



## SPAD risk shows decrease.

### Introduction

This is a four-page summary of the Category A signal passed at danger (SPAD) and Train Protection and Warning System (TPWS) activity report for Q2-2011/12.

### Key Facts: Q2-2011/12

|                      |  |
|----------------------|--|
| <b>Quarter 2:</b>    | 80 category A SPADs during Q2-2011/12, which is 17 more than Q2-2010/11 (27% worse).<br>Q2-2011/12 was also 8.1% worse than the three-year average of 74.0.  |
| <b>Risk ranking:</b> | 20 SPADs were risk ranked 16 or above (one of which were risk ranked 20+). This compares to 19 in Q2-2010/11 (of which three were risk ranked 20+).  |
| <b>TPWS:</b>         | 19 TPWS interventions (TPWS applied the brakes before, or in the absence of, driver action).<br>26 TPWS activations (the driver initiated braking before the system).<br>Two where the TPWS involvement is currently unknown.<br>There was a 'reset & continue' incident on 28 August. |
| <b>Multi-SPADs:</b>  | 15 SPADs by multi-SPAD drivers (two or more since qualifying as a driver), five of which register within the current five-year period.<br>14 SPADs at multi-SPAD signals (two or more within the current five-year period).  |

### Summary of SPAD numbers

The number of SPADs recorded in the 12 months ending September 2011 was 312. This represents a 17.2% increase, which is a statistically significant change, when compared to the position a year ago. '16+ SPADs' have also increased during the past year, reaching 92 as at the end of September; the total for 20+ SPADs remained at 17. This is shown in Chart 1.

### SPAD risk.

|                  |  |  |
|------------------|--|--|
| <b>SPAD risk</b> | September 2011 – 69%<br>September 2010 – 79% | ■ 10% better:<br>Representing a 13% change over the year |
|------------------|--|--|

SPAD risk is calculated system-wide using a consistent and objective measure applied by the SPAD risk ranking tool (SRRT). The risk ranking score assigned to each SPAD is then used to track changes in SPAD risk over time.

### TPWS 'reset and continue'

On 28 August, an engineers' train, which was about to enter a T3 Possession, passed the protecting signal at danger without the requisite signaller's authority. The train was stopped by the TSS at that signal, but the driver reset the TPWS and continued.

**Chart 1 Annual moving totals – All SPADs, 16+ and 20+**

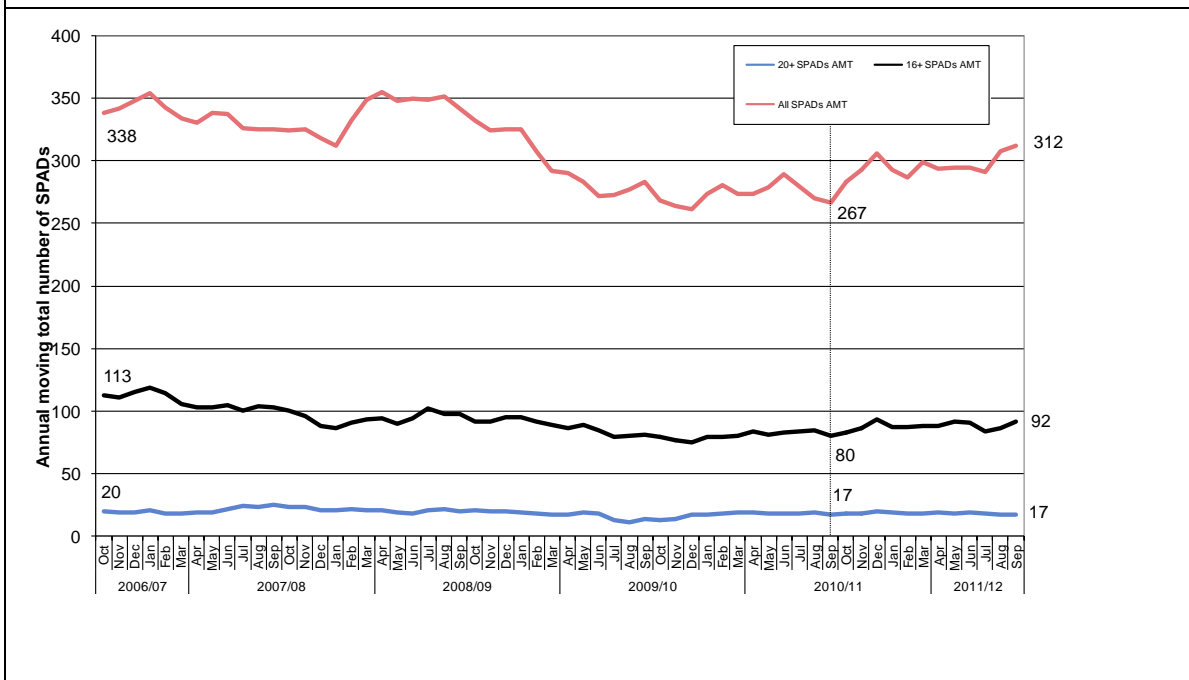
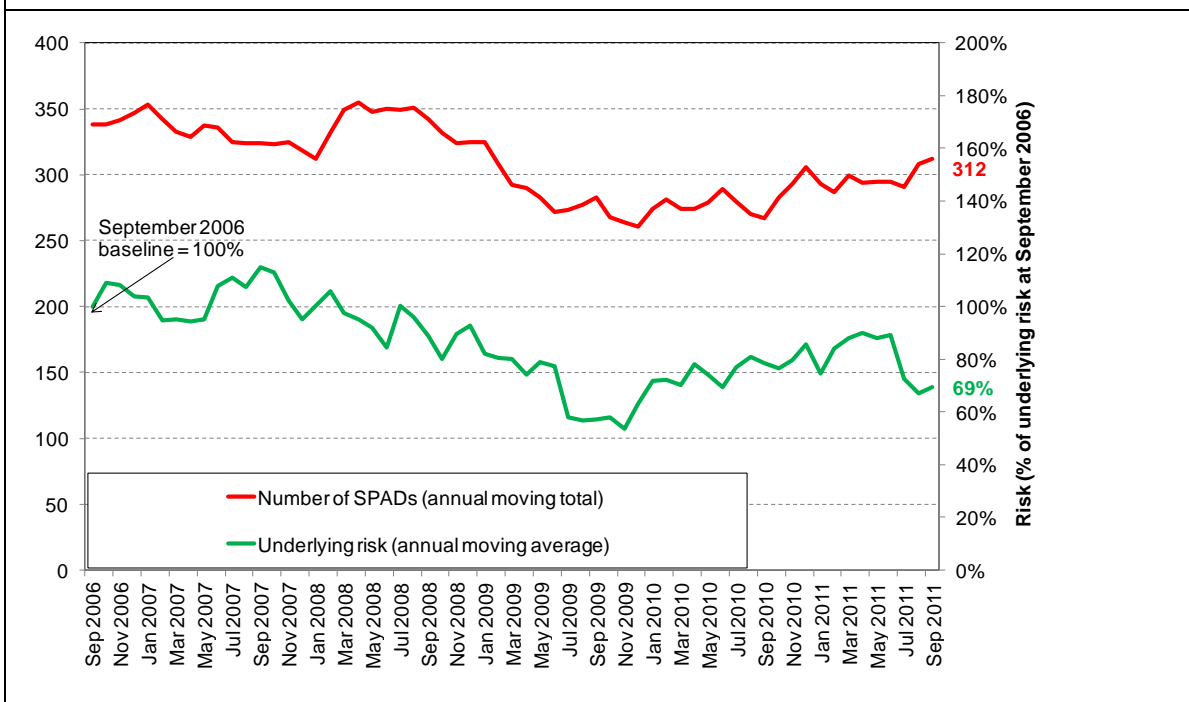


Chart 2 shows the change in SPAD risk over time. During the 12 months prior to January 2011, the SPAD risk metric remained broadly level, showing only slight fluctuations. During Q2-2011/12, it has shown a decrease to 69% of the benchmark level.

**Chart 2 Change in SPAD risk over time<sup>1</sup>**



<sup>1</sup> The SPAD Risk chart includes SPADs which come within the definition of 'on or affecting a running line'. This is a slightly different set of SPADs to those on NRMI reported on elsewhere. A definition of OORL may be found in the full report.

## SPAD performance by route

Table 1 examines performance by route for All SPADs and those risk ranked 16+. The percentage changes are based on a comparison between the annual moving totals as at the end of September 2010 and 2011. If any of the changes in SPAD numbers are statistically significant (at the 90% confidence level), this is indicated in the right-hand column of the table.

**Table 1 Route Performance – Comparison of Moving Annual Totals**

|           | Route                | Annual moving total September 2010 | Annual moving total September 2011 | Difference in annual total | %age change in annual rate | Annual change significant? |
|-----------|----------------------|------------------------------------|------------------------------------|----------------------------|----------------------------|----------------------------|
| All SPADs | Anglia               | 22                                 | 36                                 | 14                         | 64%                        | Yes                        |
|           | Kent                 | 30                                 | 30                                 | 0                          | 0%                         | No                         |
|           | London North Eastern | 54                                 | 45                                 | -9                         | -17%                       | No                         |
|           | London North Western | 49                                 | 65                                 | 16                         | 33%                        | No                         |
|           | Scotland             | 28                                 | 30                                 | 2                          | 7%                         | No                         |
|           | Sussex               | 17                                 | 16                                 | -1                         | -6%                        | No                         |
|           | Wessex               | 22                                 | 29                                 | 7                          | 32%                        | No                         |
|           | Western              | 39                                 | 49                                 | 10                         | 26%                        | No                         |
|           | East Midlands        | 6                                  | 12                                 | 6                          | 100%                       | No                         |
| 16+ SPADs | Anglia               | 10                                 | 10                                 | 0                          | 0%                         | No                         |
|           | Kent                 | 9                                  | 10                                 | 1                          | 11%                        | No                         |
|           | London North Eastern | 11                                 | 21                                 | 10                         | 91%                        | No                         |
|           | London North Western | 11                                 | 19                                 | 8                          | 73%                        | No                         |
|           | Scotland             | 15                                 | 5                                  | -10                        | -67%                       | Yes                        |
|           | Sussex               | 5                                  | 2                                  | -3                         | -60%                       | No                         |
|           | Wessex               | 9                                  | 11                                 | 2                          | 22%                        | No                         |
|           | Western              | 8                                  | 14                                 | 6                          | 75%                        | No                         |
|           | East Midlands        | 2                                  | 0                                  | -2                         | -100%                      | No                         |

## Railway Group Standard GO/RT3119 – Version 2

Version 2 of GO/RT3119 (*Accident and Incident Investigation*, dated September 2010) came into effect on 4 December 2010.

The principal changes to this standard are in the descriptions of how SPADs are categorised. The reporting of a SPAD and subsequent procedures undertaken by signallers and drivers remains unchanged. At present, a reported SPAD is initially categorised by the Infrastructure Manager (Network Rail only). The changes to this document do not alter this initial procedure, however the decision now results in a 'provisional' SPAD category (P). This provisional category remains until the conclusion of the investigation by the lead organisation, at which time the (P) designation should be removed.

Chart 3 shows (based on SMIS data) the breakdown of category A SPADs for the past nine months, indicating whether the categorisation is provisional or confirmed. It would be expected that there would be a greater proportion of 'provisional' SPADs in respect of recent events, with this proportion decreasing over time. However, this is not apparent from the chart.

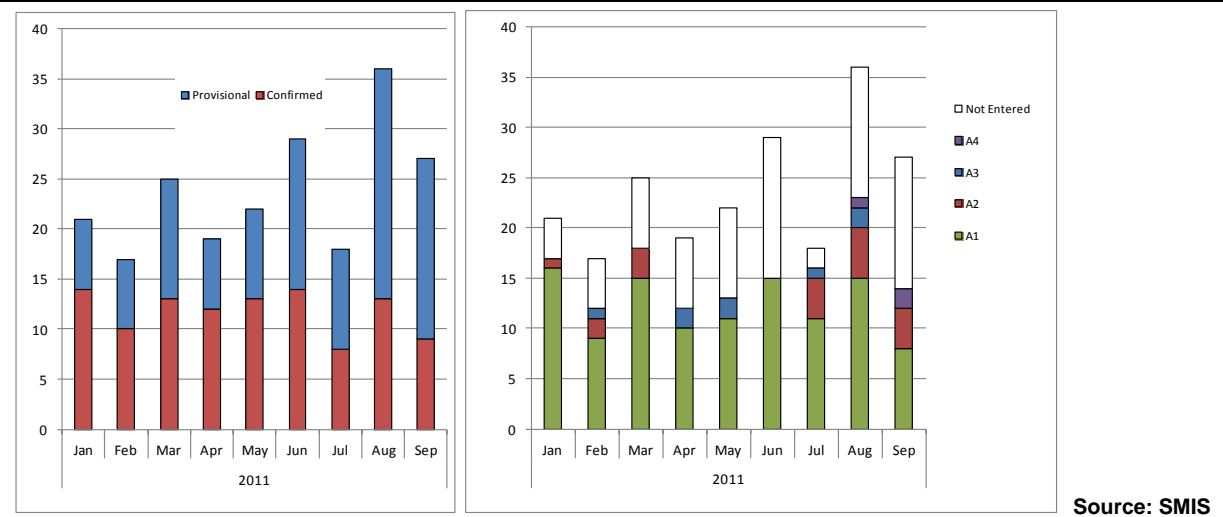
GO/RT3119 sub-divides category A SPADs into four different types: A1, A2, A3 and A4. These differing sub-categories cover the scenarios of a 'classic' category A SPAD, as well as those of a

signal being imperfectly displayed/part obscured; an incorrect authority being given and a train experiencing compromised braking performance. The full descriptions are given in Appendix 2.

Chart 3 also shows the distribution of the different SPAD classifications, in respect of the past nine months, based on SMIS data. It may be seen from the right-hand bar chart that 34% (73 out of a total of 213) of the SPADs in this period do not have a SPAD sub-category entered in SMIS. With such a large proportion of this categorisation data being unavailable for analysis, it is not possible to draw any meaningful conclusions from the data. RSSB will continue to support the duty holders in this area, with a view to improving the data quality.

Of the 140 (from the total of 213 SPADs) which do have this field completed in SMIS, 111 (79%) are 'A-1', 18 (13%) are 'A-2', 8 (6%) 'A-3' and 3 (2%) 'A-4'. The vast majority of the 73 incidents for which a sub-category has not been entered are almost certain to be 'A-1' SPADs. However, it would be inappropriate to assume this in the absence of firm data. When the SMIS data quality improves, it will be possible to make meaningful comparisons in respect of this facet of the SPAD data.

**Chart 3 SPADs by sub-category**



Source: SMIS

## TPWS Strategy

On 11 November 2011, RSSB hosted a workshop on behalf of the TPWS Strategy Group. The objectives of the workshop were to present the group's progress with the strategy and ensure that the train operators and Network Rail are aware of their commitments within it. The workshop was well attended, with Network Rail, RSSB and virtually all TOCs and FOCs, as well as a number of IMCs represented.

The agenda and slides from the workshop are available to download from [www.Opsweb.co.uk](http://www.Opsweb.co.uk)

### Further information:

Please refer to [www.opsweb.co.uk](http://www.opsweb.co.uk) for further data. The site contains a spreadsheet containing every SPAD event since 1998, and is updated monthly. All RSSB publications are freely downloadable from the RSSB website at [www.rssb.co.uk](http://www.rssb.co.uk).

If you would like to discuss any of the material contained in the SPAD report, please contact: Roger Badger, Senior Safety Intelligence Analyst, [roger.badger@rssb.co.uk](mailto:roger.badger@rssb.co.uk)