Inv-2268

INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT OF THE DIRECTOR

BUREAU OF SAFETY

ACCIDENT ON THE

NEW YORK CENTRAL RAILROAD

NORTH GERMANTOWN, N. Y.

APRIL 17, 1938.

INVESTIGATION NO. 2268

SUMMARY

Inv-2268

Railroad:	New York Central	
Date:	April 17, 1938.	
Location:	North Germantown, N. Y.	
Kind of accident:	Rear-end collision	
Trains involved:	Passenger	: Passenger
Train numbers:	First 59	: Second 59
Engine numbers:	5431	: 5410
Consist:	12 cars	: 9 cars
Speed:	Just started	: 10 m.p.h.
Operation:	Timetable, train orders and automatic block-signal and train-stop system	
Track:	Double; tangent, level.	
Weather:	Clear	
Time:	1:42 a.m.	
Casualties:	11 injured	
Cause:	Failure of Second 59 to be operated in accordance with signal indications.	

May 12, 1938.

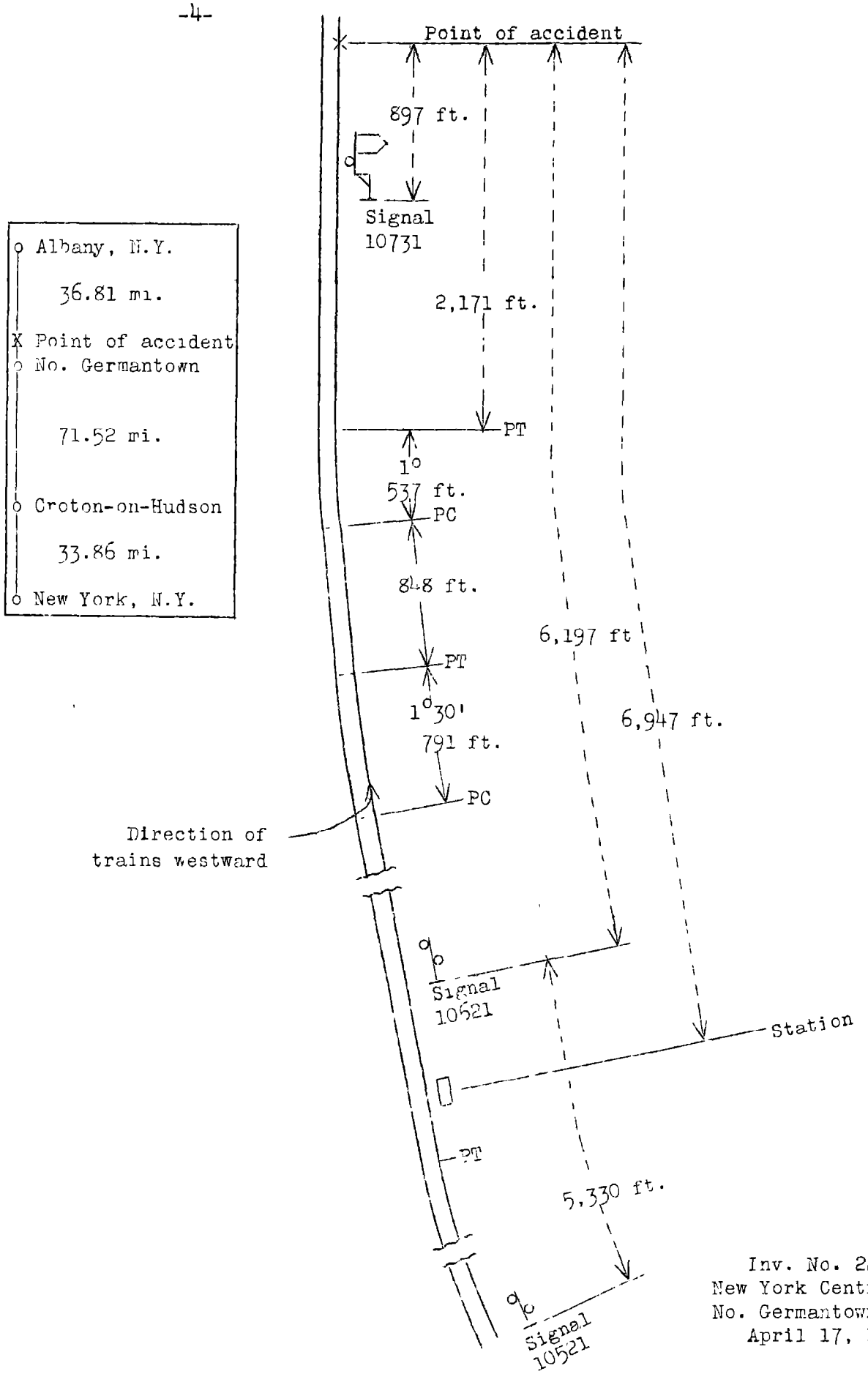
To the Commission:

On April 17, 1938, there was a rear-end collision between two passenger trains on the New York Central Railroad near North Germantown, N. Y., which resulted in the injury of six passengers, three Pullman employees and two railroad employees. The investigation of this accident was made in conjunction with representatives of the New York Public Service Commission.

Location and method of operation

This accident occurred on that part of the Hudson Division which extends between Croton-on-Hudson and Albany, N. Y., a distance of 108.33 miles. In the vicinity of the point of accident this is a double-track line over which trains are operated by timetable, train orders, an automatic block-signal system, and an automatic train-stop system, the latter being of the intermittent-inductive type. The general direction of the tracks is north and south, but timetable directions are east and west and the latter directions are used in this report. The accident occurred on the westward track approximately 6,950 feet west of the station at North Germantown. Approaching this point from the east the track is tangent for a distance of 4,005 feet, followed by a $1^{\circ}30'$ curve to the right 791 feet in length, tangent for 848 feet, a 1° curve to the right 537 feet in length, and then tangent for 3,144 feet, the accident occurring on this latter tangent at a point 2,171 feet from its eastern end. In this vicinity the track is level, and is laid in a side hill cut; the view is materially restricted by the side wall to the right of a west-bound train.

The automatic signals involved are signals 10521, 10621 and 10731, located 11,527 feet, 6,197 feet and 897 feet, respectively, east of the point of accident. These signals are approach-lighted. Signal 10521 is of the 1-unit, 3-indication, color-light type, with a red marker light; its indications are red-over-red for, "stop; then proceed at restricted speed", yellow-over-red for, "proceed preparing to stop at next signal; train exceeding medium speed must at once reduce to that speed", and green-over-red for, "proceed". Signal 10621 is of the 2-unit, 4-indication, color-light type; its indications are red-over-red for, "stop; then proceed at restricted speed", yellow-over-red for, "proceed preparing to stop at next signal; train exceeding medium speed must at once reduce to that speed", yellow-over-green for, "proceed approaching next signal at medium speed", and green-over-green for, "proceed". Signal 10731 is of the 1-arm, 3-position, upper quadrant, semaphore type with



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red marker light; its indications are red-over-red for, "stop; then proceed at restricted speed", yellow-over-red for, "proceed preparing to stop at next signal; train exceeding medium speed must at once reduce to that speed", and green-over-red for, "proceed". When the westward track is occupied west of signal 10731, this signal normally displays a red-over-red indication; signal 10621, a yellow-over-red indication, and signal 10521, a yellow-over-red indication. Automatic train stop inductors are located approximately 70 feet in rear of each signal.

Restricted speed is defined as "a speed not exceeding that which will enable a train to stop short of train ahead, obstruction, or switch not properly lined, and look out for broken rail". Medium speed is defined as "a speed not exceeding thirty miles per hour".

The maximum speed in this territory for trains such as those involved in this accident is 70 miles per hour.

The weather was clear at the time of the accident, which occurred about 1:42 a.m.

Description

First 59, a west-bound passenger train, consisted of five baggage cars, two coaches and five Pullman sleeping cars, all of steel or steel underframe construction, hauled by engine 5431, and was in charge of Conductor Brown and Engineman Kemmy. This train departed from Croton-on-Hudson, 71.52 miles from North Germantown, at 12:31 a.m., according to the train sheet, 2 minutes ahead of its scheduled leaving time, passed Barrytown, the last open office and 11.42 miles from North Germantown at 1:26 a.m., 5 minutes ahead of its scheduled time, stopped west of signal 10731 to extinguish a lighted fusee, and after restarting had moved only a short distance when its rear end was struck by Second 59.

Second 59, a west-bound passenger train, consisted of one baggage car, one deadhead Pullman sleeping car, and seven Pullman sleeping cars, all of steel construction, hauled by engine 5410, and was in charge of Conductor Wagman and Engineman Williams. This train departed from Croton-on-Hudson at 12:31 a.m., according to the train sheet, passed Barrytown, at 1:30 a.m., 1 minute ahead of its scheduled time, passed signals 10521 and 10621 displaying yellow-over-red indications, passed signal 10731 displaying red-over-red indication and shortly afterwards collided with First 59 while traveling at a speed of 10 miles per hour according to the tape of the speed recorder with which the engine was equipped.

Two pairs of wheels of the rear truck, a 6-wheel truck, of the rear car of First 59 were derailed and this truck was shoved forward about 10 feet; the rear end of this car was badly damaged. Seven other cars in this train were slightly damaged but none of these cars was derailed. The engine and seven cars in Second were slightly damaged, but none of the equipment in this train was derailed. The employees injured were two brakemen of Second 59.

Summary of evidence

Engineman Kemmy, of First 59, stated that in the vicinity of Tivoli, 7.12 miles from North Germantown, he saw the signal ahead change from yellow to green. The signals then displayed clear indications until approaching North Germantown. He had been operating his train at a speed of about 65 miles per hour and on receiving a yellow indication at signal 10521 he reduced speed about one-half, or to between 30 and 35 miles per hour. He received a yellow-over-red indication at signal 10621, and a yellow indication at signal 10731, but there was a burning fusee on the track about 12 car lengths beyond this latter signal. He stopped the train about 10 feet from the fusee which the fireman removed from the track. As soon as he saw the fireman clear the track Engineman Kemmy sounded two short blasts on the whistle to notify the flagman that he was going to start. The train started and had moved about a car length or two when the collision occurred. He thought his train had stood only about 30 seconds. The visibility was good, and he did not encounter any other fusees besides the one his fireman picked up.

The statement of Fireman Johnson, of First 59, corroborated that of the engineman. He did not know how long it took him to get off the engine when his train stopped to pick up the fusee but he did it as quickly as he could, possibly two or three minutes.

Conductor W. H. Brown, of First 59, stated that he was in the fifth car from the rear when the accident occurred and he thought his train stood about one minute when the stop was made just prior to the accident.

Flagman J. A. Brown, of First 59, stated that approaching North Germantown he was on the rear platform and when the speed was reduced he saw that they were running on yellow signal indications. He threw off a red fusee as they rounded the curve just east of the point of accident approximately 35 or 40 passenger car lengths from the point where the train stopped. At that time his train was traveling about 25 or 30 m.p.h., and when he realized that it was going to stop he threw off another fusee; his train stopped about 5 or 6 car lengths beyond. He immediately left the car and placed a torpedo on the track about a rail length from the rear of his train. He heard the proceed

whistle signal sounded by his engineman and he attempted to place another torpedo, but he then heard Second 59 working steam and he started back to flag. He had proceeded a distance of about 3 or 4 car lengths when he saw the headlight of the approaching train and he gave stop signals with his red and white lanterns. He had reached a point about 5 or 6 car lengths from his train when Second 59 passed him, and he saw the train pass over the burning fusee. The engineman did not answer his signals, but the engine was not working steam when it passed him, and the air brakes were applied. He estimated its speed at that time to have been 15 or 20 miles per hour. Flagman Brown stated that he used 5-minute fusees, that the first one flared when he threw it off, and he thought that about 3 minutes elapsed between the time he threw it off and the time his train started, and that his train had stood about 1 minute.

Engineman Williams, of Second 59, stated that the usual air brake test was made at Harmon, a satisfactory running test was made, and the brakes functioned properly en route. On approaching North Germantown he was operating his train at a speed of about 70 miles per hour. He received a yellow-over-red indication at signal 10521; he eased off on the throttle, made a 10-pound brake-pipe reduction and placed the brake valve in the lap position, operated the fore-stalling device of the automatic train-stop, and passed this signal at a speed of about 55 miles per hour. Signal 10621 also displayed a yellow-over-red indication and he made an additional 5-pound brake-pipe reduction and again operated the forestalling device; he passed this signal at a speed of about 50 miles per hour. As he rounded the curve east of the point of accident he saw the red indication of signal 10731; he immediately closed the throttle, opened the sanders and placed the brake valve in the emergency position, and he thought the speed had been reduced to less than 10 miles per hour at the time of the accident. He saw the rear end of First 59 about the same time he saw the red indication of signal 10731; at that time he was from 10 to 16 car lengths from the train. He saw the flagman about 3 or 4 car lengths from the rear of First 59, but at no time did he see any burning fusees, nor did he strike any torpedoes. The weather was clear and he did not have any trouble in observing the signals. He stated that he is thoroughly familiar with this territory and has been regularly assigned to either this train or No. 63 for the last three years. He knew that he should have reduced his speed to 30 miles per hour on receiving the yellow indications, but he had expected to find signal 10731 displaying a yellow indication. His engine was equipped with a speed indicator, but he was not sure that he had checked the speed prior to the accident and thought that his estimate of the speed of his train might have been lower than it actually was. He was of the opinion that the fusee that the flagman placed on the track did not flare until after his engine passed over it, and after the accident his conductor saw it burning under one of the cars of their train.

Fireman Tighe, of Second 59, stated that he called the signal indications and that the engineman reduced the speed to about 50 miles per hour on passing signal 10521 and to about 40 miles per hour on passing signal 10621 and as they rounded the curve east of the point of accident he saw the red indication of signal 10731. He jumped off when his train was about 30 feet from the train ahead and he estimated the speed of his train to have been 12 or 15 miles per hour at that time.

Conductor Wagman, of Second 59, stated that he was in the fifth car, walking toward the head end of the train, when he felt the air brakes apply, at which time the speed of his train was between 60 and 65 miles per hour. He felt the speed being reduced, felt a heavier application and it was about 2 minutes after he felt the first application when the collision occurred. After the accident, when he went to his engine he looked back and saw a lighted fusee under either the third or fourth car from the engine.

Supervisor of Air Brakes Albers stated that engine 5410 was equipped with the latest type 8-ET equipment while the majority of the cars were equipped with UC type brake equipment although some of the cars may have had PC type. With either of these types of equipment an emergency brake application can be obtained following a service application. Supervisor Albers stated that with Second 59 traveling at a speed of 72 miles per hour, had a 10-pound brake-pipe reduction been made when it passed signal 10521, and a further reduction of 5-pounds at signal 10621, the train would have stopped prior to striking the rear end of First 59. His examination of the speed recorder tape on engine 5410 showed a speed of about 68 miles per hour at the point where the brake was applied just prior to the accident; this point is located 1,980 to 2,000 feet east of the point of collision. The tape indicated that an emergency application had been made, as deceleration was at a very rapid rate when the speed was about 30 miles per hour at a point 250 feet from the point of collision.

Chief Signal Inspector Goodwin stated that prior to the accident signal 10821, located 5,226 feet west of signal 10731, had a broken wire between the battery and the rail at the west end of the second track circuit 3,074 feet west of the signal. This wire had broken due to vibration and was held in such a position as to make circuit contact intermittently, thereby causing the signal to display intermittently a red-over-red indication.

Two freshly burned fusees were found after the accident 351 feet and 2,375 feet, respectively, east of the point of accident.

Observations of the Commission's Inspectors

Inspection of signals 10521, 10621, and 10731 showed that they had been working properly.

Observations were made to ascertain the view to be had approaching the signals involved. Due to rock cuts on the inside of some of the curves, the view was restricted to some extent. It was found, however, that a clear view of signal 10521 could be had for a distance of 1,308 feet, a clear view of signal 10621 for approximately 2,500 feet, and signal 10731 could be seen for a distance of approximately 1,600 feet.

Discussion

According to the evidence, First 59 stopped west of signal 10731 to pick up a fusee, apparently left by a preceding train, which had been delayed by a red-over-red indication being displayed by signal 10831, the next signal west of the point of accident, due to a broken wire between the battery and rail. The speed of First 59 had been reduced to comply with the yellow indications received at signals 10521, 10621 and 10731, and the flagman threw off a fusee on the curve east of the point of accident and when he realized that his train was going to stop he threw off another fusee about 5 or 6 car lengths from the point where the rear of his train stopped. After his train stopped he placed a torpedo on the rail and attempted to flag Second 59 when he heard it approaching.

Second 59 was operated at a high rate of speed passing signals 10521 and 10621 displaying yellow-over-red indications and the engineman, therefore, did not have his train under such control as would enable him to stop when he observed the stop indication of signal 10731. According to his statements, on receiving the yellow-over-red indication at signal 10521 he eased off on the throttle and made a 10-pound brake pipe reduction, reducing speed from 70 to 55 miles per hour on passing this signal; approaching signal 10621 he made an additional 5-pound reduction and passed this signal at a speed of 50 miles per hour; before passing each of these signals he operated the forestalling lever of the automatic train stop system. He saw the red indication of signal 10731 on rounding the curve east of the point of accident, when about 1,600 feet from the signal, whereupon he immediately took emergency action to stop the train. The speed recorder tape does not substantiate the engineman's statements regarding speed; it indicates a speed of 75 miles per hour approaching signal 10521, a reduction to a speed of about 68 miles per hour on passing this signal, and a very slight reduction in speed passing signal 10621. It also indicates that a service reduction was made about 1,500 feet east of signal 10731, which reduced the speed to approximately 50 miles per hour at the signal location; this was followed by an emergency application which appears to have been made at a point about 250 feet east of the

point of collision when the speed was about 30 miles per hour, and which reduced the speed to 10 miles per hour at the time of the accident. It should be borne in mind that the scale of this tape is $\frac{1}{2}$ inch to 1 mile, hence distances can be only approximate. Under the rules, Engineman Williams should have reduced his speed to 30 miles per hour on receiving the first yellow-over-red indication, and he then would have had his train under control and would have been able to stop short of signal 10731, however, he operated the forestalling lever of the automatic train stop device at two signals without obeying their indications, and expected to receive another yellow indication at signal 10731.

Engineman Williams and Fireman Tighe, of Second 59, stated that they did not see any fusees at any time, but Conductor Wagman saw a burning fusee under either the third or fourth car of their train after the accident. Another freshly burned fusee was found about 2,375 feet east of the point of accident.

In previous accident investigation reports attention has been called to the practice known as "running on the yellow", and to the use of the forestalling feature of the automatic train-stop device without strictly complying with signal indications. In the report on a similar accident which occurred on August 31, 1934, at Crugers, N. Y., on the same division of this railroad, the following statement was made:

> Failure properly to control speed after operating the forestalling device has resulted in several accidents in automatic train stop territory and most roads, including the New York Central, now have in effect a rule that an engineman must not forestall an automatic brake application until after the restrictive signal indication has been observed and is being obeyed. That rule was not being obeyed in this case, and the continued occurrence of accidents of this character indicates that there is need for improvement in the enforcement of this rule if forestalling devices are to be continued in use.
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> The functions of the forestalling lever are closely allied with proper observance of signal indications, and when an engineman forestalls without having reduced speed in accordance with signal indications such action affords opportunity for the occurrence of an accident of the very type which an automatic train stop is intended to prevent. Too much emphasis can not be laid on the necessity for strict obedience to signal indications; if supervising officials are unable to accomplish this result further consideration should be given the question as to whether forestalling devices shall be continued as a part of an automatic train stop system.

Conclusion

This accident was caused by the failure of Second 59 to be operated in accordance with signal indications.

Respectfully submitted,

W. J. PATTERSON

Director.