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Collision between freight train 3SP7 and road-rail vehicle near Menindee, New South Wales

13 July 2011

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.

Abstract

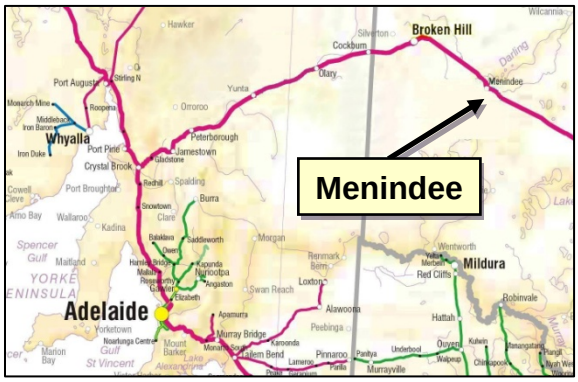
At about 1545[1], on Wednesday 13 July 2011, freight train 3SP7 collided with a road-rail[2] vehicle in the Kaleentha to Menindee section of track, located in western New South Wales (NSW). The road-rail vehicle, a Toyota Landcruiser station wagon, was extensively damaged. The lead locomotive of train 3SP7, NR4 incurred only minor damage and after effecting repairs at the incident site the train continued through to Port Augusta en route to Perth. There were no injuries and no damage to fixed infrastructure.

FACTUAL INFORMATION

Location

The collision occurred on the Sydney to Broken Hill section of the Defined Interstate Rail Network (DIRN) at the 1002.015[3] km point in the Kaleentha to Menindee section of single line track in western NSW (Figure 1).

Figure 1: Location of Menindee



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A crossing loop located at Kaleentha (944.925 km) is 1833 m long with another crossing loop located at Menindee (1006.582 km) being 1145 m long.

Yard Limit Boards[4] within the Kaleentha to Menindee section are located at Kaleentha, 945.450 km (Figure 2 - Up Yard Limit) and Menindee 1004.350 km (Down Yard Limit) respectively.

There are several level crossings within Kaleentha to Menindee section of track including Wilcannia Road at 1004.660 km (Figure 2).

The DIRN at this location is managed by the Australian Rail Track Corporation (ARTC).

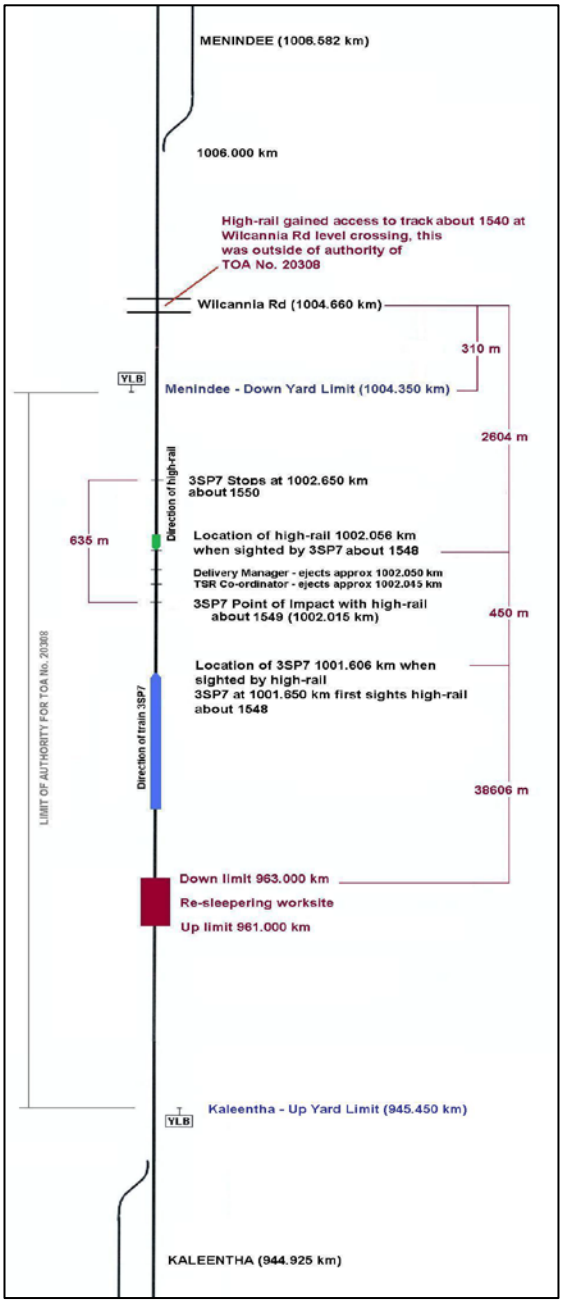
1 The 24-hour clock is used in this report. Australian Eastern Standard Time (EST), UTC +10.0 hours.

2 A road vehicle fitted with retractable rail guidance wheels.

3 Distance in track kilometres from a reference point located at Sydney Central Station.

4 Yard limit board – A board which defines the entrance to a yard (limit of movement within the yard).
* Up and Down Yard Limits within the report refer to the yard limits at the entrance of the Kaleentha and Menindee yards respectively.

Figure 2: Incident site Kaleentha to Menindee



The passage of trains through the section is managed by an ARTC network controller working in the network control centre at Junee NSW.

Train and crew information

The train involved in the collision was the Pacific National (PN) freight service, 3SP7. The train comprised three locomotives, NR4 (leading) followed by NR118 with NR5 (trailing) hauling 23 wagons. The train had an overall length of 1764.3 m and a trailing mass of 3487.8 t.

The two drivers involved with the collision were qualified, assessed as competent and medically fit for duty.

Road-rail vehicle, driver and passenger information

The vehicle involved in the collision was a late model Toyota Landcruiser station wagon equipped to operate on track.

The driver was employed by Transfield Services Ltd in the capacity of 'Temporary Speed Restriction Co-ordinator' (TSR Co-ordinator). He was accredited to operate the road-rail vehicle and appropriately trained as a Protection Officer. He had extensive experience within the rail industry, mainly in NSW and had been involved in track protection activities, as a Protection Officer, for over 10 years. At the time of the collision he was qualified as a Protection Officer Level 4 and medically fit for duty.

He was accompanied by a second Transfield employee, a senior manager employed in the capacity of 'Delivery Manager' who, while not qualified as a Protection Officer, had extensive experience within the rail industry. He was medically fit for duty.

Sequence of events

In the lead-up to and at the time of the collision, Transfield Services Ltd was engaged by the ARTC to undertake the re-sleepering of track between Kaleentha and Menindee. On day of the incident, 13 July 2011, Transfield had programmed re-sleepering works between 961.000 km and 963.000 km in the section.

Train 3SP7 originated at the Sydney Freight Terminal (NSW) and was travelling through to the Perth Freight Terminal in Western Australia. The two train drivers involved in the collision had signed on for duty at the Parkes Intermodal Depot (NSW) at 0750 on the day of the incident. They then drove by road vehicle to Goobang Junction where they relieved the incoming Sydney crew. After completing local shunting operations they departed Goobang Junction at 0950 with train 3SP7. Shortly after departure the driver (co-driver at the time of the incident) conducted a running brake test. After satisfying himself that the brakes were functioning normally he continued driving towards Menindee.

At about 1332 after passing through Ivanhoe, the driver and co-driver exchanged duties.

At 0630 the same day, Transfield's Protection Officer[5] (PO) attached to the re-sleepering work signed on for duty at Menindee. He obtained Track Occupancy Authority[6] (TOA) 20264 at 0708, from the Junee based network controller, covering the section of track between Kaleentha - Up Yard Limit through to Menindee - Down Yard Limit. He briefed workers operating under his authority before departing to the worksite.

The first TOA (20264) was fulfilled at 1104 to allow for the passage of train 3NY3 through the section in the down direction.

The PO obtained a second TOA (20285) at 1149 covering the same section of track as the previous TOA (20264).

The second TOA (20285) was fulfilled at 1442 to allow for the passage of train 3SP7 (the incident train), which was also travelling in the down direction.

At 1445 as the incident train (3SP7) approached Kaleentha the driver received authorisation, from the Junee network controller, to travel on towards Broken Hill, that is, through the Kaleentha to Menindee track section. The driver of train 3SP7 therefore continued with an expectation that the route through to Menindee would be unobstructed.

At 1520, following the passage of train 3SP7 through the re-sleepering worksite, the PO obtained a third TOA (20308). Once again it covered the section of track between Kaleentha - Up Yard Limit through to Menindee - Down Yard Limit.

Earlier in the day, the Delivery Manager and TSR Co-ordinator had decided that they would inspect the re-sleepering works between Kaleentha and Menindee to scrutinise aspects of the work with the intent of closing out some temporary speed restrictions. Initially they commenced the inspection of the track from the adjacent maintenance road but quickly realised that it would be better to undertake this work on track.

With this in mind, at 1539 the TSR Co-ordinator rang the Transfield PO to determine the extent of coverage afforded by his TOA, 20308. During the conversation the PO determined that the TSR Co-ordinator was still within the Menindee Yard limits and beyond the protection afforded by his TOA. Accordingly, the PO advised[7] the TSR Co-ordinator that he required a separate TOA from the network controller before he could access the track within the yard and then the section of track covered by TOA 20308. However, following the conversation, the TSR Co-ordinator proceeded to access the track within the yard limits at the Wilcannia Rd level crossing (1004.660 km) which was 310 m from the Menindee - Down Yard Limit, with the intent of encroaching into the section covered by TOA 20308 without the need to acquire a separate TOA.

The TSR Co-ordinator knowingly had not communicated his intentions to the Junee network controller or PO and was in violation of the ARTC network rules. Having failed to communicate with the Junee network controller and having accessed the track without authorisation, the TSR Co-ordinator was unaware that his road-rail vehicle was on a direct collision course with train 3SP7.

At 1548 while approaching Menindee (about 1001.650 km) and travelling at a speed of about 80 km/h the driver of train 3SP7 saw a white vehicle through a curve about 400 m ahead of the train. He initially thought that the vehicle was on the maintenance roadway adjacent the line but as the train continued towards the vehicle the train driver realised it was on the track so he made an emergency brake application. Just prior to the collision both the train driver and co-driver vacated the cabin and went to the safety of the vestibule area but had noted that the road-rail vehicle had come to a stop and that two individuals had evacuated it.

Shortly thereafter the train collided with the road-rail vehicle at an estimated speed of 70 km/h.

5 A qualified employee certified to undertake worksite protection activities on a railway network with regard to rail operations.

6 Track Occupancy Authority (TOA) - A TOA authorises occupation of track, within specified limits, for an agreed period and can only be authorised by the network controller for that section of track.

7 As the TSR co-ordinator did not have authorisation to access the track, there had been no requirement for the PO to communicate details of any train movements within the Kaleentha to Menindee section, including the fact that train 3SP7 had just past through the re-sleepering worksite.

After hearing the impact, the train driver and co-driver returned to the locomotive cab and saw that the train was pushing the road-rail vehicle ahead of the train before finally coming to a stand (Figure 3) at the 1002.650 km mark, having travelled about 635 m from the initial point of impact.

Figure 3: Road-rail vehicle at front of NR4

Post-incident

The two train drivers, TSR Co-ordinator, Delivery Manager and Protection Officer were all tested for the presence of alcohol and drugs. The tests returned zero results.

The leading locomotive of train 3SP7, NR4, incurred only minor damage and after repairs at the incident site, the train continued through to Port Augusta en route to Perth.

ATSB COMMENT

The available evidence indicated that in this instance the TSR Co-ordinator had accessed the track within the Menindee yard limits without the knowledge of, or authority from, the Junee network controller, even after he was advised by the Transfield Protection Officer of the need to get a separate authority.

After accessing the track the TSR Co-ordinator travelled on towards the worksite without any authority from either the Junee network controller or the Protection Officer. It was evident to the investigation team that the TSR Co-ordinator was intending to 'piggy back' onto TOA 20308 which was in force at the time, but was unaware that freight train 3SP7 and his road-rail vehicle were on a collision course.

If the TSR Co-ordinator had followed the applicable rules for accessing the track and communicated with the network controller in Junee, it is almost certain the collision would not have occurred.

The Delivery Manager, although not qualified in track access rules and procedures, was experienced in on-track work and stated that he was unaware of the violation until after the collision. Had he been formally qualified in track access the unauthorised access may have been detected. Notwithstanding this, an opportunity to prevent the collision was available had the Delivery Manager questioned the TSR Co-ordinator's actions in accessing the track.

Safety message

This occurrence highlights that a deliberate violation by an individual can circumvent well established rules and procedures. Access onto track is a privilege granted by network controllers, not a right.

SOURCES AND SUBMISSIONS

Sources of Information

As part of the process evidence was sourced from the Australian Rail Track Corporation, Pacific National and Transfield Services Ltd. Evidence included train running information, voice and signalling data logs, locomotive data logs, and other documentation.

Submissions

Under Part 4, Division 2 (Investigation Reports), Section 26 of the Transport Safety Investigation Act 2003, the ATSB may provide a draft report, on a confidential basis, to any person whom the ATSB considers appropriate. Section 26 (1) (a) of the Act allows a person receiving a draft report to make submissions to the ATSB about the draft report.

A draft of this report was provided to the Australian Rail Track Corporation, Pacific National, Transfield Services Ltd, the Independent Transport Safety Regulator of NSW and a number of individuals.

Submissions were received from the Australian Rail Track Corporation and the Independent Transport Safety Regulator. The submissions were reviewed and where considered appropriate, the text of the report was amended accordingly.