RAILWAY OCCURRENCE REPORT

COLLISION

CANADIAN NATIONAL
TRAIN NO. 333 AND TRAIN NO. 551
MILE 17.0, STAMFORD SUBDIVISION
NETHERBY, ONTARIO
29 JANUARY 1995

REPORT NUMBER R95T0023

The Transportation Safety Board of Canada (TSB) investigated this occurrence for the purpose of advancing transportation safety. It is not the function of the Board to assign fault or determine civil or criminal liability.

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Summary

At approximately 1850 eastern standard time, Canadian National (CN) freight train No. 333 (train 333) collided with the rear end of CN freight train No. 551 (train 551) at Mile 17.0 of the CN Stamford Subdivision, near Netherby, Ontario. Two employees sustained minor injuries.

Ce rapport est également disponible en français.

Other Factual Information

Train 333 departed Toronto and was travelling eastward on the Stamford Subdivision destined for Buffalo. The train received a “Stop and Proceed Signal” indicating "Stop, then proceed at restricted speed" at Signal 184 (Mile 18.4) in advance of the controlled interlocking at grade at Mile 16.6 (Canadian Pacific Railway Welland Tube Lead); the train stopped and proceeded into the block. While proceeding through the block, the crew observed that the next signal, Signal 168 (Mile 16.8), changed to display a "Clear Signal" indicating "Proceed"; the locomotive engineer increased the speed to 38 mph. Approximately 14 seconds after reaching 38 mph, the locomotive engineer observed the reflection of the locomotive headlight in the rear windows of a caboose, approximately 1,600 feet ahead. The locomotive engineer immediately initiated an emergency brake application that reduced the speed of the train to 11 mph just before it collided with the rear end of train 551 at Mile 17.0. The three locomotives from train 333, and three covered hopper cars and the caboose from train 551 derailed. The caboose and two covered hopper cars were destroyed. One covered hopper car and two locomotives sustained extensive damage and one locomotive experienced minor damage. Two crew members, a locomotive engineer and a conductor, located in the lead locomotive of train 551, sustained minor injuries.

Train 551, an industrial switcher, had just completed switching operations in Southern Yard, Mile 17.0. The switcher, after advising the rail traffic controller (RTC) of his intentions, entered the main track travelling eastward and stopped at Mile 16.8 to conduct a brake test and to wait for Signal 168. Train 551 consisted of 2 locomotives, 19 loaded cars and an unoccupied caboose. It was approximately 2,011 feet in length and weighed about 1,793 tons.

Train 333, powered by 3 locomotives, was hauling 53 loaded cars and 6 empty cars. The train was approximately 3,473 feet in length and weighed about 6,189 tons.

At Mile 17.0, the subdivision was a single main track. The authorized timetable speed is 60 mph for both passenger and freight trains. Traffic in this area is governed by the Centralized Traffic Control System (CTC) authorized by the Canadian Rail Operating Rules (CROR) and supervised by an RTC in Toronto.

When passing a "Stop and Proceed Signal", the CROR require that the train come to a stop and then proceed at restricted speed. Restricted speed is defined as a speed that will permit stopping within one-half the range of vision of equipment and in no case exceeding 15 mph. A block signal is a fixed signal at the entrance to a block which governs a train entering or using the block. A block is defined as a length of track of defined limits.

Train 333 was being operated by a train crew of two employees, a locomotive engineer and a conductor, and train 551 was being operated by a train crew of three employees, a locomotive engineer, a conductor and a trainman. The members of both train crews were familiar with the subdivision, met fitness and rest standards established to ensure the safe operation of trains, and were qualified for their respective positions.

The caboose on train 551 did not have a functioning electrical system and was therefore not displaying lit markers. It was not equipped with a red reflectorized marker to indicate the rear of the train. This type of marker is required by the CROR although the size, design and reflective qualities are not specified. Markers are usually a component of the sense and braking unit fixed to the end of cabooseless trains.

The temperature was minus four degrees Celsius. The skies were clear and the winds calm.

Analysis

When the crew members of train 333 accepted the "Stop and Proceed Signal" at Mile 18.4, they should have brought their train to a stop and then continued through the block at restricted speed to the next signal. In its least restrictive interpretation, a train travelling under restricted speed may reach a maximum of 15 mph. Depending on visibility, and the distance the locomotive engineer anticipates it would take to stop the train at that location, train speed must be regulated between 0 mph and 15 mph. When the locomotive engineer observed the signal ahead, Signal 168, he incorrectly assumed that the track ahead was clear and increased the train speed to 38 mph. However, the restricting signal, with its requirement of a maximum speed of 15 mph, still applied within that block whether or not the track was clear.

It is noted that train 333 travelled through the block with unobstructed visibility and the operating crew did not observe the rear end of stationary train 551 until it was about
1,600 feet ahead. The caboose on train 551 was not equipped with a reflectorized red end-of-train marker. This could have contributed to the inability to observe the rear end of train 551. However, since train 333 was travelling well in excess of restricted speed, it substantially reduced the safety advantage that such a marker would have provided.

Findings

1. The operation of train 333 did not conform to the requirements of the indication displayed on Signal 184.

2. The speed of train 333 was far in excess of the prescribed maximum and therefore the train could not be stopped before striking the rear end of standing train 551.

3. The crew on train 333 incorrectly accepted and operated on a signal indication that was intended for the block and train ahead of them.

4. The operation of train 551 did not conform to CROR as a red reflectorized marker to indicate the rear of the train was not displayed. Such markers, however, provide a limited safety advantage at speeds in excess of restricted speed.

Causes and Contributing Factors

The collision resulted from the operation of train 333 at a speed far in excess of the prescribed maximum limit.

Safety Action Taken

CN has taken measures to ensure that its employees are aware of the details of this occurrence and the procedures that should have been followed. It also plans to use these details as an educational tool.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson, John W. Stants, and members Zita Brunet and Maurice Harquail, authorized the release of this report on 30 May 1996.