INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3311

THE LONG ISLAND RAILROAD COMPANY

IN RE ACCIDENT

NEAR ROCKVILLE CENTRE, N. Y., ON

FEBRUARY 17, 1950

SUMMARY

Date:	February 17, 1950	
Railroad:	Long Island	
Location:	Rockville Centre, N. Y.	
Kind of accident:	Side collision	
Trains involved:	Passenger	: Passenger
Train numbers:	175	: 192
Consists:	12 multiple-unit cars	: 12 multiple-unit cars
Estimated speeds:	25 m. p. h.	: 25 m. p. h.
Operation:	Interlocking	
Tracks:	Cantlet; tangent; 0.86 percent ascending grade eastward	
Weather:	Clear	
Time:	10:35 p. m.	
Casualties:	31 killed; 158 injured	
Cause:	Failure to operate east-bound train in accordance with signal indications	

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3311

IN THE MATTER OF MAKING ACCIDENT INVESTIGATION REPORTS UNDER THE ACCIDENT REPORTS ACT OF MAY 6, 1910.

THE LONG ISLAND RAILROAD COMPANY

March 27, 1950

Accident near Rockville Centre, N. Y., on February 17, 1950, caused by failure to operate the east-bound train in accordance with signal indications.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On February 17, 1950, there was a side collision between two passenger trains on the Long Island Railroad near Rockville Centre, N. Y., which resulted in the death of 29 passengers and 2 railroad employees not on duty, and the injury of 124 passengers, 18 railroad employees not on duty, and 16 train-service employees. This accident was investigated in conjunction with representatives of the New York Public Service Commission.

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[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Commissioner Patterson for consideration and disposition.

Report No. 3311
Long Island Railroad
Rockville Centre, N. Y.
February 17, 1950

Location of Accident and Method of Operation

This accident occurred on that part of the railroad extending between Jamaica and Babylon, N. Y., 27.6 miles, a double-track line, over which trains moving with the current of traffic are operated by automatic block-signal and cab-signal indications. The tracks are equipped with power rails for the electric propulsion of trains. Since April 22, 1949, construction work has been in progress on the railroad in connection with the elimination of 10 rail-highway grade crossings at Rockville Centre, 10.3 miles east of Jamaica, and trains in both directions have been operated over temporary tracks between points 5,549 feet east and 4,716 feet west of the station at Rockville Centre. The temporary tracks are located south of the new elevated structure which is to carry the permanent tracks. Because of close clearance between the new elevated structure and buildings adjacent to the south right-of-way line of the railroad, a single track extends between points 473 feet and 824 feet west of the station at Rockville Centre, and the two temporary main tracks overlap and form a gantlet between points 524 feet west and 2,071 feet west of that station. The corresponding rails of the eastward and the westward tracks are 1.1 feet apart throughout the length of the gantlet. The single-track section and the gantlet are entirely within the limits of Centre interlocking. The accident occurred on the gantlet at a point 2,080 feet west of the station at Rockville Centre, and 11 feet east of the frog at the west end of the gantlet where the distance between the track centers was 9 feet 1-1/4 inches. From the west there are, in succession, a tangent 2,000 feet in length, a 4° curve to the right 270 feet, a tangent 740 feet, a 4° curve to the left 500 feet, a tangent 880 feet, a 4° curve to the right 500 feet, and the tangent on which the accident occurred. From the east there are in succession, a tangent 512 feet in length, a 5° curve to the right 120 feet, a 5° curve to the left 120 feet, a tangent 448 feet, a 1°30' curve to the left 360 feet, and a tangent 65 feet to the point of accident and 132 feet westward. The grade for east-bound trains is, successively, 0.12 percent descending 2,500 feet, 1.5 percent descending 1,930 feet, 1.4 percent ascending 434 feet, and 0.86 percent ascending 168 feet to the point of accident. The grade for west-bound trains varies between 0.25 percent and 1.4 percent descending throughout a distance of 1,942 feet immediately east of the point of accident.

Automatic signal T and semi-automatic signal 02L, governing west-bound movements on the westward track, are located, respectively, 5,759 feet and 1,976 feet east of the point of accident. Automatic signal S176 and semi-automatic signal 02R, governing

east-bound movements on the eastward track, are located, respectively, 4,042 feet and 171 feet west of the point of accident. These signals are of the position-light type and are continuously lighted. Signal T displays four aspects, signals 02L and 02R display five aspects, and signal S176 displays three aspects. The aspects here pertinent and their corresponding indications and names are as follows:

Signal	Aspect	Indication	Name
T	Three amber lights in diagonal position to the right over three amber lights in vertical position.	Proceed approaching next signal at Medium speed.	Approach-medium.
02L	Three amber lights in horizontal position over three amber lights in vertical position.	Proceed; Medium speed within interlocking limits.	Medium-clear.
02R	Three amber lights in horizontal position.	Stop.	Stop-signal.
S176	Three 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.

The cab signals on the trains in this accident display three aspects. These aspects and the corresponding indications and names are as follows:

Aspect	Indication	Name
Three amber lights in vertical position.	Proceed.	Clear.

Three 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.
Two amber lights in diagonal position to the left.	Proceed at Restricted speed.	Restricting.

The aspects of the cab signal appear in frosted glass roundels in a rectangular box located above the master controller, approximately 49 inches above the floor and slightly to the left of the center-line of the motorman's observation window in the control compartment of the multiple-unit cars. The aspects correspond with the aspects displayed by the roadway signals except that the cab signal indicates Approach when the train enters a block at a roadway signal indicating Approach-medium or Medium-clear, and indicates Restricting when the train enters a block at a roadway signal indicating Stop. When the cab signal changes to a more restrictive indication, a warning whistle in the cab sounds until an acknowledging pedal is operated.

Centre interlocking is of the electro-pneumatic type. The control machine is located in the west end of the station at Rockville Centre. It is provided with approach, traffic, indication, and electric switch locking. A track diagram is provided which is arranged to indicate the established direction of traffic, track occupancy, and whether controlled signals display aspects to proceed. The controlling circuits and the mechanical locking are so arranged that before a controlled signal can be caused to display an aspect to proceed a direction of traffic must be established between that signal and the opposing controlled signal, the opposing controlled signal must be displaying its most restrictive aspect, and the route must be clear of opposing trains. When a direction of traffic is established it is maintained automatically while a controlled signal is displaying an aspect to proceed or while the route is occupied. If a controlled signal displays an aspect to proceed and the approach circuit is occupied, the signal first must be caused to display its most restrictive aspect, then a

time interval of approximately 2 minutes 5 seconds must elapse and the route through the interlocking must be unoccupied before the direction of traffic in the opposite direction can be established. Opposing signals cannot simultaneously display aspects to proceed. Before the accident occurred, the control circuits were so arranged that when the route was lined for a west-bound movement on the westward track over the crantlet, signal T indicated Approach-medium, signal 02L indicated Medium-clear, signal S176 indicated Approach, and signal 02R indicated Stop.

This carrier's operating rules read in part as follows:

DEFINITIONS

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

Restricted Speed--Not exceeding 15 miles per hour prepared to stop short of train, obstruction or switch not properly lined and to look out for broken rail.

17. The headlight will be displayed to the front of every train by night * * *. It must be dimmed:

* * *

(b) Approaching stations at which stops are to be made * * *

* * *

(d) On two or more tracks when approaching a train in the opposite direction;

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518. If the cab signal warning whistle sounds longer than six seconds, * * * the trainman nearest the operating compartment of the engine, will go to the engineman immediately.

605. Interlocking signals govern the use of the routes of an interlocking * * *

663. A train or engine must stop clear of an interlocking signal indicating Stop. * * *

The maximum authorized speed for the trains in this accident was 55 miles per hour, but it was restricted to 30 miles per hour over the temporary tracks in the vicinity of Rockville Centre.

Description of Accident

No. 175, a west-bound first-class passenger train, consisted of 12 multiple-unit cars of steel construction. It was being operated from the front control compartment of multiple-unit car 1919, the first unit of the train. It departed from Babylon at 9:58 p. m., on time, passed signal T, which indicated Approach-medium, stopped at the station at Rockville Centre and departed at 10:34 p. m., 3 minutes late, passed signal 02L, which indicated Medium-clear, and, while moving at an estimated speed of 25 miles per hour, collided with No. 192 at a point 2,060 feet west of the station at Rockville Centre.

No. 192, an east-bound first-class passenger train, consisted of 12 multiple-unit cars of steel construction. It was being operated from the front control compartment of multiple-unit car 1492, the first unit of the train. It passed Valley, the last open office, 2.71 miles west of the point of accident, at 10:31 p. m., on time, passed signal S176, which indicated Approach, passed signal 02L, which indicated Stop, and, while moving at an estimated speed of 25 miles per hour, collided with No. 175.

The trains collided at a point about 11 feet east of the frog at the west end of the gantlet. The first car and the front truck of the second car of No. 175 were derailed to the north, and the train stopped with the west end of the first car 49 feet west of the point of accident. The first car stopped against an embankment north of the track and leaned to the right an an angle of 30 degrees. The left side of the front vestibule was crushed and the left side of the car was demolished. The second car remained upright and was badly damaged. The third, fourth, fifth, sixth, ninth, and tenth cars were somewhat damaged. The front truck of the first car of No. 192 was derailed to the south, and

the train stopped with the east end of the first car about 50 feet east of the point of accident. The first car remained upright. The left side of the front vestibule was crushed and the left side of the car was demolished. The remainder of the cars of this train except the eighth, ninth, and twelfth cars were somewhat damaged.

The motorman, the conductor, the front brakeman, the flagman, and two ticket collectors of No. 175, and the motorman, the conductor, the front brakeman, the flagman, and six ticket collectors of No. 192 were injured.

The weather was clear at the time of the accident, which occurred at 10:35 p. m.

The multiple-unit cars of these trains are equipped with electro-pneumatic and automatic air brakes. A safety-control feature actuated by a contact plunger on the controller handle is provided. If pressure on this plunger is released, the train brakes will become applied in emergency unless a brake application of a predetermined brake-cylinder pressure has been made. The electro-pneumatic and the automatic features of the train brake system are operated by one brake valve.

Discussion

The brakes and the cab signal equipment of No. 175 were tested before the train departed from Babylon, and functioned properly. Several station stops were made between Babylon and Rockville Centre and the brakes functioned properly when used. As the train approached Centre interlocking, signal O&L indicated Medium-clear and the cab signal indicated Approach. These signal indications authorized the train to enter and to have exclusive right to the route through the interlocking. The headlight was lighted brightly. As the train approached the west end of the gantlet, the motorman observed the headlight of No. 192. He dimmed the headlight of his train and then realized that No. 192 had passed signal C2R, which governs the entrance of east-bound trains to the gantlet. He immediately initiated an emergency brake application and sounded a warning whistle signal. The collision occurred before the brake application had become effective.

The crew of No. 192 reported for duty at Pennsylvania Station, New York, N. Y., 21.1 miles west of the point of accident, at 6:06 p. m. They used the equipment of No. 192 in making one round trip between New York and Babylon, and

were en route from New York to Babylon on their second trip when the accident occurred. Before No. 192 departed from New York the brakes were tested by a car inspector and functioned properly. Under the operating rules of this carrier the motorman was required to make a departure test of the cab-signal equipment and to notify the proper authority if it was not in operating condition. A scheduled station stop was made at Jamaica in the usual manner. After the train departed from Jamaica the conductor was seated at the rear of the first car and the other members of the train crew were in various locations throughout the other cars of the train. The conductor said that the motorman was alone in the control compartment at the front of the first car. The conductor heard the grade-crossing engine-whistle signal sounded for two grade crossings in the vicinity of Valley Stream, 2.8 miles west of the point of accident, but he did not notice whether it was sounded for a grade crossing about 450 feet west of signal 02R. The conductor said that from his position at the rear of the first car he could not hear the sound of the cab-signal warning-whistle while the train was in motion. Therefore, he did not know whether this whistle sounded after the train passed signal S176. Members of the train crew said they thought the speed of the train as it approached signal 02R was about 25 miles per hour, which was the usual speed for the train in that vicinity. None of them observed the aspect displayed by signal S176 or 02R. There was nothing unusual about the operation of the train until the brakes were applied in emergency immediately before the collision occurred.

An examination of the equipment after the accident occurred disclosed that the brake-valve handle in the control compartment of car 1482 of No. 192 was in emergency position, the control switch was in position for electro-pneumatic operation of the train brakes, the controller handle was in neutral position, and the cab-signal warning-whistle cutout cock was in position for the whistle to sound when the cab signal changed to a more restrictive aspect. The air-brake equipment of car 1482 was damaged to such an extent that tests could not be made. The air brakes of the other cars of No. 192 were tested after the accident occurred, and they functioned properly.

Inspection and tests of the signal apparatus at Centre interlocking were begun by signal forces of the carrier about 45 minutes after the accident occurred. The lever used to establish the direction of traffic between signals 02L and 02R was found to be in position for west-bound movements and

was locked electrically in that position by occupancy of track circuits in the route. The lever controlling signal 02R was in position for that signal to indicate Stop and was locked in that position by the mechanical locking of the control machine. The mechanical locking of the control machine, the approach locking and traffic locking circuits, the control circuits of the signals, and the wayside cab-signal apparatus were tested and were found to be operating properly. The operating characteristics of relays and electric locks were within the limits in which they were designed to operate. All circuits were tested for grounds, and there was no condition found that would have caused an improper operation of the signal system. About 5 minutes after the accident occurred signal 02R was observed to be indicating Stop.

During this investigation the motorman of No. 192 declined, through his attorney, to make a statement regarding the accident. According to the records of the railroad company the motorman of No. 192 had been employed as an engineer and motorman for more than 26 years. At the time of the accident he had been on duty approximately four hours. The members of the crew of No. 192 said the train was operated between New York and the point of accident in the usual manner. The train passed Valley, 2.71 miles west of the point of accident, at 10:31 p. m., on time, and an average speed of about 40 miles per hour was maintained between Valley and the point of accident. Apparently the train was under control in the vicinity of signal S176 and a brake application was made before the train entered upon the temporary track, because the speed of the train when it entered the descending grade east of the approach signal was about 30 miles per hour. According to members of the train crew the speed further was reduced to about 25 miles per hour on the descending grade before the brakes were applied in emergency. A crossing watchman stationed at a crossing about 450 feet west of signal 02R said he did not hear the engine whistle of No. 192 sounded as that train approached. It could not be determined whether the cab signal equipment of No. 192 was tested by the motorman before departure from New York. However, he did not file a report that the equipment was defective in any manner.

Since this accident occurred, the maximum authorized speed of trains has been restricted to 15 miles per hour between points 500 feet east of signal 02L and 500 feet west of signal 02R. The control circuits of signal T and

signal S176 have been arranged so that signal T indicates Stop when the route is lined for an east-bound movement over the gantlet and signal S176 indicates Stop when the route is lined for a west-bound movement. A manually operated train-stop device of the tripper type has been installed at each of these signals. This device causes an emergency application of the train brakes when a multiple-unit car passes the device while it is in tripping position. These devices are operated by employees under the direction of the operator at Centre interlocking. When the route is lined for an east-bound movement, the train-stop device on the eastward track at signal S176 is placed in non-tripping position and the device on the westward track at signal T is maintained in tripping position. When the route is lined for a west-bound movement, the device on the westward track at signal T is placed in non-tripping position and the device on the eastward track at signal S176 is maintained in tripping position.

The carrier estimates that the permanent tracks at Rockville Centre will be placed in service about May 10, 1950. The operation of trains over the temporary tracks will be discontinued at that time and double-track operation will be resumed.

Cause

It is found that this accident was caused by failure to operate the east-bound train in accordance with signal indications.

Dated at Washington, D. C., this twenty-seventh day of March, 1950.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.