

ONRSR Ref: A741098



12 May 2017

Ms Michelle Landry MP  
Chair  
The Standing Committee on Industry, Innovation, Science and Resources  
PO Box 6021  
Parliament House  
CANBERRA ACT 2600

**National Office**  
PO Box 3461, Rundle Mall  
ADELAIDE SA 5000  
[contact@onrsr.com.au](mailto:contact@onrsr.com.au)  
08 8406 1500  
[www.onrsr.com.au](http://www.onrsr.com.au)  
ABN: 44 260 419 904

Email: [iisr.reps@aph.gov.au](mailto:iisr.reps@aph.gov.au)

Dear Ms Landry,

## **Inquiry into the social implications of driverless vehicles**

Thank you for the opportunity for the Office of the National Rail Safety Regulator (ONRSR) to appear at the inquiry into the social implications of driverless vehicles held on 11 April 2017.

Please find following in response to questions taken on notice.

### Question 1

Mr BRIAN MITCHELL: *"We have heard evidence that 90 to 94 per cent of road incidents are driver related, driver caused, in some way. Do you have figures on rail incidents, particularly those that caused injury or death, and how many may be driver related? We want some idea of what the benefits might be to automation in terms of safety. If you do not have that information, do you know where we could find it?"*

### ONRSR response

Refer to Attachment A

### Question 2

Mr BRIAN MITCHELL: *"On that note, if this technology has existed overseas for some time, are you the best agency to ask to forward some of that information about the overseas experience to this committee or should we approach somebody else?"*

The ONRSR has a Technical team, employing a number of professional engineers and specialists whose function is to provide relevant technical advice to the ONRSR's operations. This in-house capability covers the principal disciplines within rail infrastructure and rolling stock, including those that are required for driverless train operations. Through professional bodies such as the Institution of Engineers Australia or the Institution of Railway Signal Engineers, the ONRSR's engineers maintain knowledge of railway technology associated with driverless trains. Additionally, the ONRSR encourages its staff to attend industry conferences to keep apprised of technological developments, such as the recent International Train Control Management Systems Conference in Sydney where ONRSR also presented.

While the introduction of driverless passenger trains is not new on a global scale, it is new for Australia. Recognising this, ONRSR has arranged for two representatives to visit Hong Kong's South Island Line where a driverless train system has just been introduced using technology that will be commissioned on Sydney Metro. The aim of the visit is to inform ONRSR of how safety risks were successfully managed as the driverless system was commissioned and entered in to passenger service.

ONRSR's prime focus is on the management of safety risk by the railway industry. For significant projects, such as the introduction of driverless trains, ONRSR has published industry guidance that sets out the processes of safety risk management that projects are expected to follow. Adoption of this guidance by a project will contribute to ONRSR's confidence that the introduction of new technology is being carried out in accordance with the safety duties contained within the Rail Safety National Law.

Should additional information be required, please do not hesitate to contact my office on [REDACTED].

Yours sincerely

[REDACTED]

Sue McCarrey  
**Chief Executive**

Enc: Attachment A – train driver error incidents

<b>Request for Information</b>	
Request details	An estimate of the number of rail safety incidents in which train driver error was a contributing factor
Organisation	Standing Committee on Industry, Innovation, Science & Resources
Purpose	In support of the parliamentary inquiry into the social issues relating to land-based driverless vehicles in Australia
Request Date	11 April 2017

<b>ONRSR Notifiable Occurrences Assessment Results<sup>1</sup></b>	
<b>Category A occurrences with the potential to be caused by driver error<sup>2, 3</sup></b>	355
# Driver error considered a contributing factor <sup>4</sup>	34
% Driver error considered a contributing factor	9.58%
<b>Signal Passed At Danger (SPAD) occurrences reported (Categories A, B and N)</b>	
# Driver error related SPADs <sup>5, 6</sup>	968
% Driver error related SPADs <sup>5, 6</sup>	33.14%
<b>Assessment Parameters</b>	
<i>Occurrence Date Range</i>	20 January 2013 – 31 March 2017 SA, NT, Tas. : 20 January 2013 – 31 March 2017 NSW: 1 September 2014 – 31 March 2017 Vic.: 19 May 2014 – 31 March 2017 ACT: 20 November 2014 – 31 March 2017 WA: 2 November 2015 – 31 March 2017
<i>Notifying Organisations</i>	All operators within ONRSR's jurisdiction, at the time of reporting.
<i>States / Territories</i>	SA, NT, Tas., ACT, NSW, Vic. & WA

<b>External Rail Safety Investigation Assessment Results<sup>1</sup></b>	
<b>ATSB Investigation Reports reviewed<sup>7</sup></b>	170
# ATSB Investigations in which driver error considered a contributing factor	37
% ATSB Investigations in which driver error considered a contributing factor	21.8%
<b>RAIB Investigation Reports reviewed<sup>8</sup></b>	
# RAIB Investigations in which driver error considered a contributing factor	11
% RAIB Investigations in which driver error considered a contributing factor	20.4%

<b>Scope and Methods</b>
1. Results reported are current as of 12 May 2017. The underlying data is subject to change as it is checked and validated over time, or as further information becomes available.
2. Any of the following notifiable occurrences is a Category A occurrence: <ul style="list-style-type: none"><li>a. an accident or incident that has caused death, serious injury or significant property damage;</li><li>b. a running line derailment;</li><li>c. a running line collision between rolling stock;</li><li>d. a collision at a road or pedestrian level crossing between rolling stock and either a road vehicle or a person;</li><li>e. a suspected terrorist attack;</li><li>f. an accident or incident involving a significant failure of a safety management system that could have caused death, serious injury or significant property damage;</li><li>g. any other accident or incident likely to generate immediate or intense public interest or concern.</li></ul>
3. For the purpose of this analysis, notifiable occurrence categories with the potential to be caused by driver error include: <ul style="list-style-type: none"><li>a. Derailments;</li><li>b. Collisions;</li><li>c. Level Crossing Collisions;</li><li>d. Proceed Authorities Exceeded;</li><li>e. Runaways;</li><li>f. Safe working Rules or Procedure Breaches; and</li><li>g. Signals Passed at Danger (SPAD)</li></ul>
4. The assessment of whether driver error contributed to an incident is based on a review of notifiable occurrence information provided by operators, for the occurrence categories listed in Note 2 above only. The ONRSR cannot guarantee the accuracy or completeness of information provided by third parties.
5. Driver error related SPADs include the following sub-categories: <ul style="list-style-type: none"><li>a. Started against signal</li><li>b. Driver misjudged</li><li>c. Completely missed whilst running</li></ul>
6. Where a SPAD occurs, many railways have other engineering controls in place to stop the train.
7. All Rail Safety Investigation reports published by the Australian Transport Safety Bureau from 1 January 1998 to 12 May 2017, with a report status of 'Final', were reviewed. The reports can be accessed at <a href="https://www.atsb.gov.au/publications/safety-investigation-reports/?mode=Rail">https://www.atsb.gov.au/publications/safety-investigation-reports/?mode=Rail</a>
8. All UK Rail Accident Investigation Branch reports available as of 12 May 2017, of type 'Investigation report', with a date of occurrence from 1 January 2014 to 12 May 2017, were reviewed. The reports can be accessed at <a href="https://www.gov.uk/raib-reports">https://www.gov.uk/raib-reports</a>