



Addendum

Report 99-122

Express Freight Train 938 and Intercity Express Freight Train 919

collision

Waipahi

20 October 1999

1. Introduction

- 1.1 Following the publication of Railway Occurrence Report 99-122 the Commission received additional information based on a new recorded departure time of Train 919 from Clinton. This strengthened some previously expressed concerns at the interpretation which could be placed on sections of the report covering actions open to the locomotive engineer of Train 919 (LE2) on the day. The Commission considers the new information does not affect the findings and recommendations of the report, but does warrant this addendum to clarify the time restraints applicable to Train 919 and LE2.

2. Issues Raised

- 2.1 The report concluded that Train 919 was stationary at the time of collision, although the reason why LE2 stopped his train at that point, and for how long, was unknown. Following a review of the evidence, this conclusion has not changed.
- 2.2 Whether LE2 intended to move his train to the south end points and set the points for Train 938 is also not known. The report recognised that it was possible that LE2 intended to set the points for Train 938 but did not have time.
- 2.3 The report identified the Tranz Rail rule requiring LEs to set the south end points for the loop as a potential defence against a collision. This addendum clarifies how effective that defence may have been, taking account of the new recorded departure time from Clinton.

3. Discussion

3.1 A log of the signalling system submitted after the publication of the report showed the recorded departure time of Train 919 from Clinton as 06:47:48, which was 48 seconds later than assumed in the report (refer to paragraph 2.2.1).

3.2 Tranz Rail had advised the standard running time from Clinton to Waipahi was 14 minutes 17 seconds, which for a departure time of 06:47:48 gave a theoretical arrival time at Waipahi of 07:02:05. The known time of impact was 07:02, indicating that the expected arrival times of Train 919 and Train 938 at Waipahi were almost simultaneous.

3.3 Paragraph 2.2.3 referred to Train 919 being stationary for “some minutes”. Using the recorded departure time from Clinton it is now estimated that Train 919 could not have been stationary for more than about one minute prior to the collision. If Train 919 had been stationary at Waipahi for one minute the journey time from Clinton to the point of collision at Waipahi would have taken 13 minutes 12 seconds, 65 seconds quicker than Tranz Rail’s 14 minutes 17 seconds for a standard trip. Unknown variables such as speedometer accuracy and driving technique make such a journey time possible, but any significantly shorter transit time highly unlikely.

3.4 A number of time trials have since been made using a train of similar consist to Train 919 on the day of the accident. Times were recorded for a train entering the main line at Waipahi, passing the point of collision, stopping at the south end points, and an LE climbing from the train and setting the points for the loop. Assuming an earliest arrival time of 07:01 for Train 919 at the point of collision, the following table shows the probable times taken to complete each action and the accumulated time.

Action	Elapsed time	Accumulated time
Pass point of collision		07:01:00
Travel from collision point to stop at 3TIA near south end points	1 min 15 sec	07:02:15
Leave the cab, go to the control box and operate south end points for loop setting	30 sec	07:02:45
Loop setting complete	35 sec	07:03:20

3.5 Using the known collision time of 07:02, and the known speed of Train 938, the following are the calculated times of Train 938 at key points:

780 m out from the south end points (first view of 3FI)	07:00:43
At the south end points	07:01:26

3.6 The times shown above are approximate and, as mentioned earlier, could vary due to certain factors, but they do show that even if Train 919 had not stopped and LE2 had intended to set the south end points for the loop, there was not sufficient time for him to have done so.

3.7 Although LE2 did not have time to set the points for the loop and avert the collision, if he had driven his train towards the south end points without stopping, his train would have been visible to the LE of Train 938 sooner. This may have given LE1 more time to react and possibly reduced the speed at the point of collision.

3.8 The Tranz Rail procedure requiring the train arriving first on the main line to set the points for the train taking the loop could provide a useful defence against collisions of this type occurring where one LE misunderstands or forgets the limits of his track warrant. What this accident demonstrated is that this defence is not available in cases where both trains arrive simultaneously.

4. Conclusions

- 4.1 LE2 did not have sufficient time to set the south end points for the loop and avoid the collision.
- 4.2 If Train 919 had continued towards signal 3TIA without stopping, it may have become visible to the LE of train 938 sooner, which may have lessened the speed of impact.

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Chief Commissioner