INTERSTATE COMMERCE COMMISSION

WASHINGTON

REPORT NO. 3524

THE NEW YORK CENTRAL RAILROAD COMPANY

IN RE ACCIDENT

AT NEHASANE, N. Y., ON

MARCH 22, 1953

SUMMARY

Date:	March 22, 1953	
Railroad:	New York Central	
Location:	Nehasane, N. Y.	
Kind of accident:	Head-end collision	
Trains involved:	Freight	: Freight
Train numbers:	Extra 1081 South	: Extra 8293 North
Engine numbers:	Diesel-electric units 1081, 3351, 3358, and 1056	: Diesel-electric unit 8293
Consists:	91 cars, caboose	: 9 cars, caboose
Speeds:	Standing	: 45 m. p. h.
Operation:	Timetable, train orders, and manual block-signal system	
Track:	Single; 3° curve; 0.403 percent ascending grade southward	
Weather:	Clear	
Time:	10:03 p. m.	
Casualties:	2 killed; 3 injured	
Cause:	Failure to obey meet order	

INTERSTATE COMMERCE COMMISSION

REPORT NO. 3524

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

THE NEW YORK CENTRAL RAILROAD COMPANY

July 23, 1953

Accident at Nehasane, N. Y., on March 22, 1953, caused by failure to obey a meet order.

REPORT OF THE COMMISSION[1]

JOHNSON, Chairman:

On March 22, 1953, there was a head-end collision between two freight trains on the New York Central Railroad at Nehasane, N. Y., which resulted in the death of two train-service employees, and the injury of three train-service employees. This accident was investigated in conjunction with representatives of the New York Public Service Commission.

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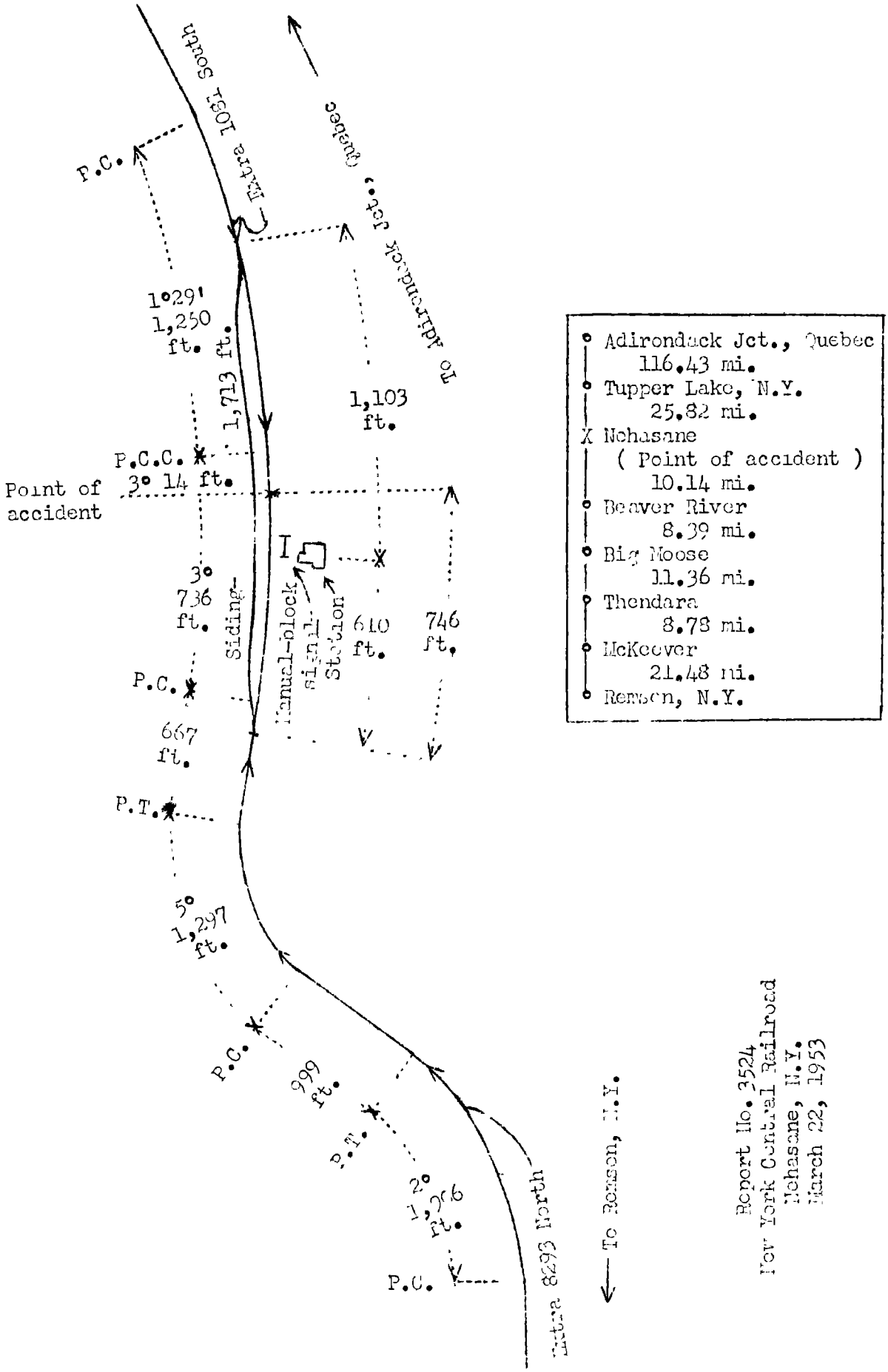
[1] Under authority of section 17 (2) of the Interstate Commerce Act the above-entitled proceeding was referred by the Commission to Chairman Johnson for consideration and disposition.



Report No. 3524
New York Central Railroad
Nehasane, N.Y.
March 22, 1953

Location of Accident and Method of Operation

This accident occurred on that part of the Adirondack Division extending between Adirondack Jct., Quebec, and Remsen, N. Y., 202.40 miles, a single-track line, over which trains are operated by timetable, train orders, and a manual block-signal system. At Nehasane, N. Y., 142.25 miles south of Adirondack Jct., a siding 1,713 feet in length parallels the main track on the west. The siding switches are 1,103 feet north and 610 feet south of the station. The accident occurred on the main track at a point 746 feet north of the south siding-switch. From the north there are, in succession, a 1°29' curve to the right 1,250 feet in length, and a 5° curve to the right 14 feet to the point of accident and 736 feet southward. From the south there are, in succession, a 2° curve to the left 1,906 feet in length, a tangent 999 feet, a 5° curve to the right 1,297 feet, a tangent 667 feet, and the curve on which the accident occurred. The grade for south-bound trains is 0.403 percent ascending throughout a distance of 2,180 feet immediately north of the point of accident. The grade for north-bound trains is, successively, 0.780 percent ascending 3,500 feet, 1.195 percent descending 2,100 feet, 0.738 percent descending 1,600 feet, and 0.403 percent descending 995 feet to the point of accident.

The switch stand at the south siding-switch is of the hand-throw intermediate-stand type. It is located 9 feet 3-1/4 inches east of the center-line of the track. When the switch is in normal position a green banner 10 inches wide and 39-1/2 inches long is displayed at right angles to the track. This banner is pointed at each end and is attached to the spindle in a diagonal position. It is 7 feet 5 inches above the level of the tops of the rails. When the switch is lined for entry to the siding two circular red banners 14 inches in diameter, one on each side of the spindle, are displayed at right angles to the track. These banners are at the same level as the green banner. The green banner and one of the red banners are each equipped with a reflector lens 5 inches in diameter and of the same colors as the banners.

A manual-block signal of the upper-quadrant semaphore type is located in front of the station at Nehasane and approximately 48 feet east of the track. The aspect displayed by this signal applicable to this investigation and the corresponding indication is as follows:

Night aspect	Indication
Red	Stop.

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

14. Engine Whistle Signals.

Note.--The signals prescribed are illustrated by "o" for short sounds; "__" for longer sounds. * * *

Sound.	Indication.
* * *	
S(n) __ __ o	Approaching meeting or waiting points. See Rule S-90.
* * *	

17. * * *

Headlight must be dimmed:

* * *

(c) * * * while standing on main track at meeting points.

* * *

S-88. * * *

At meeting points between extra trains, the train in the inferior time-table direction must take the siding unless otherwise provided.

* * *

S-90. * * *

The engineman of each train will give signal 14S (n) at least one mile before reaching a meeting or waiting point. If the engineman fails to sound such whistle signal, the fireman must communicate with him at once and if necessary stop the train.

211. * * *

Enginemen must show train orders to firemen and, when practicable, to forward trainmen. Conductors must show train orders, when practicable, to trainmen. When fireman and trainmen are shown train orders they must read them.

FORMS OF TRAIN ORDERS.

S-A.

Fixing Meeting Points for Opposing Trains.

(1) * * *

Extra 652 north meet Extra 231 south at B.

* * *

Trains receiving these orders will run with respect to each other to the designated points and there meet in the manner prescribed by the rules.

317-B. * * *

A train must not be admitted to a block which is occupied by an opposing train * * *

* * *

362. Trains must not pass a Stop-indication without receiving Clearance Form A * * *

Timetable special instructions provide that south-bound trains are superior to trains of the same class in the opposite direction.

The maximum authorized speed for freight trains is 40 miles per hour.

Description of Accident

Extra 1081 South, a south-bound freight train, consisted of Diesel-electric units 1081, 3351, 3338, and 1056, coupled in multiple-unit control, 91 cars, and a caboose. At Tupper Lake, 25.82 miles north of Nehasane and the last open office north of Nehasane, the crew received copies of train order No. 717 reading in part as follows:

Eng 1081 run extra
Tupper Lake to Remsen
Station meet Extra 8293
North at Nehasane
* * *

They also received copies of a Clearance Form A indicating that the block between Tupper Lake and Nehasane was clear. This train departed from Tupper Lake at 9:15 p. m. and stopped on the main track at Nehasane at 9:59 p. m., with the front end of the locomotive 136 feet north of the manual-block signal and 746 feet north of the south siding-switch. About 4 minutes later it was struck by Extra 8293 North.

Extra 8293 North, a north-bound freight train, consisted of Diesel-electric unit 8293, 15 cars, and a caboose. At Remsen, the last open office south of Nehasane, the crew received copies of train order No. 717 and a Clearance Form A indicating that the block between Remsen and Nehasane was clear. They also received a message instructing them that in order to avoid delay to Extra 1081 South they were to arrange their work so as to reach Nehasane not later than 9:45 p. m. This train departed from Remsen at 7:33 p. m. Switching was performed at Thendara, 29.89 miles south of Nehasane. When the train departed from Thendara it consisted of the Diesel-electric unit, nine cars, and the caboose. This train passed the south siding-switch at Nehasane, where it was required to enter the siding to meet Extra 1081 South, passed the manual-block signal, which indicated Stop, and while moving at a speed of 45 miles per hour it struck Extra 1081 South.

The locomotive of Extra 1081 South was moved northward approximately 50 feet by the force of the impact. The first Diesel-electric unit and the fifth and sixth cars of Extra 1081 South and the Diesel-electric unit, the first two cars, and the front trucks of the third and fourth cars of Extra 8293 North were derailed. The derailed Diesel-electric units stopped approximately upright and in line with the track. The derailed cars stopped in various positions on or near the track. The first Diesel-electric unit and the fourth, fifth, and sixth cars of Extra 1081 South and the Diesel-electric unit and the first four cars of Extra 8293 North were badly damaged. The second Diesel-electric unit and the seventh and eighth cars of Extra 1081 South and the fifth and sixth cars of Extra 8293 North were somewhat damaged.

The fireman and the front brakeman of Extra 8293 North were killed. The engineer of Extra 8293 North and the engineer and the fireman of Extra 1081 South were injured.

The weather was clear and the temperature was about 58 degrees above zero at the time of the accident, which occurred at 10:05 p. m.

Diesel-electric unit 8293 is of the road-switcher type. It is provided with 6-SL brake equipment. All cars in the train of Extra 8293 North were provided with AB brake equipment.

Discussion

The crew of each train and the operator at Nehasane held copies of train order No. 717, which established Nehasane as the meeting point between the two trains. Under the rules, Extra 8293 North was required to enter the siding at Nehasane at the south siding-switch and to remain clear of the main track until Extra 1081 South had been met and manual-block authority to re-enter the main track had been received.

When Extra 1081 South stopped at Nehasane the enginemen and the front brakeman were on the locomotive. The conductor, the swing brakeman, and the flagman were in the caboose. The manual-block signal indicated Stop for trains in each direction. Immediately after the train stopped, the engineer dimmed the headlight. The front brakeman proceeded to the station to inquire as to the location of Extra 8293 North. Almost immediately after he entered the office he observed the headlight of Extra 8293 North in the vicinity of the south siding-switch. The locomotive of Extra 8293 North passed as the brakeman reached the door of the office. The brakeman said that sparks flying from the wheels indicated that the brakes of the locomotive were applied before the front of the train passed the station. He said that after the train stopped the brakes of the cars were applied, but he did not know whether they were applied before the accident occurred or as a result of the accident. The fireman of Extra 1081 South was seriously injured and was not questioned during the investigation.

Extra 8293 North originated at Utica, 21.36 miles south of Remsen. The brakes of the train were tested at Utica and functioned properly. The crew received copies of train order No. 717 at Remsen. The members of the crew each read the order and understood that their train was to enter the siding at Nehasane to meet Extra 1081 South. Two cars were set off at McKeever, 38.67 miles south of Nehasane. Nine cars were set

off and five flat cars loaded with logs were added to the train at Thendara. While switching was being performed at this latter station the conductor remarked to the engineer that their train would not reach Nehasane by 9:45 p. m., as instructed. After the train was assembled it consisted of the locomotive, nine loaded cars, and the caboose. The weight, exclusive of the locomotive, was approximately 436 tons. The brakes were tested before the train departed from Thendara and were used in controlling the speed of the train on a descending grade about 3/4 mile north of Thendara and at several points between Big Moose and Beaver River, located, respectively, 18.53 miles and 10.14 miles south of Nehasane. The engineer said that after the train departed from Thendara brake applications did not retard the train as rapidly as they had before the cars loaded with logs were picked up at that point. He said that when the train reached a point about 1-1/2 miles south of Nehasane he sounded the prescribed meeting point whistle signal. As the train approached the descending grade south of Nehasane he closed the throttle, and at a point about 4,000 feet south of the south siding-switch he made a brake-pipe reduction of eight or nine pounds. Before he made this reduction, the brake-pipe pressure was 80 pounds. After the train passed the crest of the hill the speed increased. The engineer made a further brake-pipe reduction, the total reduction being 20 pounds. However, the speed continued to increase, and the engineer then placed the brake valve in emergency position. He thought that the brake valve exhaust was unusually short. This action was not effective in controlling the speed, and the engineer said he then opened the sanding valve and held the independent brake valve in full-service position until the collision occurred. The front brakeman jumped from the locomotive at a point 385 feet south of the point of accident, the fireman got off either immediately before or at the time the collision occurred, and both were killed.

The conductor and the flagman said that before the train departed from Thendara they observed that the gauge in the caboose indicated that the brake pipe was charged to 80 pounds. After leaving Thendara these employees rode in the cupola of the caboose. They observed sparks flying from the wheels throughout the length of the train when brake applications were made at various points between Thendara and Beaver River. When the flagman thought that the train should be approaching Nehasane he descending from the cupola to obtain his coat and gloves. Soon afterward the conductor became aware that the speed of the train was increasing. He opened a window in an

attempt to ascertain the location of the train. This portion of the railroad is located within a forest, and because of the darkness the conductor could not immediately identify a landmark. He first became aware of his exact location when he saw the block signal and the headlight of Extra 1081 South ahead. The flagman also became alarmed because of the increase in speed and although the conductor and the flagman did not know whether there was an application of the brakes before the collision occurred it was too late for them to take effective action to stop the train when they realized they were closely approaching the meeting point at excessive speed. Neither of these employees nor the members of the crew of the south-bound train who were able to make statemens heard a whistle signal sounded as the train approached Nehasane.

According to the tape of the speed recording device, the train passed the crest of the hill, 4,695 feet south of the point of accident, at a speed of 32 miles per hour. The speed increased from 32 miles per hour to 42 miles per hour within a distance of approximately 2,400 feet, then increased less rapidly from 42 miles per hour to a maximum of 45 miles per hour at the point of accident.

When the equipment of Extra 8293 North was examined about 8 hours after the accident occurred there were no indications of abnormally heavy braking on the wheels or brake shoes of the locomotive or the first three cars. The brake shoes of all cars behind the third car were slightly discolored from overheating. All wheels of the seventh and eighth cars and several wheels of the ninth car and the caboose bore slight skid marks, and two wheels of the ninth car bore slight traces of built-up metal.

The angle cock at the rear end of the locomotive of Extra 8293 North was broken off during the derailment, and the front portion of the handle was broken. The remaining portion of the handle was not damaged and was found in fully open position. With the exception of the angle cock at the rear of the caboose, all angle cocks on the cars of the train were latched in fully open position. The brakes of the rear three cars and the caboose were tested at the scene of the accident and functioned properly. After damaged piping on the third to the sixth cars, inclusive, was repaired, the brakes of these cars were tested and functioned properly. The air-brake systems of the first two cars were destroyed. The brake rigging and other portions of the brake equipment of the locomotive were damaged to the extent that the brakes could not be tested. The brake valves and all control equipment were removed from the locomotive and tested on another

locomotive of the same class. All equipment functioned properly. This equipment then was tested on a test rack. No condition was found which would have prevented an effective application of the brakes.

On March 29, 1953, tests were made to determine the distance in which a north-bound train of the approximate length and weight of Extra 8293 North could be stopped after it reached a point from which the crew could obtain a view of the light in the manual-block signal at Nehasane. Diesel-electric unit 8294, of the same class as Diesel-electric unit 8293, eight loaded cars, one empty car, and a caboose were used in these tests. Four of the cars were loaded with logs. The weight of the train, exclusive of the locomotive, was 489 tons. There was a very light rain when the tests were begun, and the temperature was 39 degrees above zero. In the first test the engineer placed the brake valve in emergency position at a point 1,519 feet south of the signal, the point at which the signal first could be seen, while the train was moving at a speed of 45 miles per hour. The train stopped with the front of the locomotive 46 feet north of the signal and 99 feet south of the point at which the accident occurred. In the second test the brakes were applied in emergency by use of the conductor's emergency valve when the caboose reached the point from which the signal could be seen. At this time the train was moving at a speed of 45 miles per hour. The train stopped with the front of the locomotive 561 feet north of the signal and 425 feet north of the point of accident. The wheels of the locomotive and the cars were examined after these tests were made. No indications of abnormally heavy braking were observed.

After the accident there were indications of heavy braking from the fourth car to the rear of the train of Extra 8293 North, but not on the locomotive or the first three cars. However, according to the tape of the speed recording device there was no reduction in speed before the collision occurred, and it is possible that the indications of heavy braking resulted from heavy braking on a previous occasion. The front brakeman of Extra 1081 South said that the brakes of the locomotive of Extra 8293 North were applied when the locomotive passed the station at Nehasane. These brakes probably were applied from the time the engineer first made a brake-pipe reduction.

If, for any reason, a brake application was obtained on the locomotive but not throughout the length of the train, the wheels and brake shoes of the locomotive should have shown indications of overheating after the brakes had been heavily applied throughout a distance of over 4,000 feet.

Cause

It is found that this accident was caused by failure to obey a meet order.

Dated at Washington, D. C., this twenty-third day of July, 1953.

By the Commission, Chairman Johnson.

(SEAL)

GEORGE W. LAIRD,

Acting Secretary.