

INTERSTATE COMMERCE COMMISSION
WASHINGTON

REPORT NO. 3315
BOSTON AND MAINE RAILROAD
IN RE ACCIDENT
AT BIDDEFORD, MAINE, ON
MARCH 26, 1950

SUMMARY

Date: March 26, 1950

Railroad: Boston and Maine

Location: Biddeford, Maine

Kind of accident: Rear-end collision

Trains involved: Passenger : Freight

Train numbers: 21 : Extra 4221 East

Engine numbers: Diesel-electric : Diesel-electric
unit 3803 units 4221A,
4221B and
4252A

Consists: 10 cars : 104 cars,
caboose

Estimated speeds: Standing : 20 m. p. h.

Operation: Signal indications

Tracks: Double; 2° curve; 0.11 percent
descending grade eastward

Weather: Clear

Time: 9:30 p. m.

Casualties: 5 injured

Cause: Failure to operate following
train in accordance with
signal indications

INTERSTATE COMMERCE COMMISSION

REPORT NO. 5315

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

BOSTON AND MAINE RAILROAD

May 12, 1950

Accident at Biddeford, Maine, on March 26, 1950, caused
by failure to operate the following train in
accordance with signal indications.

REPORT OF THE COMMISSION¹

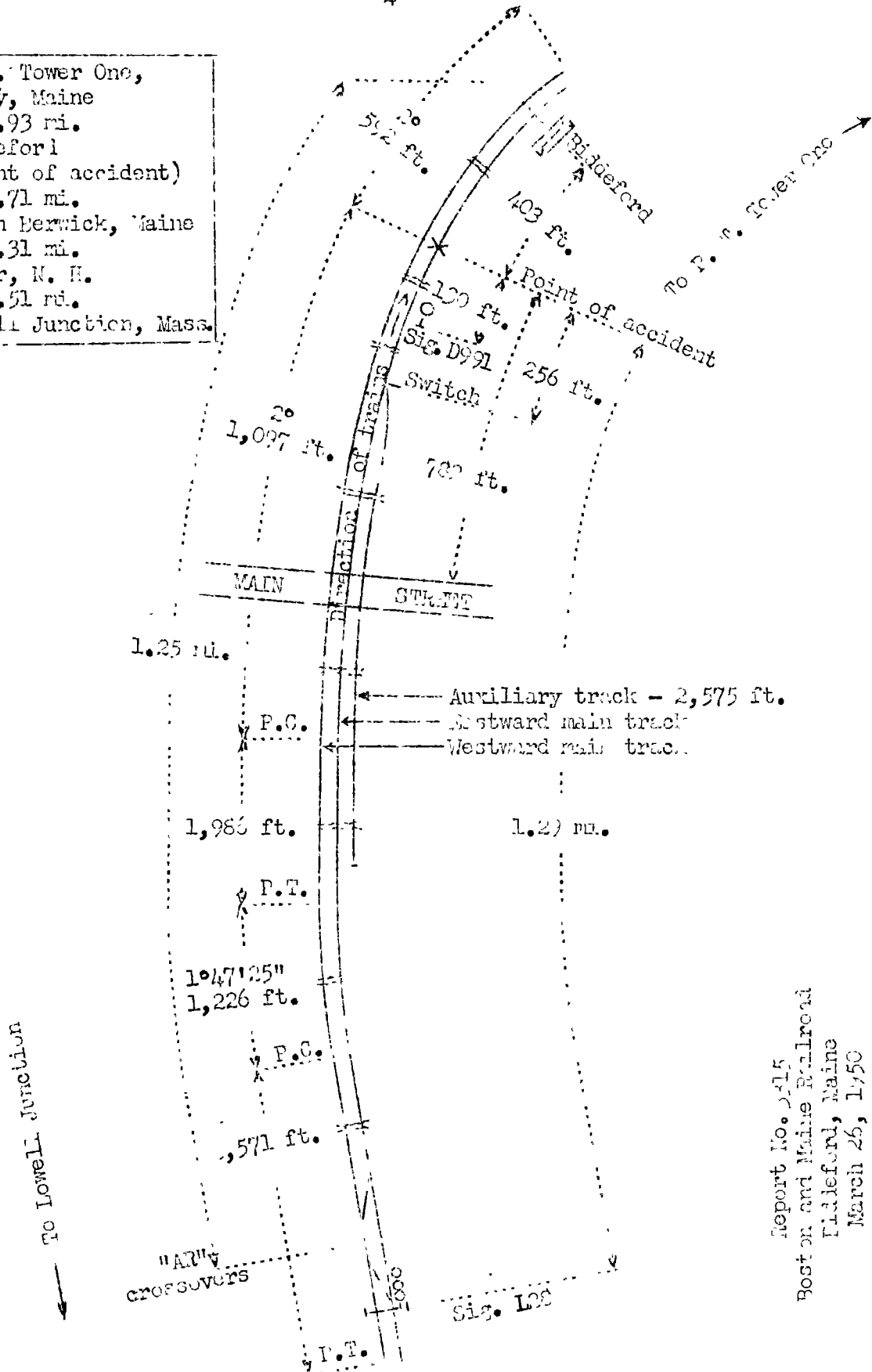
PATTERSON, Commissioner:

On March 26, 1950, there was a rear-end collision
between a passenger train and a freight train on the Boston
and Maine Railroad at Biddeford, Maine, which resulted in
the injury of one passenger, two railway-mail clerks and
two employees. This accident was investigated in conjunction
with a representative of the Maine Public Utilities
Commission.

1

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

- o P. T. Tower One,
Riddeford, Maine
11.93 mi.
- X Riddeford
(Point of accident)
21.71 mi.
- o North Berwick, Maine
10.31 mi.
- o Dover, N. H.
47.51 mi.
- o Lowell Junction, Mass.



Report No. 2415
 Boston and Maine Railroad
 Riddeford, Maine
 March 26, 1950

Location of Accident and Method of Operation

This accident occurred on that part of the Portland Division extending between Lowell Junction, Mass., and P. T. Tower One, Rigby, Maine, 91.46 miles. In the vicinity of the point of accident this is a double-track line, over which trains are operated in either direction on either track by signal indications. The accident occurred on the more southerly track, hereinafter referred to as the eastward main track, at a point 403 feet west of the station at Biddeford and 79.53 miles east of Lowell Junction. At a point 1.25 miles west of Biddeford, the main tracks are connected by two power-operated crossovers, each 375 feet in length. The west switch of the most easterly crossover is facing-point for east-bound movements on the westward main track. At Biddeford a spur track, 2,575 feet in length, parallels the main tracks on the south. The switch of this track is located 256 feet west of the point of accident. From the west there are, in succession, a tangent 2,571 feet in length, a 1°47' curve to the right 1,226 feet, a tangent 1,986 feet and a 2° curve to the right 1,097 feet to the point of accident and 592 feet eastward. Throughout a distance of 1.25 miles west of the point of accident the grade for east-bound trains varies between 0.801 percent and 0.027 percent descending, and is 0.11 percent descending at the point of accident.

Controlled signal L28 and automatic signal D991, governing east-bound movements on the eastward main track, are located, respectively, 1.29 miles and 130 feet west of the point of accident. Signal L28 is of the three-arm, color-light type, and displays six aspects. Signal D991 is of the one-arm, color-light type, and displays three aspects. These signals are approach lighted. The aspects applicable to this investigation and their corresponding indications and names are as follows:

| <u>Signal</u> | <u>Aspect</u> | <u>Indication</u> | <u>Name</u> |
|---------------|--------------------------|---|------------------|
| L28 | Red-over-Red-over-Red | Stop | Stop |
| L28 | Yellow-over-Red-over-Red | Prepare to stop at next signal. Train exceeding medium speed must at once reduce to that speed. | Approach |
| D991 | Red | Stop, then proceed in accordance with Rules * * * D-509. * * * | Stop and Proceed |

The two power-operated main-track crossovers west of Biddford and controlled signal L28 are controlled from the dispatcher's office at Dover, N. H., 32.02 miles west of Biddford. This controlled point is designated as AR. The controlling circuits of signals L28 and D991 are so arranged that when the block of signal D991 is occupied signal L28 will display an aspect not less restrictive than Approach for movements on the eastward main track and signal D991 will indicate Stop-and-Proceed.

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

DEFINITIONS.

SPEEDS: Medium --A speed not exceeding
50 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.

* * *

MOVEMENT OF TRAINS.

99. * * *

When a train stops under circumstances in which
it may be overtaken by another train, the flagman
must go back immediately with flagman's signals a
sufficient distance to insure full protection, * * *

* * *

NOTE.--When trains are operating under Automatic
Block System Rules, protection against following
trains on the same track will have been provided
when full protection is afforded against trains
moving at restricted speed.

* * *

MOVEMENT OF TRAINS AND ENGINES
UNDER CENTRALIZED
TRAFFIC CONTROL SYSTEM (C.T.C.)

265. On portions of the railroad, and on designated tracks so specified in the time-table, trains and engines will be governed by Automatic Signals and Interlocking, which will constitute a Centralized Traffic Control System (C.T.C.) under the direction of a designated operator and will supersede superiority of trains from both directions.

* * *

AUTOMATIC BLOCK SYSTEM RULES.

501a. Trains or engines finding signal indicating Stop, after receiving an Approach, Medium Approach or Slow Approach indication on preceding signal, must stop before passing the Stop indication.

* * *

D-509. When a train or engine is stopped by an automatic block signal it may proceed at once at restricted speed. * * *

FLAGMEN.

893. * * *

* * *

Flagman must not go forward of the second rear car while enroute unless relieved by a competent employe assigned by the conductor. * * *

The time-table special instructions read in part as follows:

265. CENTRALIZED TRAFFIC CONTROL SYSTEM (C.T.C.)

Train or engine movements may be made on signal indication as specified below:

BETWEEN

* * *

DOVER AND P. T. TOWER ONE.

Under direction of Train Dispatcher at Dover,
Movements may be made in either direction on either track.

The maximum authorized speed for the trains in this accident was 45 miles per hour.

Description of Accident

No. 21, an east-bound first-class passenger train, consisted of Diesel-electric unit 3803, two baggage cars, one mail car, three baggage cars and four coaches, in the order named. All cars were of all-steel construction except the second, fourth and sixth cars, which were of steel-underframe construction. This train departed from North Berwick, 21.71 miles west of Biddeford, on the eastward main track, at 9:02 p. m., 5 minutes late. At North Berwick E. it was diverted to the westward main track and continued on that track to AR controlled point where, at 9:20 p. m., it was diverted to the eastward main track. About 9:24 p. m., 3 minutes after its scheduled leaving time, it stopped at the station at Biddeford, with its rear end 130 feet east of signal D991, and about 6 minutes later it was struck by Extra 4221 East.

Extra 4221 East, an east-bound freight train, consisted of Diesel-electric units 4221A, 4221B and 4252A, coupled in multiple-unit control, 104 cars and a caboose. This train departed from North Berwick on the eastward main track at 8:50 p. m., and about 9:22 p. m. was stopped at signal L28, which was indicating Stop. About 9:24 p. m. signal L28 indicated Approach, and Extra 4221 East passed AR at 9:27 p. m., passed signal D991, which indicated Stop-and-Proceed, and while moving at an estimated speed of 20 miles per hour it struck the rear end of No. 21.

No. 21 was moved eastward 326 feet by the force of the impact. A separation occurred between the fourth and fifth cars. The first Diesel-electric unit telescoped the rear car of No. 21 approximately 28 feet. The center sill overrode the buffer plate of the Diesel-electric unit and entered the unit a distance of 28 feet. The controlling apparatus in the front of the unit was destroyed, and the engine and the motors were badly damaged.

The fireman and the front brakeman of Extra 4221 East were injured.

The weather was clear at the time of the accident, which occurred at 9:30 p. m.

Discussion

No. 21 approached AR controlled point, 1.25 miles west of Biddeford, on the westward main track and was diverted to the eastward main track at AR. West of AR members of the crew of No. 21 had observed that Extra 4221 East was proceeding eastward on the eastward main track. No. 21 stopped at the station at Biddeford about 9:24 p. m., where station work was performed. The engineer and the fireman were in the control compartment at the front of the Diesel-electric unit. The conductor was on the station platform south of the tracks and the flagman assisted passengers from the rear vestibule of the ninth car. The brakeman inspected the eighth car, because he had heard air escaping from the train brake system as the train approached Biddeford. After all of the passengers for Biddeford were discharged from the rear two cars, the flagman proceeded to the eighth car to assist the brakeman. The conductor then observed that the brakeman and the flagman were inspecting the car and immediately proceeded westward on the platform to that car to ascertain the reason for the inspection. The brakeman first inspected the south side of the car and then proceeded to the north side, where he discovered that an air reservoir drain cock was broken. When the conductor arrived at the eighth car the brakeman informed him that the drain cock was broken. It was determined that temporary repairs could not be made immediately, and the flagman then proceeded westward to provide flag protection. However, he had not reached the rear of the train when he observed the headlight of Extra 4221 East approaching about 700 feet distant. He said he had an unlighted red fusee but as he was proceeding toward the rear of his train he fell and was unable to ignite the fusee to give stop signals before the collision occurred.

Extra 4221 East approached AR controlled point on the eastward main track and stopped at signal L28, which was indicating Stop. Immediately before the train stopped, the members of the crew observed that No. 21 was proceeding eastward on the westward main track and also observed that No. 21 was diverted to the eastward main track through the crossover at AR. The front brakeman alighted from the engine before the train stopped and proceeded toward a booth telephone, located a short distance west of signal L28, where he intended to call the dispatcher for instructions. However, before he reached the telephone, signal L28 indicated Approach, and the brakeman proceeded to the engine. After he boarded the engine the train proceeded eastward.

When the speed was about 20 miles per hour the engineer closed the throttle and placed the transition lever in position for dynamic braking. As the train approached Biddeford, the engineer, the fireman, and the front brakeman were in the control compartment at the front of the first Diesel-electric unit and the conductor and the flagman were in the caboose. The headlight was lighted brightly. The brakes of this train had been tested and had functioned properly when used en route. The speed of the train had increased to about 25 miles per hour on the descending grade. When the head end of the train was about 650 feet west of signal D991 the fireman observed that it indicated Stop and Proceed, and then observed the marker lights on the rear car of No. 21. He called a warning to the engineer, who immediately initiated an emergency brake application. The speed was reduced to about 20 miles per hour when the collision occurred.

On the double-track line on which this accident occurred train movements in either direction on either track are authorized by signal indications. The rules provide that when a train stops in this territory under circumstances in which it may be overtaken by another train the flagman must go back a sufficient distance to insure full protection against trains moving at restricted speed. The rules examiner of this carrier said that flagmen are instructed to go back a sufficient distance to provide protection against trains moving at a maximum speed of 15 miles per hour. Because of track curvature and a structure south of the auxiliary track, the view of signal D991 from the cab of an east-bound engine on the eastward main track is restricted to about 750 feet. When the accident occurred several cars were occupying the spur track west of signal D991. These cars further restricted the view of the signal. The engineer of Extra 4221 East said he expected flag protection to be provided if the preceding train was delayed at Biddeford. However, the rules provide that a train may enter a block under authority of an Approach signal indication but the speed must be so controlled that it can be stopped at the next signal. After a train stops at a signal indicating Stop and Proceed, it may pass the signal and proceed into the block but the speed must be so controlled that it can be stopped short of another train.

Cause

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

Dated at Washington, D. C., this twelfth day of May, 1950.

By the Commission, Commissioner Patterson.

(SEAL)

W. P. BARTEL,
Secretary.