



Australian Government

Australian Transport Safety Bureau

Signal passed at danger of passenger train NP43

Gunnedah, New South Wales on 10 June 2019

ATSB Transport Safety Report

Rail Occurrence Investigation

RO-2019-012

Final – 27 September 2019

This investigation was conducted under the Transport Safety Investigation Act 2003 (Cth) by the Office of Transport Safety Investigations (NSW) on behalf of the Australian Transport Safety Bureau in accordance with the Collaboration Agreement entered into on 18 January 2013.

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Addendum

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Safety summary

What happened

On 10 June 2019, the driver of Xplorer service NP43 was operating a passenger service between Werris Creek and Moree. Shortly after departing Gunnedah, the driver passed signal GH19 at Caution and continued at track speed of 115km/hr, unaware that signal GH23 was at Stop. The position of the sun likely reduced the driver's ability to sight signals GH19 and GH23 from a safe distance. When the driver did sight signal GH23 at Stop, there was insufficient distance to stop prior to points 55. NP43 traversed points 55 in excess of the maximum track speed of 50km/hr for the points. The train, travelling at approximately 110km/hr, came to a stop approximately 400m into the Whitehaven Coal Loop.

When NP43 entered the coal loop three people were injured, a passenger and a member of crew were struck by flying objects, and a crew member was thrown from their seat striking their head.

What the ATSB found

It was found that the driver of NP43 was not aware signal GH23 was at Stop, in order to protect an Up movement at Emerald Hill. The driver passed signal GH19 without sighting the signal and the position of the sun likely affected the driver's visibility of signal GH23. There was insufficient stopping distance prior to points 55 once the driver sighted signal GH23.

Safety message

Drivers are reminded of the importance of operating to the current conditions, but also with consideration to potential future conditions. If safe sighting distance is reduced due to environmental factors, it is important to reduce speed and be prepared to stop.

The occurrence

What happened

On 10 June 2019, NSW Trains were operating a passenger service between Werris Creek and Moree. This service consisted of a two car Xplorer service designated as NP43.

At 1558¹ service NP43 departed Werris Creek for Moree in the Down² direction. This service departed 13 minutes late due to the late arrival of service NP23 to Werris Creek. These services were operating to a modified timetable as a result of track work near Muswellbrook.

At 1636 the driver of NP43 contacted the North Panel Network Controller (NC), located at ARTC's North Control Centre, Broadmeadow to advise that NP43 was at Gunnedah station. During the communication the NC advised there was a train ahead, after that they should get the signal to proceed. Between 1639 and 1642 a coal service designated NB933 travelled in an Up direction and entered the Gunnedah loop line north, locally referred to as the 'Gunnedah Long Loop'.

At 1643 NP43 departed Gunnedah after signal GH7 indicated a proceed indication.

At 1645 NP43 passed signal GH19 with a yellow Caution indication. This signal is located on the right hand side in the direction of travel at 478.100km³.

At 1646 the NC contacted the driver of NP43 to confirm that NP43 had passed the Gunnedah Long Loop, with the driver confirming he had passed the long loop. The NC acknowledged the driver's message and advised, 'shouldn't be too long and that signal should set up for you'.

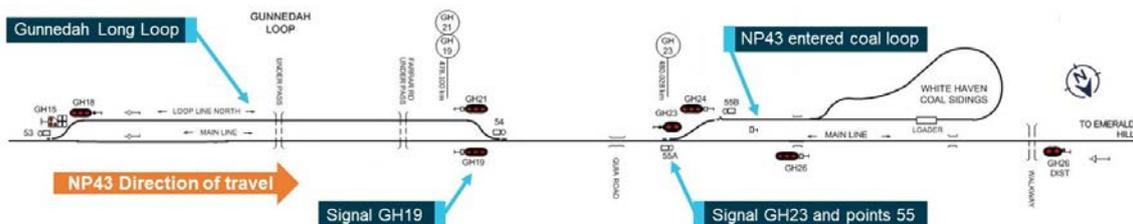
At 16:46:28 NP43 passed signal GH23 at Stop, located at 480.028km and entered the Whitehaven Coal Loop siding at approximately 110km/hr. The train stopped approximately 400m into the coal loop (see Figure 1 for incident location). The driver stated when he did see signal GH23 at Stop, he initiated an emergency brake application, but was unable to stop prior to points 55.

The driver of NP43 contacted the NC to advise of the signal passed at danger (SPAD), confirming that the signal was at Stop, however it was not visible to the driver due to sun glare.

The driver was checked by the Passenger Service Supervisor (PSS) as fit to continue. The NC then made arrangements for the driver of NP43 to change ends and return to the main line. NP43 was cleared to continue north, with the driver accompanied by the PSS for the remainder of the journey. The driver of NP43 was breath tested by NSW Police on arrival at Narrabri, returning a negative blood alcohol reading.

There were three reported injuries from increased lateral forces as a result of NP43 traversing points 55, in excess of the maximum track speed of 50km/hr for the points.

Figure 1: Gunnedah signal location



Source: ARTC. Modified and annotated by ATSB

¹ The 24hr-clock is used in this report and referenced from Australian Eastern Standard Time (AEST)
² The Down direction refers to the direction of travel for trains heading away from Sydney, the Up direction refers to trains heading towards Sydney.
³ The kilometre distance is given as the distance from Platform 1, Central Station Sydney, New South Wales.

Safety analysis

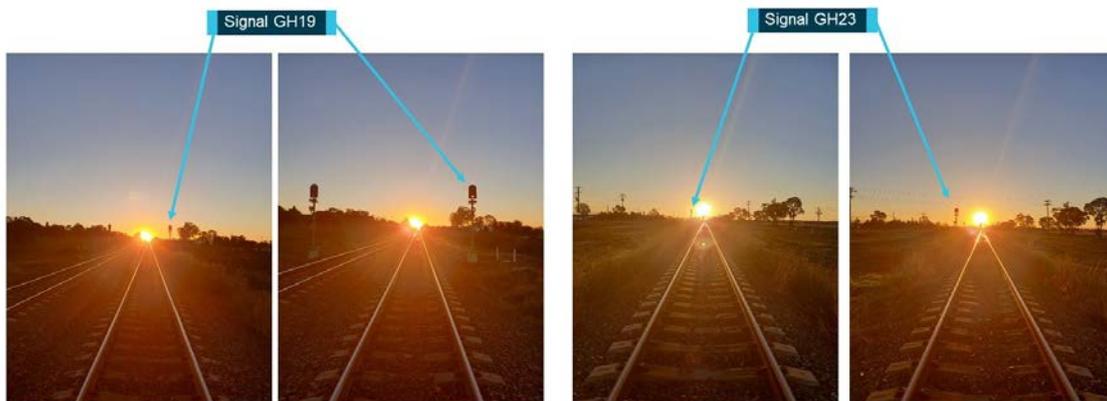
The late running of NP43 and time of the year meant the sun was lower than the driver was expecting or reportedly had previously seen. The driver last operated this route one month prior to this occurrence.

The position of the sun aligned directly with the path of NP43, likely reducing the safe sighting distance to within 100m of signals GH19 and GH23. The driver reported that the sun was reflecting from the stainless steel coal wagons parked in the Gunnedah long loop. This may have distracted the driver from sighting signal GH19. The driver reported wearing sunglasses and utilising the cab blind in an effort to block the sun, but reported his visibility was still affected.

The driver reported he knew the location of signal GH19, however did not see the signal on passing and continued at track speed. The driver also reported never seeing signal GH19 with a Caution indication in the previous 12 years, which likely influenced the driver continuing at track speed.

A site inspection completed the following day confirmed the position of the sun would have affected the driver's visibility of the signal aspects for GH19 and GH23 (see Figure 2). This inspection was completed at the same time in similar weather conditions to the previous day.

Figure 2: Signal sighting at approximately 100m and 30m to GH19 and GH23



Source: ARTC. Annotated by ATSB.

The NC had set signal GH23 to Stop to protect the Up movement of a coal train into the sidings at Emerald Hill. With signal GH23 at Stop, points 55 were set in the reverse position in order to direct rail traffic travelling in the Down direction into the Whitehaven Coal Loop siding. Signal GH19 was set at Caution as signal GH23 was at Stop. The driver of NP43 was not aware of the Up movement at Emerald Hill and was not expecting signal GH23 to be at Stop, having not seen signal GH19.

The driver of NP43 was contacted by the NC after passing the end of the long loop as part of the requirement to block work⁴ in this section of track. This call was made after NP43 had passed signal GH19. Although the call from the NC was made when NP43 was approaching signal GH23, it is unlikely the call from the NC distracted the driver from sighting signal GH23 at Stop.

The driver reported throwing the radio handset aside on sighting the signal at Stop, therefore it is possible the driver did not hear or comprehend the NC stating 'shouldn't be too long and that signal should set up for you'. It takes approximately 500m to stop a two car Xplorer from 115km/hr in emergency braking mode, therefore it is unlikely NP43 would have been able to stop prior to points 55.

⁴ Block working, is a method of train control used to prevent rail traffic from entering a block which is occupied by another train. At the time of the incident NP43 was required to block work through this area in accordance ARTC ANSY 512.

The maximum sign posted speed for points 55 is 50km/hr. The speed NP43 traversed the points created lateral forces which resulted in the following:

- a passenger being struck by a falling bag
- the Senior Passenger Attendant (SPA) being struck with items stored in the buffet
- the PSS being thrown from their seat in the rear car and striking their head, requiring first aid.

It is a requirement for a driver to be accompanied by a qualified worker following an incident until the driver is relieved⁵. If the qualified worker doubts the ability of the driver to safely operate the train, they must tell the NC and secure the train. The qualified worker in this case was the PSS as the SPA cannot perform the role of a qualified worker. Given the PSS received a minor head injury, the potential effectiveness of their assessing and monitoring the safe operation of the train could have been limited. The driver could, however, monitor the PSS post incident.

The health and fatigue of the driver were assessed and it was considered these did not contribute to this occurrence.

Findings

These findings should not be read as apportioning blame or liability to any particular organisation or individual.

- The driver of NP43 was not aware that signal GH23 was at Stop and continued at track speed after passing signal GH19 without seeing the signal indication.
- The driver's vision of the signals GH19 and GH23 was likely impaired due to the position of the sun. The sun reflecting off the side of the coal wagons prior to signal GH19 possibly further impaired the driver's vision. Under these conditions the driver did not suitably adjust the speed of the train to allow for safe sighting of the signal.
- The NC set the route so that GH23 was at Stop to allow for an Up movement of a freight train into Emerald Hill Loop.
- The driver was qualified and had frequently operated passenger trains through this section. In the previous 12 years, the driver reported not sighting GH19 at Caution. This likely influenced the driver to continue after not seeing the signal indication.
- The driver of NP43 was not distracted by other activities or the requirement to block work within this section of track.

⁵ NSW Trains, NTOSP14

General details

Occurrence details

Date and time:	10 June 2019 – 1746 AEST	
Occurrence category:	Incident	
Primary occurrence type:	Signal Passed at Danger	
Location:	Gunnedah, NSW	
	Latitude: 30° 57.503' S	Longitude: 150° 12.765' E

Train details

Train operator:	NSW Trains	
Registration:	NP43	
Type of operation:	Passenger	
Departure:	Werris Creek	
Destination:	Moree	
Injuries:	Crew – 2	Passengers – 1
Damage:	None	

About the ATSB

The ATSB is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within the ATSB's jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to operations involving the travelling public.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

Purpose of safety investigations

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

About this report

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.