This is a collation of some of the world’s railway formal inquiry reports. It includes a brief incident synopsis, along with the main causes and recommendations from each investigation.

Readers may find some of the actions and recommendations useful to their own operations.

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- Driver distraction
- Route knowledge
- Learning and training processes
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- Possession paperwork
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- Personal issues
Published 3 April

**Australia: Collision between two freight trains at Dry Creek, SA, 11 October 2011**

For the full report, click [here](#).

At 01:05 (local time) on 11 October 2011, an empty ore train operated by Specialised Bulk Rail Pty Ltd (SBR) passed a signal at danger near Dry Creek Junction, South Australia. It subsequently struck a loaded grain train, operated by Genesee and Wyoming Australia Pty Ltd, which was travelling in the opposite direction and traversing the points at Dry Creek Junction, in order to enter Dry Creek North Yard.

The collision was at low speed and there was no injury to the crew of either train. However, there was significant damage to the cab of the ore train’s leading locomotive and to the grain wagons involved in the collision.

The Australian Transport Safety Bureau (ATSB) found that the collision occurred because the ore train passed Signal 13 at danger. The SPAD was a result of the trainee driver and supervising driver of the ore train becoming distracted on the approach to the preceding signal, which was displaying a caution aspect, indicating that Signal 13 ahead was red.

**Safety factors**

The ATSB identified the following ‘events and conditions that increased the safety risk’ and contributed to the SPAD:

- The trainee driver and co-driver did not observe Signal 135 at caution, which resulted in them missing vital information as to the status of Signal 13 ahead. The driver in particular was focused on a headlight, which was actually that of the opposing grain train, but which he assumed to belong to a locomotive shunting in Dry Creek Yard. A run of proceed signals also increased the crew’s expectation of a clear run on the main line.

- The trainee driver’s lack of route knowledge, combined with that expectation of a clear runs, also ‘probably influenced his failure to observe Signal 135 at caution’.

- A competing administrative task diverted the supervising driver’s attention away from his primary task of supervising the actions of the trainee in the run-up to Signal 135.

- SBR’s Safety Management System procedures did not provide the supervising drivers with sufficient direction as to the nature of their supervisory role.

- There were no formalised processes for a trainee driver to record their experience in learning a route, or to document feedback related to their performance, for use by supervising drivers or assessors to assist in mentoring them.

- Worker competency procedures were deficient in providing a structured programme for the development of route knowledge by the driver-in-training.

- SBR’s process for assessing its drivers’ roster for relay operations relied excessively on a score produced by a bio-mathematical model, and it had limited mechanisms in place to ensure drivers received an adequate quantity and quality of sleep during relay operations.
Worldwide FI
Summary

Recommendations

- SBR’s Safety Management System procedures did not provide the supervising drivers with sufficient direction as to the nature of their supervisory role.

In response, SBR conducted an internal investigation on this incident and raised a formal ‘Opportunity for improvement’ (OFI) to address this issue, which recommended that SBR drivers in charge of a trainee should be formally briefed by a train crew supervisor/rail operations manager on the level of competency of the trainee, when commencing on roster with a trainee/driver under supervision.

The driver job description has been amended to reflect this. The ATSB is satisfied that SBR has initiated action to address the safety issue.

- There were no formalised processes for a trainee driver to record their experience in learning a route, or to document feedback related to their performance, for use by supervising drivers or assessors to assist in mentoring them.

In response, SBR said it encourages and supports drivers who diarise and make notes during the learning process. SBR also said that it provides materials with which to do so.

Nevertheless, the company formed a panel of training staff, including its Registered Training Organisation (RTO), to consider the proposal further.

The panel consisted of four staff with a combined experience in driver training of over 70 years. It included a senior driver trainer, the operations manager, a manager who was formally the CEO of a major rail industry training organisation and its current RTO CEO. The collective opinion of the panel was that to mandate a formalised process would be counterproductive to safety and learning. Records that can be accessed by anyone other than the trainee would most likely result in ‘sanitised’ notes and diary entries that would not achieve the best learning outcomes. Trainees, say SBR, must feel free to record information as truthfully as possible and in a manner that assists in their learning. They should not be distracted from learning, by formalising notes for later record keeping purposes. Driving assessments and are formally recorded by instructors, when a trainee’s assessment is completed.

The ATSB notes the response and considers that the provision of a formal briefing to the driver in charge, at the commencement of a roster, adequately addresses the safety issue.

- Worker competency procedures were deficient in providing a structured program for the development of route knowledge by the trainee driver.

SBR’s internal investigation recommended that it set reasonable defined time limits/trips for driver route knowledge learning which are clearly communicated to all drivers. Its route knowledge documentation has been amended accordingly. The ATSB is satisfied that SBR has initiated action to address the safety issue.

- SBR’s process for assessing its drivers’ roster for relay operations relied excessively on a score produced by a bio-mathematical model, and it had limited mechanisms in place to ensure drivers received an adequate quantity and quality of sleep during relay operations.

In response, SBR provided inclusive details of its fatigue management programme, specifically highlighting that:
**Worldwide Fatigue Management**

**Summary**

- The locomotives in use by SBR are designed to minimise driver task load. The locomotives are some of the newest on the network, and have incorporated many design features to mitigate fatigue risk.

- Sleep opportunity, with crew facilities are designed to maximise restorative sleep is crucial to reducing fatigue. SBR has dedicated crew rest facilities attached to each relay operating train. As with the locomotives, these rest facilities have been designed to maximise restorative sleep opportunities.

- In designing rosters, SBR assesses each roster with FAID software to design rosters that will minimise fatigue, if appropriate restorative sleep opportunities are taken by the drivers when given the opportunity.

- SBR believes that its rostering practices, in context, are conducive to reduced fatigue risk and adverse safety outcomes... SBR's specific risk context, without prolonged or persistent fatigue, we believe supports a view, supported by research that SBR's rostering practices are likely to reduce the risk of drivers experiencing fatigue associated with impaired performance.

The ATSB notes the response and encourages the continual improvement of fatigue risk management programs by rail transport.

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**Published 19 April**

**Australia: Level crossing collision near Port Germein, SA, 19 March 2012**

For the full report, click [here](#).

On 19 March 2012, a Pacific National ore train travelling between Port Augusta and Port Pirie collided with a car on the Port Flinders Causeway Road level crossing, about 10 kilometres south of Port Germein in South Australia. The crossing was controlled by passive approach warning signs and a ‘Stop’ sign at the interface.

There were two occupants in the motor vehicle. The passenger was fatally injured and the driver suffered serious injuries. The train crew were uninjured.

The train horn was not sounded at the Whistle Board as required, but was sounded three times when the train was closer to the crossing. It is unlikely that sounding the horn at the Whistle Board would have been effective in alerting the motorist to the presence of the train in this instance. The ATSB conclude that the actions of the train crew were appropriate in the circumstances, adding that ‘[t]here was little effective action they could have taken to prevent or minimise the impact of the collision’.

A review of the Port Flinders Causeway Road level crossing geometry revealed that, for motor vehicles stopped at the crossing, available sighting distance and viewing angle was better than that prescribed in Australian standards. The ATSB found that the car driver involved in the collision – a local resident of some 14 years – did not come to a complete stand at the crossing and drove into the path of the approaching ore train. The ATSB concluded that the motorist's attention might have been diverted during a critical period when he would normally have stopped to look for a train.
Recommendations

- There were some minor non-conformances with the level crossing signage, in particular the ‘Stop’ sign assembly and positioning of the ‘Stop’ line on the western side of the Port Flinders Causeway Road level crossing.

The Australian Rail Track Corporation has advised that the signage at the Port Flinders Causeway Road level crossing had been reinstated.

Published 25 April

**UK: Dangerous occurrence involving an engineering possession near Dunblane, 28 October 2012**

For the full report, click [here](#).

An engineering possession was established on the night of 27/28 October 2012 between Stirling and Blackford in Scotland. Several items of maintenance work were planned to be carried out in this possession and these were grouped into four work sites.

At 07:04, the PICOP authorised the reopening of the line to normal traffic when only three of the work sites had completed their work and were clear of the line. Work in the fourth work site was ongoing when the line reopened to traffic.

Seven members of staff were working on the line with a road-rail excavator and trailer. This work continued for an hour after the line was reopened. No collision occurred as there were no trains scheduled, but there were no measures in place to prevent a train from being signalled through the worksite.

The PICOP did not record details of the work site on the possession form. He was under some stress from events outside of his work at the time and this may have affected his performance. Other probable factors were late alterations to the work sites within the possession and the way in which the briefing pack for the possession was presented.

RAIB has identified the following key learning points:

- The possession arrangements form was designed for keeping track of work sites, and other details, within a possession. Correct use of this form would have prevented this incident. As a result of the incident, Network Rail issued a ‘Possession Delivery Alert’, which instructed its PICOPs to always fill this form in with work site details immediately upon receipt of those details and not keep rough notes to copy up later.

- When planning to discuss with a member of staff matters that might have a bearing on their performance at work, it’s a good idea for managers to consider the timing of the interview with regard to any safety critical role that the staff member may be doing (or be about to start).

- The sorting of work sites into a logical order on the possession paperwork reduces the risk of errors. Network Rail has re-briefed its planners accordingly.