INTERSTATE COMMERCE COMMISSION

WASHINGTON

INVESTIGATION NO. 3213

BOSTON AND MAINE RAILROAD

REPORT IN RE ACCIDENT

NEAR NEWBURY, VT., ON

OCTOBER 30, 1948

SUMMARY

Railroad:	Boston and Maine	
Date:	October 30, 1948	
Location:	Newbury, Vt.	
Kind of accident:	Head-end collision	
Trains involved:	Passenger	: Passenger
Train numbers:	78	: 79
Engine numbers:	3661	: 3646
Consists:	8 cars	: 7 cars
Estimated speeds:	20 m. p. h.	: 20 m. p. h.
Operation:	Timetable, train orders and automatic block-signal system	
Track:	Single; 3° curve; 0.23 percent descending grade southward	
Weather:	Foggy	
Time:	2:30 a. m.	
Casualties:	4 killed; 165 injured	
Cause:	Failure of one of the trains involved to obey a meet order and the indication of an automatic block signal	

INTERSTATE COMMERCE COMMISSION

INVESTIGATION NO. 3213

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

BOSTON AND MAINE RAILROAD

January 13, 1949

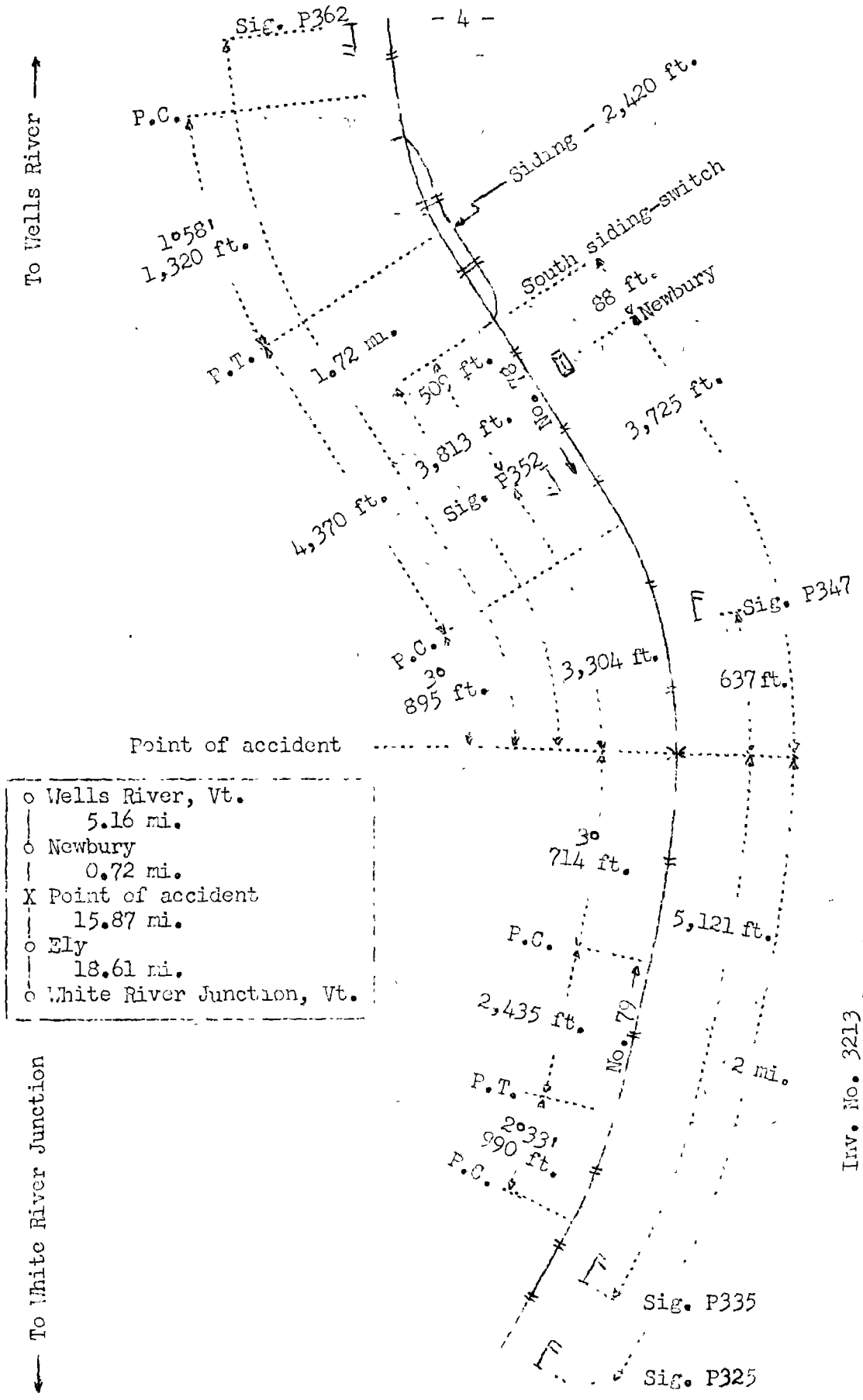
Accident near Newbury, Vt., on October 30, 1948, caused by failure of one of the trains involved to obey a meet order and the indication of an automatic block signal.

REPORT OF THE COMMISSION[1]

PATTERSON, Commissioner:

On October 30, 1948, there was a head-end collision between two passenger trains on the Boston and Maine Railroad near Newbury, Vt., which resulted in the death of 4 employees, and the injury of 148 passengers, 6 railway-mail clerks, 8 train-service employees on duty and 3 train-service employees off duty. This accident was investigated in conjunction with a representative of the Vermont Public Service Commission.

[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.



Inv. No. 3213
Boston and Maine Railroad
Newbury, Vt.
October 30, 1943

Location of Accident and Method of Operation

This accident occurred on that part of the White River Jct. and Berlin and Groveton Branch of the New Hampshire Division extending between Wells River and White River Junction, Vt., 40.36 miles. This is a single-track line, over which trains are operated by timetable, train orders and an automatic block-signal system. At Newbury, 5.16 miles south of Wells River, a siding 2,420 feet in length parallels the main track on the east. The north and the south switches of this siding are, respectively, 2,508 feet and 88 feet north of the station. Both switch-stands are located on the west side of the main track and are equipped with reflector type lamps. The accident occurred on the main track 3,813 feet south of the south siding-switch at Newbury. From the north there are, in succession, a 1°58' curve to the left 1,320 feet in length, a tangent 4,370 feet and a 3° curve to the right 895 feet to the point of accident and 714 feet southward. From the south there are, in succession, a 3°06' curve to the right 1,353 feet in length, a tangent 806 feet, a 2°33' curve to the left 980 feet, a tangent 2,435 feet and then the curve on which the accident occurred. The grade is 0.23 percent descending southward.

The automatic block-signal system is arranged on the overlap principle. These signals are of the 2-arm semaphore type and they display three aspects. Each arm operates in two positions in the lower quadrant, and is approach lighted.

The night aspects and corresponding indications and names are as follows:

Aspect	Indication	Name
Green-over-green	Proceed	Clear signal
Green-over-yellow	Prepare to stop at next signal. Train exceeding medium speed must at once reduce to that speed	Approach signal
Red-over-yellow	Stop then proceed in accordance with rules S-509 * * *	Stop and proceed signal

Signals P362 and P352, governing south-bound movements, are located, respectively, 1.72 miles and 3,304 feet north of the point of accident. Signal P352 is located 509 feet south of the south siding-switch at Newbury. Signals P325, P335 and P347, governing north-bound movements, are located, respectively, 2 miles and 5,121 feet south, and 637 feet north of the point of accident.

These signals are so controlled that when a south-bound train passes signal P362 it will cause signal P347, located 1.60 miles to the south, to indicate stop-then-proceed, and signal P335, located 2.64 miles to the south, to indicate prepare-to-stop-at-next-signal. When a north-bound train passes a point 2,225 feet south of signal P335 it will cause signal P352, located 2.02 miles to the north, to indicate stop-then-proceed, and signal P362, located 3.11 miles to the north, to indicate prepare-to-stop-at-next-signal.

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

DEFINITIONS.

FIXED SIGNAL.--A signal of fixed location indicating a condition affecting the movement of a train or engine.

NOTE.--The definition of a "Fixed Signal" covers such signals as * * * block, * * * or other means for displaying indications that govern the movement of a train or engine.

SPEEDS: Medium --A speed not exceeding 30 miles per hour.

* * *

Restricted--A speed that will permit stopping short of another train, obstruction, or switch not properly lined but not exceeding 15 miles per hour.

* * *

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.)
* * *	* * *

16. COMMUNICATING SIGNALS.

NOTE.--The signals prescribed are illustrated by "o" for short sounds; "___" for longer sounds.

SOUND.	INDICATION.
* * *	* * *
(b) o o	When running -- stop at once.
* * *	* * *
S(1) __ __ o	Approaching meeting or waiting points. (See Rule S-90.)

SUPERIORITY OF TRAINS.

S-71. A train is superior to another train by right, class or direction.

Right is conferred by train order; class and direction by time-table.

Right is superior to class or direction.

Direction is superior as between trains of the same class.

S-72. Trains in the direction specified by the time-table are superior to trains of the same class in the opposite direction.

MOVEMENT OF TRAINS.

* * *

S-89. At meeting points the inferior train must take the siding * * *

The superior train must stop at schedule meeting points with trains of the same class * * *

S-90. The engineman of each train will give signal 14(n) at approximately and at least one mile before reaching a meeting or waiting point.

The conductor of each train equipped with communicating signal appliance will give signal 16 (1) at least one mile before reaching a meeting or waiting point. Should the engineman fail to give signal 14 (n) as prescribed, the conductor must take immediate action to stop the train.

210. * * *

Enginemen must show train orders to firemen and when practicable to forward trainmen. Conductors must show train orders when practicable to trainmen. Firemen and trainmen must insist on seeing, and are required to read, train orders * * * at first opportunity and, if necessary, remind enginemen and conductors of their contents.

FORMS OF TRAIN ORDERS.

* * *

S-A.

Fixing Meeting Points for Opposing Trains.

(1.) No 1 meet No 2 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.

S-509a. An inferior train when going to a siding within the limits of a block to clear a superior train in accordance with rules * * * S-89 may pass a Stop indication displayed by the block signal and proceed at restricted speed to the siding without being preceded by a flagman, provided it can clear superior train as prescribed by rule.

When trains have a train order to meet at such a siding the train in either direction may pass a Stop indication displayed by the block signal and proceed at restricted speed to the meeting point without being preceded by a flagman.

The maximum authorized speed for the trains involved was 50 miles per hour.

Description of Accident

No. 78, a south-bound first-class passenger train, consisted of engine 3661, one baggage car, one mail car, one milk car, two coaches and three sleeping cars, in the order named. The third car was of steel-underframe construction and the remaining cars were of all-steel construction. At Wells River, 5.16 miles north of Newbury, the crew of this train received copies of train order No. 3, reading as follows:

No 78 meet No 79 at Newbury

No. 78 departed from Wells River, the last open office, at 2:20 a. m., on time, passed signal P362, passed the south siding-switch at Newbury, passed signal P352, and while moving at an estimated speed of 20 miles per hour it collided with No. 79 at a point 3,813 feet south of the south siding-switch and 3,304 feet south of signal P352.

No. 79, a north-bound first-class passenger train, consisted of engine 3646, one mail car, one baggage car, two coaches and three sleeping cars, in the order named. All cars were of all-steel construction. At Ely, 16.59 miles south of Newbury, the crew of this train received copies of train order No. 3. No. 79 passed Ely, the last open office, at 2:07 a. m., 10 minutes late, passed signals P325 and P335, and while moving at an estimated speed of 20 miles per hour it collided with No. 78.

The engine of each train was derailed but remained upright and in line with the track. Both were badly damaged. The frame of the tender of the engine of No. 78 remained on the track, but the cistern was torn from the frame and stopped at the foot of an embankment and west of the track. The first car of No. 78 was derailed. It stopped at an angle of about 80° to the track, with its north end on the track and its south end at the foot of the embankment and west of the track. The second car telescoped the third car. These cars remained upright and on the roadbed. The first and third cars were destroyed and the second car was badly damaged. The remaining cars were not derailed but were slightly damaged. Separations occurred at each end of the tender of the engine of No. 79, and it stopped at the foot of the embankment east of the track. The first car of No. 79 telescoped the engine and leaned at an angle of about 45°. This car was destroyed, and the remaining cars were slightly damaged.

The engineer and the fireman of each train were killed. The conductor, the assistant conductor, the brakeman, the baggageman and the flagman of No. 78, and the assistant conductor, the brakeman and the flagman of No. 79 were injured.

There was a dense fog at the time of the accident, which occurred at 2:30 a. m.

Discussion

The crew of each train held copies of train order No. 3, which established Newbury as the meeting point between No. 78 and No. 79, both first-class schedules. No. 79 was inferior to No. 78. Newbury is the schedule meeting point between these trains. No. 79 was about 10 minutes late, and the train order was issued to enable it to proceed to Newbury to clear for No. 78. The copies of train order No. 3 for the crew of No. 78 were delivered by the operator at Wells River to the conductor, at which time the order was read by the conductor and the baggageman. The conductor delivered the copy of the order for the engineer to the fireman who was in the cab of the engine. At that time the conductor orally informed the engineer, who was engaged in routine duties in the cab, that No. 79 was to be met at Newbury. The brakes of No. 78 were tested before this train departed from Wells River.

As No. 78 approached Newbury, the speed was about 40 miles per hour, and the enginemen were in the cab of the engine. The baggageman was in the second car, the conductor was in the fourth car, the assistant conductor was in the fifth car, and the flagman was in the eighth, or last, car. When the train was about 1-1/2 miles north of Newbury, the conductor sounded the meeting-point signal on the communicating device. This signal was acknowledged by the engineer. The conductor said that when the train was in the vicinity of the south siding-switch it became apparent to him that the engineer did not intend to stop short of the south siding-switch, and he immediately signaled the engineer to stop. He had not observed whether No. 79 was occupying the siding at Newbury. The engineer made a service application of the brakes, which reduced the speed of the train to about 20 miles per hour, then the brakes were released. Although the conductor knew that the train had passed the meeting point, he signaled the engineer a second time to stop instead of operating the conductor's valve, as required by the rules. When he received no response to the second signal, he said he thought that No. 79 probably was into clear at Newbury, and he immediately went to the last car to ascertain from the flagman if No. 79 had been met. When informed by the flagman that No. 79 was not on the siding, the conductor signaled the engineer the third time to stop, but the collision occurred as the signal was completed. The baggageman had read the train order but he said that he had not determined the location of the train at any time after it departed from Wells River and did not hear any signal sounded by either the conductor or the engineer. The assistant conductor said that he did not read the order in question. He heard the meeting-point signal given by the conductor and the response by the engineer, but he did not observe whether No. 79 was on the siding at Newbury. The flagman had not read the train order and did not hear the meeting-point signal given by the conductor or the response by the engineer.

As No. 79 approached Newbury the speed was about 35 miles per hour. The enginemen were in the cab of the engine, and the other members of the crew were in various locations throughout the train. When the train was about 1 mile south of the point where the accident occurred, the conductor sounded the meeting-point signal, which was acknowledged by the engineer. At that time the engineer made a service application of the brakes, which was released when the speed of the train had been reduced to about 20 miles per hour. The conductor said that just before the collision occurred the engineer made a second service application of the brakes, which were still applied at the time of the collision. The brakes of this train had been tested and had functioned properly.

Tests made after the accident indicated that the automatic block-signal system was functioning as intended. Both the engineer and the fireman of No. 78 were killed in the accident, and it could not be determined what aspects were displayed by signals P362 and P352, or why the train was not stopped short of the south siding-switch or at signal P352. Visibility was considerably restricted in the vicinity of Newbury because of a dense fog, and it was difficult to distinguish objects clearly. From the rates of speed at which the opposing trains were moving, it is probable that signal P362 indicated proceed and that signal P352 indicated stop-then-proceed for No. 78. Under the rules of this carrier, a train holding a meet order may enter the block within which the meeting point is located, without stopping at the governing signal, and proceed at restricted speed.

Cause

It is found that this accident was caused by failure of one of the trains involved to obey a meet order and the indication of an automatic block signal.

Dated at Washington, D. C., this thirteenth day of January, 1949.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,

Secretary.