later, according to his statements, the flagman alighted from the caboose with a red flag, torpedoes and fuses, to provide flag protection against following trains on track No. 2. The conductor said that soon afterward, when Extra 2353 East had passed and the flagman had proceeded about 300 feet to the rear of the caboose, he saw the headlight of Extra 2352 West approaching from the rear on track No. 2 and saw the flagman giving that train stop signals with his red flag. He further said the approaching train was about to pass signal 2003 at this time, and estimated that it was moving at 25 to 30 miles per hour. Realizing that the approaching train could not stop short of a collision, the conductor alighted from the caboose and ran to safety. Although the conductor said the flagman had gone back about 300 feet, the flagman stated that he had proceeded only 20 feet to the rear of the caboose when he heard the conductor call a warning about the approach of Extra 2352 West. He further stated that he immediately started to give the approaching train stop signals with his red flag, but ceased giving these signals moments later upon realizing they could not be seen through the fog. He then started to light a fusee. Immediately afterward, however, the flagman realized a collision was inevitable and ran from the track structure without lighting the fusee. Moments later, the locomotive of the approaching train passed the point where the flagman left the track structure and struck the rear end of Extra 6314 West.

The front brakeman of Extra 2352 West was killed, and the engineer of that train was injured. The flagman of Extra 6314 West was slightly injured when he slipped and fell while running from the track structure.

The engineer of Extra 2352 West, the only surviving crew member on the locomotive of that train, could not be questioned at the time of the investigation due to his being hospitalized and the extent of his injuries. Representatives

of the carrier, however, were permitted a brief interview with him at the hospital a few hours after the collision, and were able to obtain a few statements concerning his actions and observations en route to the collision point. The following two paragraphs are based on the carrier's report of that interview and other information developed during the investigation

Extra 2352 West, a westbound freight train consisting of 3 diesel-electric units, 122 cars and a caboose, left Enola Yard at Banks at 5:06 a m , the day of the accident. It entered track No. 2 at View at 5:43 a.m. Sometime later, apparently about 6:25 a m , it passed Lewis, 9.4 miles west of Wall, where it began to follow Extra 6314 West at a relatively short distance. In addition, it began to encounter wayside signals displaying Approach aspects, due to the preceding train occupying the blocks of the next signals in advance. As the locomotive passed each wayside signals displaying an Approach aspect, the cab signal in the control compartment displayed a corresponding aspect. The engineer reduced speed to somewhat under 30 miles per hour to comply with these signal aspects, and to avoid the necessity of stopping at a signal still displaying a Stop-and-Proceed aspect due to the preceding train having not yet moved westward out of its block. Thus, as Extra 2352 West proceeded in the block of a signal displaying an Approach aspect, the preceding train moved out of the block of the next signal in advance, resulting in the Stop-and-Proceed aspect displayed by that signal changing to Approach before the signal became visible through the fog to the engineer of Extra 2352 West.

After passing several wayside signals displaying Approach aspects, Extra 2352 West passed signal 1981, which also displayed an Approach aspect. This indicated to the engineer that signal 2003 was displaying a Stop-and-Proceed aspect, due to the preceding train not yet having moved out of its block. Unaware that the preceding train had stopped in the block of signal 2003, the engineer assumed that it would clear that block while his train was moving in the block of signal 1981 and that the Stop-and-Proceed aspect displayed by signal 2003 would change to Approach before the signal came into view through the fog. Thus, he took no action to reduce speed sufficiently to stop the train short of signal 2003, as required, if that signal displayed a Stop-and-Proceed aspect when it came into view. According to the engineer, the train was moving about 25 miles per hour and was closely approaching signal 2003 before that signal came into view through the fog and he then saw that it was displaying a Stop-and-Proceed aspect, instead of the expected Approach aspect. He and the front brakeman simultaneously saw the caboose of the preceding train standing on track No. 2 a short distance ahead. The engineer applied the train brakes in emergency and a few seconds later, before its speed was materially reduced, Extra 2352 West struck the caboose of the preceding train.

Rule No 99 provides that when a train stops under circumstances in which it may be overtaken by another train, a member of the crew must go back immediately with flagging equipment a sufficient distance to insure full protection, placing two torpedoes, and when necessary, in addition, displaying lighted fusees. When a train is moving under circumstances in which it may be overtaken by another train, a member of the crew must take such action as may be necessary to insure full protection. By night, or by day where the view is obscured, lighted fusees must be dropped off at proper intervals. A footnote states that this rule is not applicable for following movements on the same track when trains are operating under automatic block-signal system rules as in this case. However, a regulation of the Pennsylvania Utility Commission requires that, in the State of Pennsylvania, flag protection be provided against following trains occupying the same track, by a properly qualified flagman or trainman using standard flagging equipment, for trains moving on main tracks, under circumstances in which such trains may be overtaken by following trains and for trains stopped under circumstances in which they may be overtaken by following trains, in automatic block-signal territories and other specified territories. A footnote to this regulation provides that the requirements of flagging, insofar as protecting against following trains is concerned, will have been complied with when full protection is afforded against trains moving at restricted speed.

It is evident that as Extra 6314 West, the preceding train, was proceeding from Jacks to the point where it stopped in the block of signal 2003, it was moving under heavy fog conditions and circumstances in which it could be overtaken by another train, and that neither the conductor nor flagman took any action, as required, to provide protection against following trains. Had either the conductor or flagman dropped lighted fusees onto the track structure, as required under the circumstances, it is probable that Extra 2352 West, the following train, would have stopped to extinguish the fusees and would have then proceeded at reduced speed, prepared to stop short of a train or obstruction. Thus, the accident might have been averted. It is also evident, that full protection was not provided for the preceding train, as required when it stopped in the block of signal 2003 under foggy weather conditions and circumstances in which it could be overtaken by another train. Had the flagman gone back immediately with a lighted fusee as far as possible in the interval between the time his train stopped and the following train was observed to be approaching, the collision might have been averted or its consequences minimized.

Under the carrier's operating rules, when Extra 2352 West, the following train, entered the block of signal 1981, which displayed an Approach aspect, it was authorized to proceed at not exceeding 30 miles per hour prepared to stop at signal 2003. The train was required to stop short of signal 2003, which displayed a Stop-and-Proceed aspect. After stopping, it was authorized to proceed in the block of signal 2003 at restricted speed not exceeding 15 miles

per hour prepared to stop short of a train or obstruction. It is evident that Extra 2352 West was moving at excessive speed, under the prevailing fog conditions, as it proceeded in the block of signal 1981 and neared signal 2003, and that it was not prepared to stop short of signal 2003, as required, when the Stop-and-Proceed aspect displayed by that signal came into view. Thus, when the engineer first saw signal 2003 at a short distance through the fog, there was insufficient braking distance for the train to stop short of that signal or the preceding train, resulting in the collision.

Findings

1. While en route to the point where it stopped in the block of signal 2003, the preceding train was moving under circumstances in which it could be overtaken by another train and without flag protection as required.
2. After stopping in the block of signal 2003, the preceding train was not provided with full protection against following trains, as required.
3. Under the Approach aspect displayed by signal 1981, the following train was authorized to proceed in the block of that signal, prepared to stop short of signal 2003.
4. The following train proceeded in the block of signal 1981 at excessive speed under the existing conditions and was not prepared to stop short of signal 2003 as required, when that signal came into view.
5. The following train passed signal 2003, which displayed a Stop-and-Proceed aspect, without stopping as required, resulting in the collision.

Cause

This accident was caused by failure of the conductor and flagman of the preceding train to provide adequate flag protection against following trains, and failure of the engineer and front brakeman to operate the following train in accordance with signal indications.

Dated at Washington, D C , this 28th
day of June 1968
By the Federal Railroad Administration
Railroad Safety Board

Bette E. Holt
Acting Executive Secretary

(SEAL)

Appendix

Tracks

From the east on track No 2 there are, successively, a long tangent, a ^{2015'} curve to the right 1,226 feet, and a tangent 2,840 feet to the collision point and a considerable distance westward. From the east, the grade is, in succession, practically level throughout a considerable distance, 0.20 percent ascending 1,050 feet, and 0.42 percent ascending 400 feet to the collision point and 2,600 feet westward.

Signals

Automatic signals 1981 and 2003 are of the position-light type and are Approach lighted. The aspects applicable to this investigation, and the corresponding indications and names are as follows:

<u>Signal</u>	<u>Aspect</u>	<u>Indication</u>	<u>Name</u>
1981	3 amber lights in diagonal position to the right	Proceed prepared to stop at next signal Train exceeding Medium speed must at once reduce to that speed	Approach
2003	3 amber lights in horizontal position over an amber marker light	Stop; then proceed at Restricted speed	Stop-and-Proceed

The controlling circuits are so arranged that when the block of signal 2003 is occupied and the block of signal 1981 is unoccupied, signal 2003 and 1981 display Stop-and-Proceed and Approach aspects, respectively, to an approaching train.

The cab signal system is so arranged that within eight seconds after a locomotive equipped with cab-signal apparatus passes a wayside signal, the aspect displayed by the cab signal changes, if necessary, to conform with the aspect displayed by the wayside signal.

Carrier's Operating Rules and Timetable Special Instructions

Medium Speed - Not exceeding one-half the speed authorized for passenger trains but not exceeding 30 miles per hour

Reduced Speed - Prepared to stop short of train or obstruction

Restricted Speed - Not exceeding 15 miles per hour prepared to stop short of train, obstruction or switch not properly lined ***

11 A train finding a fusee burning red on or near its track must stop and extinguish the fusee and then proceed at Reduced speed

34 All members of the crew must, when practicable, as soon as the next signal ahead affecting the movements of their train or engine becomes visible, call the indication to each other by name *** If engineman *** fails to control the speed of the train or engine in accordance with the signal indication, other members of the crew will take necessary action to insure the safety of the train

99 When a train stops under circumstances in which it may be overtaken by another train, a member of the crew must go back immediately with flagging equipment a sufficient distance to insure full protection, placing two torpedoes, and when necessary, in addition, displaying lighted fusees

When a train is moving under circumstances in which it may be overtaken by another train, a member of the crew must take such action as may be necessary to insure full protection By night, or by day when the view is obscured, lighted fusees must be dropped off at proper intervals

NOTE - When trains are operating under automatic block signal system rules, the requirements of Rule 99 do not apply for following movements on the same track

Timetable Special Instructions

ALL DIVISIONS

1099-A1 APPLICATION OF RULE 99, STATE OF PENNSYLVANIA

On November 22, 1965, the Pennsylvania Public Utility Commission adopted in their Railroad Regulation Rule 16 requiring: "That flag protection be provided against following trains occupying the same track, by a properly qualified flagman or trainman using standard flagging equipment, for trains moving on Main *** tracks, under circumstances in which such trains may be overtaken by following trains and for trains stopped under circumstances in which they may be overtaken by following, trains in *** automatic block signal *** territories, ***"

"NOTE: When trains are operating under automatic block signal system rules *** the requirements of flagging, insofar as protecting against following trains is concerned, will have been complied with when full protection is afforded against trains moving at restricted speed "

Except as modified by this instruction, all Rules and Special Instructions regarding flag protection remain in effect.

Trains Involved

Extra 6314 West consisted of diesel-electric units 6314, 6319 and 6026, coupled in multiple-unit control, 104 cars and a caboose. The train brakes had been tested and had functioned properly when used en route. At the time of the accident, the engineer, fireman and front brakeman were in the control compartment of the first diesel-electric unit. The conductor and flagman were in the vicinity of the caboose, as described in the report.

Extra 2352 West consisted of diesel-electric units 2352, 3802 and 2616, coupled in multiple-unit control, 122 cars and a caboose. The train brakes had been tested and had functioned properly when used en route. The headlight was lighted. As this train approached the collision point, the engineer and front brakeman, the only crew members on the locomotive, were in the control compartment near the front of the first diesel-electric unit, which was of the road-switcher type. The conductor and flagman were in the caboose.

Unit 2352 of this train was provided with a cab-signal warning whistle so arranged that it sounded until acknowledged when the locomotive passes a wayside signal displaying a more restrictive aspect than applied in the block that he had been moving in.

This unit was also equipped with an electronic monitoring device requiring an acknowledging movement by the engineer every 20 seconds or less, to preclude or forestall automatic application of the train brakes.

Damages

The caboose and the last ten cars of Extra 6314 West were derailed and stopped in various positions on the south side of track No. 2. They were destroyed.

Extra 2352 West stopped with the front end 87 feet west of the collision point. The first and second diesel-electric units, and the 8th to 18th cars, inclusive, were derailed. The first diesel-electric unit overturned and stopped on the south side of track No. 1. The other derailed equipment stopped in various positions on or near the track structure. Both derailed diesel-electric units were heavily damaged, and the third unit was slightly damaged. Of the eleven derailed cars, five were destroyed, three were heavily damaged, and three were slightly damaged.

Other Factors

The accident occurred at approximately 7:32 a.m., in foggy weather.

The maximum authorized speeds for Extra 6314 West and Extra 2352 West in the accident area were 40 and 50 miles per hour, respectively

According to the carrier's records, all the crew members of Extra 6314 West had been on duty 5 hours 2 minutes at the time of the collision, after having been off duty more than ten hours. The engineer, conductor, front brakeman and flagman of Extra 2352 West had been on duty 5 hours 12 minutes, after having been off duty over sixteen hours

