Inv-2339

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

BALTIMORE & OHIO RAILROAD

POINT OF ROCKS, MD.

MARCH 20, 1939

INVESTIGATION NO. 2339

SUMMARY

Inv-2339

Railroad:	Baltimore & Ohio	
Date:	March 20, 1939	
Location:	Point of Rocks, Md.	
Kind of accident:	Rear-end collision	
Trains involved:	Freight	Freight
Train numbers:	Extra East	Extra East
Engine numbers:	4449	4469
Consist:	126 cars, helper engine 4477, 2 cabooses, second helper engine 4619	98 cars, helper engine 4629, caboose
Speed:	Just started	12-18 m.p.h.
Operation:	Timetable, train orders, and manual block-signal system	
Track:	Double; 3° left curve 1,003 feet, then tangent 456 feet to point of accident; grade descending eastward 2,900 feet, then ascending 3,800 feet to point of accident and beyond	
Weather:	Clear	
Time:	11:02 a. m.	
Casualties:	2 injured	
Cause:	Failure of Extra 4449 to provide proper flag protection and failure to operate Extra 4469 in accordance with interlocking signal indications.	

May 12, 1939.

To the Commission:

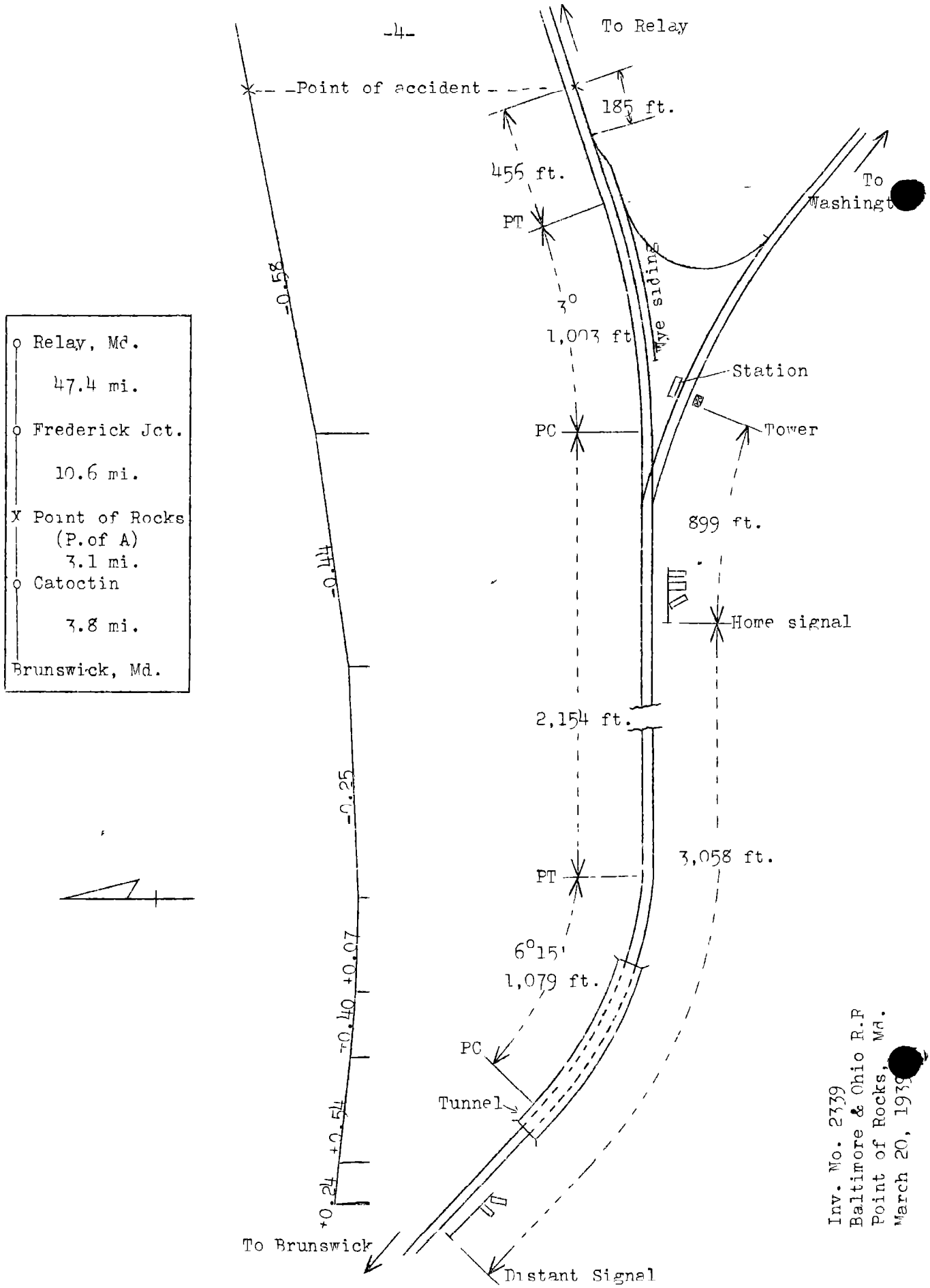
On March 20, 1939, there was a rear-end collision between two freight trains on the Baltimore & Ohio Railroad at Point of Rocks, Md., which resulted in the injury of two employees.

Location and Method of Operation

This accident occurred on that part of the Baltimore Division designated as the West End which extends between Point of Rocks and Relay, Md., a distance of 58 miles. In the vicinity of the point of accident this is a double-track line over which trains are operated by timetable, train orders, and a manual block-signal system. The accident occurred 1,239 feet east of "KG" interlocking tower, or 185 feet east of the wye-siding switch. Approaching from the west there is a tangent 2,154 feet in length followed by a 3° curve to the left 1,003 feet in length, then a tangent of 456 feet to the point of accident and beyond. The grade is descending eastward, varying from 0.07 to 0.54 percent, about 2,900 feet to a point just east of Point of Rocks tunnel and it is then ascending 3,800 feet to the point of accident and a considerable distance beyond varying from 0.25 to 0.58 percent, being 0.58 percent at the point of accident.

Point of Rocks is located at the junction of the Metropolitan Sub-Division and the West End. There is a wye at this point, the east leg of which extends from the westward main track of the Metropolitan Sub-Division to the wye-siding, which parallels the eastward main track of the West End on the south and connects thereto by means of a hand-throw switch located 1,054 feet east of the tower. The station is located within the wye and near the west end thereof and the tower is located on the south side of the wye and opposite the station.

Eastward interlocking signal 1 and the home signal are located 3,957 and 899 feet, respectively, west of the tower; they are 3-position, upper-quadrant, semaphores and are operated from the tower. Signal 1 has two arms; the bottom arm is fixed in horizontal position. When the top arm is in the diagonal position it indicates "approach next signal prepared to stop," and its name is "approach-signal." The home signal has three arms; the top arm governs eastward movements to the West End, and the middle arm governs movements on the Metropolitan Sub-Division. When the top and middle arms are in horizontal position and the bottom arm in diagonal position the indication is "proceed at slow speed prepared to stop," and its name is "slow-speed-signal." The home signal performs the dual function of displaying interlocking and manual-block indications, the bottom arm being used to display the manual-block indications;



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when this arm is in the diagonal position the night aspect is lunar white.

General Order No. 153 specifies that,"Whenever lunar white indication is displayed it means 'Permissive slow speed prepare to stop short of train or obstruction.'"

Rule 99 of the operating department reads in part as follows:

> "When a train stops under circumstances in which it may be overtaken by another train, the flagman will go back immediately with flagman's signals a sufficient distance to insure full protection, placing two torpedoes, and when necessary, in addition, displaying lighted fusees.
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> "When signal has been given recalling the flagman in accordance with Rule 14, and safety to the train will permit, he may return. When the conditions require he will leave the torpedoes and a lighted fusee; and if a tunnel is located between this point and his train, he will, in addition, leave a lighted fusee in the tunnel.
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> * * * .
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> "When a train is moving under circumstances in which it may be overtaken by another train, the flagman will take such action as may be necessary to insure full protection. By night, or by day when the view is obscured, lighted fusees will be thrown off at proper intervals."
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> * * * .

Rule 10 of the current timetable, relative to the spacing of trains, provides that eastward from Point of Rocks to Mt. Airy Jct. extras following extras and helpers be spaced at least 7 minutes apart.

Rule 5 of the timetable reads in part as follows:

"The following definitions will be observed:

"NORMAL SPEED - The maximum speed permitted by timetables for main-track movements.

"MEDIUM SPEED - One-half the normal speed, not to exceed thirty (30) miles per hour.

"SLOW SPEED - One-quarter the normal speed, not to exceed fifteen (15) miles per hour.

"RESTRICTED SPEED - Proceed, prepared to stop short of train, obstruction, or anything that may require the speed of a train to be reduced."

The maximum authorized speed for freight trains is 30 miles per hour.

A high embankment on the north side of the tracks restricts the view across the inside of the curve from the home signal to the point of accident.

The weather was clear at the time of the accident, which occurred about 11:02 a. m.

Description

Extra 4449 East consisted of road engine 4449, 126 loaded cars, helper engine 4477 and 2 cabooses, in the order named; the train was in charge of Conductor Rison and Engineman Templeton, with Engineman Tabler on the helper engine. This train left West Brunswick, 6.8 miles west of Point of Rocks, at 9:28 a. m., according to the train sheet, and arrived at Point of Rocks at 9:47 a. m. While passing through the dip at this point an undesired automatic train-control brake application occurred on road engine 4449, and the train stopped. Two back-up movements were then made to take a run for the hill, but each time without success. Helper engine 4619, in charge of Engineman Carter, was then moved from the wye-siding at 10:50 a.m. and coupled behind to assist; after moving several car lengths up the hill it was struck by Extra 4469.

Extra 4469 East consisted of road engine 4469, 98 loaded cars, helper engine 4629, and a caboose, in the order named; the train was in charge of Conductor Halstead and Engineman Voyce, with Engineman Hanes on the helper engine. This train left West Brunswick at 10:45 a. m., according to the train sheet, passed signal 1, which was displaying an approach indication, passed the home signal which was displaying a slow-speed indication, and at a point 2,138 feet beyond it collided with Extra 4449 while traveling at a speed estimated to have been from 12 to 18 miles per hour.

Both helper engines at the rear of Extra 4449, their tenders, the two cabooses, the one hundred twenty-first, and the one hundred twenty-sixth cars were derailed and damaged; the helper engines remained upright.

Engine 4469, its tender, the first car, the rear truck of the fifteenth car, the sixteenth to nineteenth cars, inclusive, and the forward truck of the twentieth car in Extra 4469 were derailed and damaged. The employees injured were the engineman and the fireman of Extra 4469.

Summary of Evidence

Engineman Templeton, of road engine 4449, stated that at Brunswick the air brakes were tested and they functioned properly. Normal speed was maintained to Point of Rocks, but just east of that station the automatic train-stop device caused an undesired brake application and the train stalled on the hill. The engineman tried to operate the reset button, but the device would not reset, and he cut it out. He then whistled out the flagman. A back-up movement was made and a run taken for the hill, but the train again stalled. A second back-up movement, farther than the first, was made and again the train stalled when ascending the hill. The slack was then pushed in from the rear and his engine started up the hill, but, after moving a few car lengths, the train stopped again and the air pressure dropped.

Fireman Mitchell, of road engine 4449, corroborated the testimony of his engineman.

Head Brakeman Lentz, of Extra 4449, stated that when the train stalled he went to the telephone and received instructions to back up and take a run for the hill. After two such attempts which were unsuccessful, a second helper engine was coupled to the rear.

Engineman Tabler, of the first helper, engine 4477, stated that there was no helper flagman with his engine. When a helper engine has a flagman it is customary for the train flagman to couple the helper engine to the rear of the train and for the helper flagman to protect. The helper flagman, who was with the second helper engine, was not called in when the third ascent was started.

Fireman Willard, of helper engine 4477, stated that after the back-up movement was made to take a run for the hill he left a lighted fusee, but no torpedoes, and boarded the helper engine.

Conductor Rison, of Extra 4449, stated that his train stalled the last time, about 10:47 or 10:48 a. m., just east of the switches. He saw the helper flagman start back to protect. The train flagman coupled the second helper engine to the rear of the train about 10:51 or 10:52 a.m. Thinking that

trouble might be had with the brakes sticking when the air was cut through to the second helper engine, the conductor walked ahead twelve or fifteen car lengths. When the train started up the hill he boarded the tenth rear car to pass signals. From this position he saw the approaching train and simultaneously heard the explosion of one torpedo. The collision occurred very shortly thereafter. He was depending on the helper flagman to afford proper rear-end protection. It is not the practice to recall the helper flagman by standard whistle signal in all cases, the understanding being that when the helper engine and the road engine both whistle off, the helper flagman will run forward and try to catch the train after it starts up the hill, and in case of failure to do so he will be left behind. The weather was clear at the time of the accident.

Train Flagman Wehnert, of Extra 4449, stated that when the train first stopped the rear end was in the tunnel and he immediately went back to flag, and was recalled. The train started ahead, moved about sixty car lengths and stalled again; he went back to flag the second time and continued through the tunnel. The train was backed up and it overtook him. He could not get aboard the rear end as it passed, but he did catch one of the cars. When the train stopped he got off and ran toward the rear, but the train started ahead again before he got all the way back; he did not place torpedoes at that point, but he said that the fireman of helper engine 4477 placed a fusee and torpedoes. The train moved very slowly a considerable distance and after the rear end passed the station he put down a torpedo. The cabooses cleared the switches about 10:47 or 10:48 a. m., and when about six car lengths east of the wye-siding switch the train stalled again, about 10:49 or 10:50 a. m. Before it finally stopped he went back and opened the switch and the second helper engine came out of the wye siding; he coupled it behind the cabooses while the helper flagman closed the switch and started back to protect. An attempt was made to start the train, then slack was taken, the whistle sounded, and, after moving about three or four car lengths, the collision occurred, about 11:02 a.m., at which time in order to pass signals he was about three or four car lengths ahead of the second helper engine. He saw the helper flagman going back at a point about seven car lengths behind the second helper engine.

Engineman T. H. Carter, of helper engine 4619, stated that it was about 8 or 10 minutes from the time his engine left the wye-siding switch until the train started moving. He saw the helper flagman start back to protect, but he did not know how far back he went or where he was at the time of the collision. He heard one torpedo explode. He did not recall the flagman. In his opinion proper rear-end protection was not afforded.

The statement of Fireman J. Carter, of helper engine 4619, did not develop anything additional of importance.

Helper Flagman Hammond, of helper engine 4619, stated that after getting telephone instructions from the operator to assist Extra 4449 to Frederick Junction, 10.6 miles distant, he gave his engine crew a proceed signal and the train flagman opened the wye-siding switch. The helper flagman took over the duty of flagging, as customary, closed the switch, placed a torpedo there, and started back to protect. He had fusees, torpedoes, and a red flag. He stated that he walked back at his usual gait and when on the curve about ten car lengths west of the wye-siding switch he saw Extra 4469 approaching at a point opposite the station. He ran toward it, on the engineman's side, waving stop signals, but it passed him traveling at a speed of about 25 or 30 miles per hour, with the air brakes applied, and then the collision occurred. His stop signals were not answered. He was not recalled. He heard the helper engines starting the train up the hill about the time he heard the following train approaching; he said that if it had not started he would have been back to the home signal. It is the general understanding among flagmen that, when a train is started on the hill, the flagman shall run ahead and catch it before it gets moving too rapidly. He did not think that there were 12 minutes at his disposal within which to afford protection, and said that he could walk farther than ten car lengths in that time. He maintained that he walked back as far as possible in the time available, but that he did not make any special effort to get back around the curve involved, that he did not start eastward when he heard the helper engines whistle off, but continued westward, and he felt that he did the best he could to comply with the requirements of rule 99.

Engineman Voyce, of Extra 4469, stated that at Brunswick the air brakes were tested and were reported to be all right. The distant signal at Point of Rocks displayed an approach indication. He closed the throttle but did not apply the brakes, and the helper engine at the rear shoved in the slack. At the home signal a slow-speed indication was received. While rounding the curve to the left, and when about twelve or fifteen car lengths from the train ahead, a warning of danger was called. The speed was between 20 and 25 miles per hour and he immediately applied the air brakes in emergency and jumped when about five car lengths from the rear of Extra 4449. He estimated the speed to have been about 12 miles per hour at the time of the collision He did not see any flagman. The maximum speed limit for his train was 30 miles per hour and he fully understood that according to the rules the approach indication of the distant signal required that the speed be reduced to one-half the normal speed, or 15 miles per hour, prepared to stop at the home signal, and also that the slow-speed indication of the home signal required that the speed be reduced to one-quarter the normal speed, or 7½ miles per hour, prepared to stop short of train or obstruction. He said that from the point around the outside of the curve where he could see the rear end of the train ahead, even had he strictly complied with the slow-speed indication of the home signal

and reduced to 7½ miles per hour, he could not have stopped in time to avoid the accident. Under similar conditions to get over the hill it is common practice to operate through the territory involved at a speed of 25 miles per hour. If the brakes were applied and speed reduced to comply with signal indications the train would be broken in two, and it would tie up the railroad. The home signal displays a slow-speed indication whenever there is a train somewhere in the block between Point of Rocks and Frederick Junction; a slow-speed indication is received every day and he expected that proper rear-end protection would be afforded by the preceding train.

Fireman Pannell, of Extra 4469, stated that the embankment on the inside of the curve to the left restricted the view and he did not see the rear end of the train ahead until about 350 feet from it, at which time the speed was about 20 miles per hour. He immediately called a warning of danger, then jumped. He did not see any flagman prior to the accident, but immediately thereafter, while he was yet on the ground, the helper flagman passed by him, walking westward.

Head Brakeman Hill, of Extra 4469, stated that there was a man on the station platform giving a signal to indicate that they were following a train closely.

Assistant Road Foreman of Engines Harper rode engine 4469 from Brunswick to the point of accident. He stated that the brakes were not applied to reduce speed in accordance with the aspects of the home and the distant signals because if the brakes had been applied it would have been necessary to stop before releasing, and by permitting the train to drift the speed would be reduced of its own accord on the ascending grade. He, the fireman, and the head brakeman maintained a lookout from the left side of the cab. As soon as the train ahead was seen, about twenty car lengths distant, a warning was called and the engineman applied the air brakes in emergency, at which time the speed was about 15 to 18 miles per hour, but it was then too late to avert the accident. The only flagman he saw was a man immediately behind the tank of helper engine 4619 who began to wave a red flag when Extra 4469 came in sight, and the only torpedo exploded was one just east of the wye switch. About one hour after the accident he inquired why proper protection was not afforded and the helper flagman said that he walked back as far as the tool house, about 160 feet west of the wye-siding switch, and when Extra 4449 started up the hill he went forward and got on the second helper engine. It is the regular practice, when helper engines have a flagman, for the helper flagman to protect as long as the helper engine is coupled to or standing behind a train. It was his observation that signal indications in general were obeyed by enginemen, except this particular signal, at which indications have not been obeyed on account of

the heavy ascending grade and the 7-minute spacing rule. Knowing that the preceding train has passed at least 7 minutes before the signal can be given for a following movement, which provides ample time to afford proper rear-end protection if the train ahead is stopped, enginemen have not been reducing speed at this point. When the following train is closer than 7 minutes it is held at the signal west of the tunnel.

Engineman Hanes, of helper engine 4629, stated that the rear end of the train stopped gradually, the same as a normal stop.

The statement of Fireman Best, of helper engine 4629, did not develop anything additional of importance.

Conductor Halstead and Flagman Neese, of Extra 4469, were in the caboose and their first knowledge of anything wrong was when the air brakes became applied. They estimated the speed en route to have been between 25 and 30 miles per hour.

Operator Stouffer, at "KG" interlocking tower, stated that he wondered what was wrong when Extra 4449 stopped opposite the tower, which was at 9:47 a.m., and he informed the dispatcher of the occurrence. Someone telephoned and said the air control had gone down on engine 4449. The train drifted back and an unsuccessful attempt was made to start up the hill. After the operator ascertained that there was no train out of Brunswick he gave permission for Extra 4449 to make a back-up movement to the tunnel and take a run for the hill, which was done. While the train was passing the tower this time the operator informed the dispatcher that it was not moving very fast, and arrangements were then made to put helper engine 4619 behind and assist the train up the hill to Frederick Junction. At 10:49 a. m. someone telephoned and was told to put helper engine 4619 behind. The operator reported to the dispatcher that Extra 4449 and helper engine 4477 were by at 10:48 a. m., and second helper engine 4619 was out of the wye-siding switch at 10:50 a. M. Extra 4469 left Brunswick at 10:45 a. m. He operated the distant signal at 10:53 a. m. The indicator shows that Extra 4469 came to the tunnel at 10:56 or 10:57 a. m., and the engine passed the tower at 11:02 a.m. Had he felt any concern about Extra 4469 following Extra 4449 he would have held Extra 4469 at the distant signal and have taken a chance on being censored for holding it there, but he thought that Extra 4449 had gone and was half-way up the hill.

Signal Maintainer Stunkle stated that when he gave the signal from the station platform at Point of Rocks to indicate that Extra 4469 was closely following Extra 4449, he thought that Extra 4449 had a sufficient lead and it did not occur to him to wave stop signals.

Master Mechanic Hines stated that after the accident engine 4449 was placed on the inspection pit at Riverside, Baltimore, Md., and nothing wrong with the automatic train-stop equipment was found.

Discussion

The investigation disclosed that Extra 4449 stalled on the grade just east of Point of Rocks because of an automatic application of the brakes due to a failure of the automatic train-stop apparatus. Two attempts to proceed were made but this train was unable to proceed up the grade until an additional helper engine had been coupled to the rear end. Extra 4449 had started up the grade and had moved a distance of several car lengths when the collision occurred.

When the additional helper engine was coupled to the rear of Extra 4449, in accordance with the practice on this road, the helper flagman took over the duty of providing flag protection for this train. According to his statement he started back with full flagging equipment to provide rear-end protection and continued to walk back until he saw the following train approaching. Although a period of 10 or 12 minutes elapsed between the time the additional helper engine was coupled to the rear of Extra 4449 and the time of the accident, according to his own statement the helper flagman went back a distance of only about 10 car lengths from the wye switch, while other evidence indicates that he went back only a very short distance and then returned to his train when it started just prior to the accident. The statements of employees who were on the engine of Extra 4469 were to the effect that the flagman was at or near the rear end of Extra 4449 immediately prior to the collision. The investigation clearly established the fact that adequate flag protection was not provided. Ample time was available to permit the flagman to go back around the curve to a point on tangent track where his stop signals could have been seen a sufficient distance to permit Extra 4469 to be stopped short of the point of accident.

The investigation also disclosed that Extra 4469 was not operated in accordance with the interlocking signal indications which were displayed for that train. Approaching Point of Rocks, an approach indication was received at the distant signal and a slow-speed indication at the home signal, which indications required that speed should be reduced to not exceeding 15 and 7½ miles per hour, respectively. The evidence indicates that the speed of this train was about 30 miles per hour when approaching Point of Rocks and that it was 20 or 25 miles per hour when the engine passed the home signal. When the rear end of the preceding train came into view, the engineman of Extra 4469 made an emergency application of the brakes but on account of the speed at which this train was being operated it was then too late

to avert the accident. Had this train been operated in accordance with the requirements of the rules and the signal indications which were displayed, this accident would no doubt have been averted.

This investigation disclosed a dangerous condition which should be corrected immediately. While there is a manual block system in effect on this line, under a current time-table rule extras are permitted to follow extras or helpers eastward from Point of Rocks at intervals not less than 7 minutes apart; so far as these trains are concerned, this rule practically nullifies the block system. Because of the ascending grade east of Point of Rocks, it is common practice for heavy eastbound freight trains to be operated at speeds materially in excess of the rates permitted by the rules under restrictive signal indications. That practice was followed in this case, and according to the evidence the assistant road foreman of engines who was on Extra 4469 was fully aware of the fact that trains were not being operated in accordance with the interlocking signal indications at this point. Responsible operating officer of this railroad should promptly take necessary measures to insure that existing rules are properly enforced and obeyed, or that rules and practices in effect at this point are so modified as to provide adequate protection for the operation of trains at this point.

Conclusions

This accident was caused by failure to provide proper flag protection for Extra 4449, and by failure to operate Extra 4469 in accordance with interlocking signal indications.

Recommendation

It is recommended that responsible officials immediately take measures to correct the dangerous practices as disclosed in this investigation.

Respectfully submitted,

W. J. PATTERSON,

Director.