

RAILWAY OCCURRENCE REPORT

COLLISION

CANADIAN NATIONAL  
MILE 62.3, JOLIETTE SUBDIVISION  
CHARENTE, QUEBEC  
31 JANUARY 1996

REPORT NUMBER R96D0018

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.

## Railway Occurrence Report

### Collision

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### *Summary*

At approximately 1523 eastern standard time (EST), Canadian National (CN) train No. M-369-21-30 (train 369) collided with train No. A-421-21-31 (train 421) at Mile 62.3 of the CN Joliette Subdivision, at Charette, Quebec. There were no injuries.

*Ce rapport est également disponible en français.*

## *Other Factual Information*

Train 369 was travelling southward, destined for Montreal, Quebec. At approximately 1518 EST, at around Mile 55.0, the crew received clearance No. 1129 to proceed from the south switch at Charette, Mile 62.32, to St. Cuthbert, Mile 88.2, with the following restrictions: it was not to depart Charette before train 421 arrived at Charette; it was to protect against the track maintenance foreman between Charette and Mile 66; and, at Charette, the south-end switch could be in the reverse position. After receiving clearance No. 1129, the conductor called the track maintenance foreman to ask if he was clear to proceed through to Mile 66.0. The track maintenance foreman indicated that the track was clear up to Mile 66.0.

Approaching the north siding switch at Charette, Mile 61.0, the locomotive engineer used the independent brake to reduce the train speed. After passing the north siding switch and while proceeding over the public crossing at Mile 61.99, the crew observed the headlights of oncoming train 421 pulling into the siding at the south switch. At this point, train 421 was approximately 2,000 feet ahead. The locomotive engineer initiated a full service brake application and then an emergency brake application, but was unable to stop his train before colliding with the 21st car of train 421 at approximately 9 mph. The lead locomotive of train 369 was extensively damaged, one flat car and two boxcars from train 421 were also extensively damaged and two other boxcars were scrapped. Both trains included residue cars of dangerous goods, but these cars were not directly involved in the collision.

Train 369, powered by 2 locomotives, was hauling 60 loaded cars and six residue cars. The train was approximately 3,980 feet in length and weighed about 6,770 tons.

Train 421, travelling northward, consisted of 2 locomotives, 8 loaded cars, 28 empty cars and 3 residue cars. It was approximately 2,200 feet in length and weighed about 1,830 tons. Train 421 was proceeding into the siding under the authority of clearance No. 1114 issued at 1439 EST.

In the area of the collision, the subdivision is a single main track with little or no gradient. The Charette siding is located between Mile 61.0 and Mile 62.32. The authorized maximum speed declines from 50 mph to 35 mph at Mile 62.0. Traffic in the area is governed by the Occupancy Control System authorized by the Canadian Rail Operating Rules and supervised by a rail traffic controller in Montreal.

The crew of train 369 consisted of a locomotive engineer and a conductor. Train 421 was also being operated by a crew of two employees: a locomotive engineer and a conductor. The members of both train crews were familiar with the subdivision, met fitness and rest standards established to help ensure the safe operation of trains, and were qualified for their respective positions.

The event recorder data from train 369 confirm the sequence of events as described by the crew. The independent brake was applied at a point calculated to be just south of Mile 61.0 (north siding switch at Charette) while travelling at 41 mph. The full service application of the automatic brakes occurred 1 minute and 39 seconds later while travelling at just over 21 mph and was followed by an emergency brake application 32 seconds later. Train speed had decreased to 9 mph at impact.

The use of the independent brake above 25 mph or for distances longer than half a mile can be harmful to locomotives and could also result in a jackknife derailment. The locomotive engineer used the independent brake in consideration for the hot box and dragging equipment detector (HBD) at Mile 60.0 and his experience which indicated to him that such braking was both appropriate and sufficient to stop his train before Mile 62.32.

The temperature was minus 12 degrees Celsius. The skies were clear and winds calm.

## *Analysis*

Train 421 proceeded northward into the Charette siding in compliance with the clearance. The method of train operation played no role in the accident.

The decision to use the independent brake as the crew of train 369 approached the south siding switch was inappropriate. There was insufficient braking effort available to stop the train, and the train brakes were not set up and conditioned for use when it became apparent that more braking effort was required.

It is noted that the HBD is located at Mile 60.0, and the crew's concern that the use of the automatic brake at this location would have triggered the alarm is appreciated. Although HBDs are designed in such a way that temperature differentials between the journals of each axle are used to activate the alarm, braking at an HBD location can and does set off these devices, requiring a crew to stop and inspect their train. Given that trains meet at this location and there is a speed restriction at Mile 62.0 resulting in braking action on the part of southward trains, it may have been more appropriate to locate the HBD where the alarm would not be triggered by normal train operations.

There is no reason to believe that the crew of train 369 momentarily forgot that they would be required to stop at Mile 62.32. Had it been their intention to proceed through the area at the designated maximum speed of 35 mph (south of Mile 62), there would have been no reason to slow their train just over 21 mph in the vicinity of Mile 61.99.

## *Findings*

1. The operation of train 421 conformed to the clearance.
2. The locomotive engineer of train 369 mistakenly believed that he could bring his train to a stop before Mile 62.32 by using the independent brake only.
3. The train brakes were not set up and conditioned as the train approached the meet location, thereby reducing braking effectiveness.
4. The possibility that normal braking action could trigger the HBD at Mile 60.0 may inappropriately influence train crew operating decisions for southward trains.

## *Causes and Contributing Factors*

The crew members of train 369 were unable to stop before the designated limit of their clearance and collided with train 421 because they used only the independent brake in an attempt to stop the train.

*This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson Benoît Bouchard, and members Maurice Harquail, Charles Simpson and W.A. Tadros, authorized the release of this report on 07 October 1997.*