MEETING: RSSB Board Meeting
DATE: 08 May 2014
SUBJECT: Chief Executive’s Report
SPONSOR: Chris Fenton

1. Key issues since the last board

1.1 RSSB staff safety issues

There have been no significant safety issues since the last report to directors.

1.2 Contracts over £250k

*Arising from Future Railway competitions:*

Very light rail demonstrator - £1,155,095 (Awarded to TDI)

Wheel motor - £929,581 (Awarded to Stored Energy Technology)

Radial freight bogie project - £740,000 (Awarded to Holdtrade – 08/01/14)

*Arising from Future Railway expressions of interest (RISE):*

Level crossing safety system - £250,000 (Awarded to Utterberry)

1.3 Business Plan


1.4 Governance Changes

The amended Constitution Agreement and Articles of Association came into effect on 1 April 2014.

There was a typographical error which was noted after approval by members at the EGM on 13 February 2014. This was in Clause 6.1.5 where the baseline for membership fees (“C”) is identified as the value for RPI-1 in July 2014. This date should have been 2013. The intention behind this clause was clearly set out in the published consultation documents. The error was picked up and corrected in the document approved by the ORR and advised to all members when the new agreement came into force. For completeness, we will also table the amendment at the next general meeting of members.
1.5 People

A new structure has been introduced to reflect priorities set by new chief executive, retain knowledge and skills and provide opportunity for new talent, both internal and external:

- **Anson Jack** has been appointed Commercial and Strategy Director; to develop a commercial strategy, increase external focus and provide a focal point for future strategy development
- **Colin Dennis** has been appointed Technical Director; the senior technical face of the organisation and ensuring we have the right technical skills for today and the future.

There are 4 “delivery” directorates: Standards; Risk; Research, Development and Innovation (comprising both core research and Future Railway); and Performance (comprising National Programmes and operational activities (eg RISQS, RISAS)). **John Abbott** remains as Director for Performance.

The Director roles for Standards and for Risk are being advertised internally alongside an external search. The Director role for RD&I is being defined, taking into account development of innovation activities across the industry.

To reinforce the priorities on people and communications an interim HR Director has been appointed (**Liz Nutall**), reporting to the chief executive. Additionally, **Louise Brooker-Carey** (ex Tube Lines and Crossrail) has been appointed Head of Communications. Consequently there have been a number of departures:
- Cathy Dorey, Head of Corporate Communications
- Geoff Evans, Head of HR

**Helen Goodman** remains Director for Business Services and also leads a small team focusing on internal project delivery.

We have moved to create a small team supporting the RDG work stream on people, and in particular driver training, by detaching **Steve Roberts** and four other people from the Traffic Operations and Management delivery unit to work full time on this for at least three months. **Tom Lee** has taken on the management responsibility for TOM DU in addition to his existing role as Head of CCS, Energy and New Systems. This activity is being funded through an extension to an existing R&D project (T1016) which the Board has previously approved and which will be subject to a variation order in due course.

1.6 Wheelsets, Axle Bearing Related NIR’s

Since January 2014 there have been eight wheelset axle bearing related NIR’s issued, many of which involve RISAS approved suppliers.

In accordance with RISAS Scheme rules each incident has or is being investigated by the certifying RISAB however, owing to the apparent increase in the number of axle bearing NIR’s issued over the last 3 years, the RISAS board
has initiated special investigation action in conjunction with the ATOC Engineering Council, the Freight Technical Committee and BSI RAE/3/-/2 UK Axle Bearing Group.

RISAS investigations are continuing with the objective of determining root and underlying cause for all the incidents (including safety culture and human factors issues) and then determining what risk management improvements may be required to both the scheme and other parties.

1.7 Website

The new company website was successfully launched on 02 April 2014 and has been actively promoted to external stakeholders since 14 April. A new section on Workforce Health and Wellbeing was then launched on 28 April 2014 in conjunction with other rail industry leaders - using the occasion of the International Workers’ Memorial Day to draw attention to health and wellbeing issues. The next phase of work will see a news and publications section. Google Analytics is being used to monitor user activity and this information will be used to drive site improvements and better understand who is interested in different areas so RSSB can support users in a more targeted way. To date, almost 500 users worldwide have registered with the site.

1.8 IT strategy review started

The IT Strategy Review requested by the board is in progress and being carried out by an independent Chief Information Officer, David Lloyd. It covers both the internal systems that support the operation of the company and the industry systems RSSB manages in support of members and the wider industry.

The purpose of the review will help assess how we manage IT related risks and mitigations and inform the implications for new and existing systems as they evolve for CP5 and beyond. The output will be reported to the board in July and inform the development of future strategy for RSSB in relation to information technology and systems.

1.9 Fatal train accidents on Britain’s and European mainline railways 2013

Professor Andrew Evans of Imperial College, London has recently published his annual summary papers on fatal mainline train accidents in Britain and Europe. The British paper incorporates data on fatal train collisions, derailments and overruns between 1967-2013 including level crossing and road vehicle incursions and can be found at: https://workspace.imperial.ac.uk/cts/Public/Docs/FTAB2013.pdf

The European paper includes analysis of fatal train accidents due to collisions, derailments and fire between 1980-2013. Details of level crossing incidents are included where there was at least one on-train fatality or 4 or more road vehicle fatalities and can be found at: https://workspace.imperial.ac.uk/cts/Public/Docs/FTAE2013.pdf
1.10 **Angel Square lease update**

In September 2013 the board supported the proposal to secure a further 10 year lease on the Angel Square Accommodation, which would start in May 2015 rather than look for alternative premises. The Heads of Terms (HoT) have now largely been agreed and our advisors have confirmed that they represent a 30% reduction on the market price currently being achieved for similar accommodation in the immediate area. There are two areas in the HoT that are still being discussed and these are the full details on the extent of the landlord’s works to be carried out at the start of the new leases and an agreed way forward on the inclusion of a service charge cap and progress is being made towards satisfactory resolution of both. The assignment of leases and the subletting of floors and part floors is permitted under the (HoT).

In order to ensure that we secure these favourable terms solicitors have been instructed to start to prepare contract documentation. RSSB, however, is not formally committed to anything until the leases are signed. The Directors are asked to note that the chief executive will progress the new 10 year lease on the terms set out in the HoT, (subject to resolution of the two outstanding items), to completion.

1.11 **Membership Applications**

1.11.1 **Hitachi Rail Europe Limited**

Hitachi Rail Europe Limited have applied for membership in the Supplier category ‘F’.

For nearly 90 years, Hitachi has worked in partnership with railway operators, industry advisers and financiers, supplying highly reliable and safe products as a total railway system integrator. Based on the company’s extensive experience in Japanese railway systems, Hitachi Rail’s European headquarters is based in London and is dedicated to bringing Hitachi’s expertise in the rail industry to its customers.

In the summer of 2012 Hitachi won a deal to make the next generation of intercity trains, a fleet of 122 electric and bi-mode trains for the Great Western Main Line and the East Coast Main Line. These will be made in its new rail manufacturing plant in Newton Aycliffe, County Durham and will provide employment for 730 new Hitachi employees.

The directors are asked to **ADMIT** Hitachi Rail Europe Limited as a member with immediate effect.

1.11.2 **HS2 membership**

HS2 are now members of RSSB in the Infrastructure Manager category.
1.11.3 Crossrail

Discussions continue with Crossrail, and there are no outstanding issues so far as RSSB are concerned. Membership is anticipated to commence, subject to ORR approval later in May.

2. Research, Development and Innovation

2.1 Cross-industry R&D

The objectives and success measures for the cross-industry R&D programme have been agreed with the DfT. These are available to view at [http://www.rssb.co.uk/Library/about-rssb/2014-board-paper-research-objectives.pdf](http://www.rssb.co.uk/Library/about-rssb/2014-board-paper-research-objectives.pdf). As noted in the March CEO report, and 2.2. below, the planning for 2014/15 suggests that demand is likely to continue to be higher than the grant available.

RSSB, RRUKA and FutureRailway all displayed at the RIA Innovation Conference. As in previous years RSSB sponsored a competition to promote innovative ideas and the winner was a bid for £300k to develop an active pantograph. In the view of the cross industry panel of judges, this has significant potential application across the spectrum of railway operations.

2.2 Funding for Innovation and Core research

DfT has indicated that there are further funds available during 2014/15 for the purposes of supporting innovation in the industry and a formal request for funding is being put together by our research and innovation teams. At the same time, and as reported elsewhere, we have been overspending in ‘core research’ and are also being asked by the DfT to undertake increased activities to support Sustainability in franchising (reported at previous board meeting) and Cyber Security (paper B2). Accordingly, the executive has considered the overall funding arrangements and proposes the following delegations and amended delegation.

**Proposed delegation.** Any funds received from the DfT under the current application (up to £20m) should be delegated to TSLG, and subject to the same rules as those that apply all other TSLG funding.

**Proposed amended delegation:** The current delegation of £4.5m, being one half of the Core funding for 2014/15 be amended to a delegated authority of £3.5m. The £1m reduction in the delegated authority in this category will be reallocated to development activity within the Core R&D Programme and become subject to the rules for allocating funds in this category, and will be made available to support sustainability work and the development work for the proposed cyber security activity.

Taken together, TSLG will have additional funding in the current year of around £18m and the core research programme an additional £1m.

Directors are asked to **APPROVE** the new and revised delegated authorities.
2.3 Budget authorisations for Research and Development

New projects authorised by the executive since the last board meeting are:

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<th>Date</th>
<th>T#</th>
<th>Title</th>
<th>Cross industry group</th>
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<tbody>
<tr>
<td>03/03/2014</td>
<td>T978</td>
<td>Development of new 'Suburban' passenger vehicle standard gauge – reauthorized following change from original scope</td>
<td>V/S SIC</td>
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<tr>
<td>24/03/2014</td>
<td>T1051</td>
<td>Investigation into the effects of applying the Physical Agents (EMF) Directive on the UK railway system</td>
<td>V/TE SIC</td>
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<tr>
<td>22/04/2014</td>
<td>T1043</td>
<td>Viability of ETCS limited supervision for GB application</td>
<td>TCTSG</td>
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<tr>
<td>22/04/2014</td>
<td>T1045</td>
<td>How to support drivers in managing significant changes to infrastructure or technology</td>
<td>TORG</td>
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There was also one project authorised by TSLG:

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<th>Date</th>
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<tr>
<td>20/03/2014</td>
<td>T1063</td>
<td>Brighton Mainline Timetable Optimisation Study</td>
<td>NTF</td>
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2.4 Innovation

- **£30m grant turned into c£60m of activity.** At the end of March 2014 the DfT funded Pilot Rail Innovation Fund grant ended. This fund supported the creation of the Enabling Innovation Team (EIT) and the innovation programme. By the end of March the team had successfully completed or launched activity which committed the £30m grant and leveraged a further £30m of funding from the supply chain and other funders.

- **FutureRailway team.** With the creation of the FutureRailway team to take forward the £240m CP5 programme the Enabling Innovation Team has been merged into FutureRailway and the ‘brand’ EIT will no longer be used.

- **2014/15 Programme Approved.** The integrated FutureRailway 5 year plan - 2014 has been conditionally approved by the RDG T&O group which allows release of funds from Network Rail and commencement of the 2014/15 programme as the first step of the £240m CP5 programme.

- **Innovation in Franchising.** We are continuing to support DfT in the development of their Innovation in Franchising scheme. As a result of this work the Intercity East Coast Franchise ITT includes a new innovation fund. Subject to agreement of RGD (T&O) on 1st May, work will now begin to design and establish management arrangements for FutureRailway to administer the fund (on behalf of the DfT), including the appointment of an Innovation Board.
• **Rail Supply Group.** FutureRailway presented at the second RSG meeting on 15th April and have been invited to support the Technology and Innovation workstream.

• **Live Competitions:**
  o The HS2 *Aesthetic OLE challenge* has closed with ten proposals shortlisted
  o A pantograph measurement device competition has been launched
  o A £3m funded *Avoidance of Bridge Reconstruction* competition seeking to reduce the number of bridges that are rebuilt to enable electrification has been launched. The competition closes on 2nd May.
  o *Rail Operator Challenge Competition* (ROCC) This £3.5m co-funded competition, open to both Passenger and Freight proposal, was launched in March and will close in May.
  o A £3.5m *Sustainable Rail Vehicle* competition was launched with the ‘Tomorrow’s Train Design Today’ event on 25th March and closes on 15th May 2014.
  o *Future Ticket Detection* £2.2m co-funded competition to produce alternative solutions to existing gate-lines in order to reduce congestion and plan for potential doubling of capacity at busy stations within 30 years. The closing date for submissions is May 23rd.

• **Progress on earlier activity:**
  o Customer Experience commercial negotiations have commenced with four selected proposals to agree investment of circa £700k, one has withdrawn from the process due to other business pressures.
  o Remote Condition Monitoring A total of 67 tenders were received by the deadline of 17 January 2014. The judging process identified 22 projects to be offered feasibility studies (typically £30k-100k). A commercial and technical due diligence review is currently being undertaken to ensure these organisations and their technologies are robust. Network Rail/South West Trains Wessex Alliance are expected to deliver the demonstrator projects
  o Radical Train– Five contracts have now been issued to suppliers, of which four have been signed. Two contracts remain to be agreed with Thales (adhesion monitoring) and Coventry University (seamless interchangeability).
  o Testing. A Testing Strategy is under development. The Rail Alliance testing voucher scheme remains highly successful with 92 days of usage since September 2013. Working with UK tram to obtain 8 trams to facilitate testing for both light and heavy rail applications.
  o Change Programme. The innovation culture best practice and measuring innovation maturity projects have completed. These will provide key building blocks for taking forward a co-ordinated programme of industry change to support the roadmap for the RTS Innovation Chapter.
  o European R&D. Horizon 2020 proposals have been submitted by both Shift2Rail and RSSB. TSLG have approved increasing resource in this area to help secure greater UK participation in European programmes.
  o Organisation. The Future Railways team have developed a proposal for a new operational model and which will be taken forward in conjunction with changes in the wider RSSB R&D organisation
3. Standards Update

The annual report from the industry Standards Coordination Committee is part of this board meeting and no additional items are flagged up here.

4. Key Safety Issues

Summary safety information is included in Annex A. The headlines since the last board meeting are:

4.1 During February and March there were no workforce accidental fatalities. There was one passenger and one public accidental fatality, both during March.

4.2 During February and March 2014, there were 49 signals passed at danger (SPADs). This is five greater than in the same two months in the previous year. (Note that this figure is provisional until all cases have been agreed with the relevant parties.) Of the 49 SPADs, seven were risk-ranked potentially significant (16+), and none where the ranking has been completed were risk-ranked as potentially severe (20+).

4.3 There was a double SPAD and failure of TPWS to operate incident at Greenford on the 20 March which should be noted by the board. A passenger train passed GE55 and GE50 signals at danger on the Down Wycombe line at Greenford East by approximately 2600m. The initial report suggests that while the driver observed the signal arm was ‘On’, he had observed light shining through the green spectacle lens for GE55 signal, causing him to think the signal was not at danger. GE55 is a signal protecting a junction and the distance to the conflict point where a collision could have occurred is 121m. The signals are both protected by TPWS, however, this failed to intervene, as the TPWS / AWS system failed during boot-up and self-test, due to the unit being positioned over a TPWS grid in the platform. The system therefore failed the start-up test and remained in the ‘Temporary isolated’ fault mode, indicated to the driver by the yellow fault light continually flashing as the train continued its journey. This resulted in TPWS failing to initiate a brake application when the system intervened at GE55 and GE50 signals. The risk ranking for this SPAD incident is still being assessed. An Urgent Operating Advice report was raised by Chiltern Railways for this event as required by Railway Group Standard GO/RT3350. The RAIB is to investigate this incident.

4.4 RAIB initiated two investigations:

4.4.1 Serious near miss involving a welding gang at Bridgeway UWC, Shrewsbury, 16 January 2014

Near miss raises questions about safe systems of work when adjacent lines are open.

4.4.2 Track worker fatality at Newark Northgate, 22 January 2014

Safe system of work called into question as lookout killed by train crossing line as scheduled.

4.4.3 RAIB published five reports:

4.4.4 Penetration/obstruction of a tunnel near Old Street, London, 8 March 2013
Incident exposes construction industry’s failure to consider the positions of railway tunnels on land being developed and to consult ownership records adequately.

4.4.5 Fatal accident at Athelney AHB crossing, near Taunton, 21 March 2013
Crossing user behaviour and loophole in the automatic operation of the interface combine.

4.4.6 Collision at Buttington Hall (farm) UWC, 16 July 2013
Inadequacies of crossing (farm) user behaviour the prime cause, but Network Rail’s risk assessment process and instructions to users found wanting.

4.4.7 Derailment at Ordsall Lane Junction, 23 January 2013
Risk management of small-radius curves implicated in locomotive derailment.

4.4.8 Class investigation into landslips affecting Network Rail infrastructure between June 2012 and February 2013
Environmental issues expose risk assessment and earthwork management failings.

5. Finance Overview

5.1 The initial financial results for 2013/14 suggest that core business expenditure will be on budget. Research and Development expenditure is higher than the grant for the year as the programme of has picked up pace. This is planned as and will start to utilise some of the reserve of unspent grant accumulated over recent years. Future Railway expenditure also began to quicken during the year.

5.2 There were also some modest positive income variances but the effects of the various pension charges required by Financial Reporting Standard 17 were significant amounting to around an extra £500k net charge to the income and expenditure account.

5.3 At this stage the year end process is still in process and all numbers are subject to audit.

6. Corporate Communications

6.1 Enquiries
RSSB responded to a number of media enquiries relating to accidental fatalities data (trespass and level crossings), level crossing signage research (inspired by reference in Transport Committee report on level crossings published on 7 March), crowding on trains, dyslexia and train driver medical standards (competence and assessment).

6.2 Press releases issued

- 4 March 2014 - FutureRailway launch Avoidance of Bridge Reconstruction Competition
- 7 March 2014 - Risk at level crossings - an overview
AGENDA ITEM: B1

- 12 March 2014 - FutureRailway expand electrification franchise with launch of new competition
- 15 March 2014 - Tomorrow’s Train Design Today Design Ideas Competition (RIBA and FutureRailway joint press release)
- 17 March 2014 - Passenger and Freight Rail Operators to take part in innovation challenge
- 21 March 2014 - FutureRailway launch competition to improve train ticket detection
- 8 April 2014 - HS2 joins RSSB

6.3 Publications

The following were published during March/April 2014:
- Launch of Accident Investigation Digital App
- Health and Wellbeing policy booklets
- Information Bulletin March/April 2014 issue
- Strategic Business Plan 2014-19 printed and online.
- Constitution Agreement and Articles of Association printed and online.

6.4 Media coverage

- Rail Professional, March issue - contained a feature on TRaCCA – climate change research programme – managed by RSSB and Network Rail as part of the FutureRailway programme
- Modern Railways, March edition – Avoidance of Bridge Reconstruction.
- Railway Strategies, March edition – Avoidance of Bridge Reconstruction and Future Ticket Detection.
- Today’s Railways, March edition – Avoidance of Bridge Reconstruction.
- Front Row Daily, BBC Radio 4, 2 April – Aesthetic OLE.
- Building Engineer, April edition – Aesthetic OLE.
- Rail Business Intelligence, April edition – Pantograph Technologies.
- David Clarke interview with Railway Strategies – to be published in May.
- FutureRailway and the Communications team worked with UKTI on their UK Rail Capability Brochure, published at the end of March.
- Rail Professional, April issue - contained a feature introducing Chris Fenton as the new CEO of RSSB
- @RSSB_rail Twitter – now has 323 followers.
- @FutureRailway Twitter – now has 535 followers.

6.5 Public Affairs

We have invited the Minister of State for Disabled People, Mike Penning MP to launch the RSSB guidance notes for people in wheelchairs using the national rail service and railway staff who help them in their journeys - developed through R&D project T759. The event is to take place on Tuesday 17 June at 10:30 in Church House, Westminster.

The Communications forward planner is attached as Annex B.
7. **Recommendations**

The board are asked to:

- **NOTE** this report and **DISCUSS** individual items as appropriate
- **ENDORSE** individual items as appropriate.
Annex A - Key safety reports to March 2014

* Public accidental fatalities include trespass and non-trespass, but exclude fatalities at level crossings (which are shown separately).

RIDDOR-reportable major injuries to each person type reported in SMIS. The majority of passenger injuries occur in stations.

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (RIDDOR) reportable cases only. Includes derailments at level crossings after striking road vehicles. Does not include buffer stop and ‘open door’ collisions. Passenger low-speed collisions predominately occur at stations.

Statutorily reportable collisions (excluding roll back and open door collisions), derailments, buffer stop collisions and trains striking road vehicles. PHRTAs are normalised per million train miles.

The dark blue bars refer to trains striking barriers where a previous incident had caused the barriers to encroach onto the running line, such as a road vehicle striking the barriers.
1. **Summary of safety performance for February and March 2014**

1.1 **Fatalities**

During February and March there were no workforce accidental fatalities. There was one passenger and one public accidental fatality, both during March:

- On 1 March, a passenger fall from platform and was struck by a train whilst under the influence at Shepard’s Bush station (Sussex).
- On 24 March, a member of public with a pushbike was struck by a train at Cattishall footpath crossing (Anglia).

There were 47 suspected suicides during February and March 2014. The average monthly figure over the last 12 months was 23.2. Suicide figures are subject to change as more information (such as coroners’ verdicts) is made available.

1.2 **Reportable train accidents: collisions, derailments and trains striking road vehicles**

On 3 February, a freight train derailed by the leading bogie on the handpoints leading to the Arrival & Departure Road at Angerstein Wharf (South East). The derailment has been attributed to driver error. There were no reported injuries.

On 18 February, a freight train travelling within a possession at low speed derailed near Castle Bromwich Junction (London North Western). There were no reported injuries.

On 25 February, a freight train being shunted on a freight only line derailed by its rear bogie as a switch blade collapsed beneath the movement at Doncaster Decoy (London North Eastern). The train derailed on Network Rail managed infrastructure. There were no reported injuries.

On 29 March, a coal wagon ran away at Speke Junction (London North Western) and struck buffer stops. There were no reported injuries.

1.3 **Precursors**

During February and March 2014, there were 49 signals passed at danger (SPADs). This is five greater than in February and March 2013. The average monthly figure over the past 12 months was 24.4.

Of the 49 SPADs, 7 were risk-ranked potentially significant (16+), no SPADs were risked ranked as potentially severe (20+).

There were also 24 broken rails during February and March.

1.4 **SPADs risk ranked 20+**

There were no SPADs risk ranked 20+ during February and March 2014. See Section 4.3 of the main text regarding the Double SPAD at Greenford.

2. **RAIB investigations initiated (GB heavy rail) – two**

2.1 **Serious near miss involving a welding gang at Bridgeway UWC, Shrewsbury, 16 January 2014**
Just before midnight on 16 January 2014, a Manchester Piccadilly–Shrewsbury service travelling at around 85 mph struck an engineers’ trolley.

Seconds before the collision a member of staff jumped off the trolley and clear of the train. A van, inside which another member of staff was unloading equipment, was parked close to the railway and was very nearly struck by the train.

Although the train did not derail, it suffered significant damage, including a ruptured fuel tank. The member of staff who jumped clear sustained minor injuries.

The trolley was being loaded on the Up line to move equipment southwards, towards Shrewsbury, to undertake a weld repair. However, this line was still open to traffic to the train, the last one of the evening, to approach (the Down had been blocked by arrangement with the controlling signaller based in Cardiff).

RAIB’s investigation will establish the sequence of events, examine how the work was planned, how the staff involved were being managed and the way in which railway safety rules were applied. It will also seek to understand the actions of the track workers involved, and factors that may have influenced their behaviour and attitudes.

RAIB will assess the railway industry’s current strategy for undertaking work of this type, and will review the actions taken in response to previous RAIB recommendations relating to the safety of track workers.

2.2 Track worker fatality at Newark Northgate, 22 January 2014

At around 11:40, a track worker acting as a lookout was struck by a passenger train at Newark Northgate station. He later died of his injuries.

He was part of a gang of three engaged in the inspection of two sets of points to the south of the station. The train, a service from King’s Cross, was approaching from the south at around 26 mph and was crossing to Platform 3 as scheduled.

RAIB’s investigation will consider the sequence of events and factors that may have led to the accident, and identify any safety lessons.

3. RAIB reports published (GB heavy rail) – five

3.1 Penetration/obstruction of a tunnel near Old Street, London, 8 March 2013

The incident occurred when a train driver reported that flood water was flowing from the roof of a railway tunnel north of Old Street station near central London. The driver of an out-of-service passenger train was asked to examine the tunnel at low speed and check for damage. The driver stopped short of the water flow and reported that two large drills (augers) had come through the tunnel wall and were fouling the line ahead of his train.

The augers were being used for boring piles from a construction site about 13 metres above the top of the tunnel. The operators of the piling rig involved were unaware that they were working above an operational railway tunnel. Its position was not shown on the site plan, or on any map available to either the developer or the local planning authority. As a consequence, Network Rail was
not consulted during the planning application stage and was unaware of the construction activity.

RAIB has determined that approximately half of the piles required for the new development would have intersected with the tunnel had they had been constructed. It has identified two learning points from this incident which are relevant to the construction industry: clients and design teams should be aware of the importance of information shown on land ownership records; and those carrying out investigations for proposed developments should be aware that not all railway tunnels are shown on Ordnance Survey mapping.

RAIB has also made five recommendations: three are addressed to railway infrastructure managers, and relate to: the provision of information to organisations undertaking property-related searches; the provision of information on the location of railway tunnels and associated subterranean structures; and the identification of development work by third parties. One recommendation is made to the British Standards Institution relating to the enhancement of a British Standard, and one recommendation is addressed to the Department for Communities and Local Government relating to the introduction of a process to ensure that Railway Infrastructure Managers are made aware of all planning applications in the vicinity of railway infrastructure – a recommendation made by RAIB in 2007, but yet to be implemented.

The full report may be found here:


3.2 Fatal accident at Athelney AHB crossing, near Taunton, 21 March 2013

The incident occurred at about 06:23, when a car drove around the crossing barriers and into the path of a train that was approaching at high speed. The driver of the car was killed in the resulting collision.

The motorist drove around the barriers without waiting for a train to pass and the barriers to re-open. The crossing was closed to road traffic for longer than normal before the arrival of the train, because earlier engineering work had affected its automatic operation. The motorist may have believed that the crossing had failed with the barriers down, or that the approaching train had been delayed. He did not contact the signaller by telephone before he made his move.

RAIB has made two recommendations to Network Rail. These relate to reducing the risk resulting from extended operating times of automatic level crossings and to modifying the location of the pedestrian stop lines at Athelney level crossing. A further recommendation is addressed to Network Rail, in conjunction with RSSB, to consider means of improving the presentation of telephones at automatic level crossings for non-emergency use. One final recommendation is addressed to the ORR, involving the incorporation of any resulting (reasonably practicable) improvements into the guidance it publishes on level crossings.

The two recommendations that mention RSSB are worded as follows:

2 Network Rail in conjunction with RSSB should review past and current research into level crossing signage and emergency communication with signallers and consider means of improving the presentation of public emergency telephones for non-emergency use at automatic level crossings
(paragraph 85c). This might include changes to signage or to the location of telephones, and should take account of Rule 34 of the Highway Code.

3 If the RSSB research into improving the presentation of public emergency telephones for non-emergency use at automatic level crossings (Recommendation 2) identifies that reasonably practicable improvements can be made, the Office of Rail Regulation should incorporate these into the level crossing guidance it publishes.

The full report may be found here:


3.3 Collision at Buttington Hall (farm) UWC, 16 July 2013

The incident occurred at 11:44, when a four-car service struck a farm trailer at 75 mph. The tractor driver and two other people nearby sustained minor injuries; two passengers were also injured and taken to hospital, but were discharged later that day.

On the day of the accident, the crossing was being used by tractors bringing in a harvest from fields on the opposite side of the line. The farmer had appointed a contractor to carry out the harvesting operation, and an attendant had been provided at the crossing to call the signaller and operate the gates.

The accident occurred because the system of work in use was inherently unsafe, leading to the ineffective control of road vehicle movements over the crossing and its frequent use without the signaller being contacted. There were also underlying management factors:

- The harvest contractor did not implement an effective safe system of work at the crossing;
- Network Rail’s process for risk assessment of these types of crossing did not adequately deal with periods of intensive use; and
- Network Rail’s instructions to users of these crossings did not cover periods of intensive use.

RAIB has noted a learning point concerning the prolonged closure of an adjacent level crossing on a main road after the accident.

It has also made two recommendations, essentially to Network Rail:

- Main line infrastructure managers should improve the risk assessment process at these crossings to take into account the increased risk during periods of intensive use; and
- Main line infrastructure managers should define safe and practical methods of working to be adopted at these crossings during periods of intensive use.

Finally, there is one recommendation on RSSB, as follows:

3 RSSB should review, and improve where appropriate, measures in the level crossing risk management toolkit that are designed to mitigate the risk at user worked crossings at times of intensive use.

(This is already being implemented, via research project T1053: Updating the Level Crossing Risk Management Toolkit, which is at the development stage.)
3.4 Derailment at Ordsall Lane Junction, 23 January 2013

The incident occurred at 14:34, when a Class 47 came off on a small radius curve approaching the junction and caught fire. The locomotive was being hauled on the rear of an empty train, which was formed of another Class 47 and five coaches.

The derailment was caused by the lateral forces acting at the wheel-rail interface, which – as the locomotive negotiated the curve – were sufficient to cause the leading right-hand wheel to climb the rail. Despite being required by standards, there was no check rail on the curve. This safeguard would have restricted the lateral displacement of the wheels and prevented the derailment.

RAIB found that the following factors had resulted in the lateral forces being high enough to initiate wheel climbing conditions:

- The dry and clean state of the inside face of the outer rail on the curve that enabled high levels of wheel-rail contact friction to be established; recently-modified arrangements for lubricating the rails did not prevent this.

- Machining work that had recently been undertaken to restore the wheel profiles on the locomotive; this removed any pre-existing lubricant and contaminant from the locomotive wheels that would otherwise have helped reduce wheel-rail contact friction levels.

- The relatively low angle of contact between the wheel and rail associated with the newly-restored wheels on the locomotive; this reduced the locomotive’s ability to resist the climbing forces acting at the wheel-rail interface.

- The wider than normal distance between the rails (track gauge) that had developed on the curve.

The above combined to generate the conditions necessary for derailment, but none of these factors involved non-compliance with applicable standards.

Although it was found that the re-profiling of the wheels had left the wheel surface slightly rougher than specified, RAIB decided not to investigate this factor any further. This was because the surface was only marginally non-compliant and there is contradictory evidence regarding its effect on wheel-rail friction.

The basic approach to managing the risk of derailment on small radius curves on the national network relies on vehicles and track complying with separate technical standards. However, because these standards do not require consideration of the worst possible combination of conditions, there remains a residual risk of derailment. It is generally recognised by the rail industry that the level of this residual risk is reduced by certain traditional features, such as check rails and trackside rail lubricators. Therefore, although not generally relied upon, RAIB observed that any change in the provision of such features has the potential to reduce the overall level of derailment safety.
RAIB has directed three recommendations to Network Rail, concerned with:

- Ensuring that non-compliances with currently prescribed requirements for check rails are identified and mitigated;
- Understanding any changes to infrastructure management processes that have increased derailment risk on small radius curves, and the need to take actions to reduce this risk; and
- Determining when it is necessary to bring existing track assets in line with latest design standards.

The full report may be found here:

3.5 Class investigation into landslips affecting Network Rail infrastructure between June 2012 and February 2013

In response to six landslips which occurred on Network Rail infrastructure between June 2012 and February 2013, RAIB undertook a wider review of earthwork issues related to land neighbouring the railway and to risk management during adverse weather. The landslips occurred at Loch Treig (near Tulloch) on 28 June 2012, Falls of Cruachan (18 July 2012), Rosyth (18 July 2012), St Bees (30 August 2012), Bargoed (30 January 2013) and Hatfield Colliery (11 February 2013).

The landslips were caused by factors including heavy rain, absent or ineffective drainage and activities undertaken, or not undertaken, on neighbouring land. In several instances trains were being operated without special precautions when there was a significant risk of encountering a landslide. Many of Network Rail’s earthworks were constructed with steeper slopes (and therefore a greater likelihood of landslips) than would be achieved with modern design procedures. Network Rail’s on-going earthwork improvement programme is unlikely to achieve modern criteria in the foreseeable future.

Network Rail’s process for managing the resulting earthwork risk includes consideration of risk arising outside the railway boundary. RAIB has found that, in some circumstances, key information provided by specialist staff examining earthworks is not considered when the slope management strategy is determined during evaluation. There is a lack of clarity about who should be carrying out visual checks for risks which can develop on neighbouring land between examinations which take place at intervals of up to ten years. The mandated process for collecting information about neighbouring land is, in parts, difficult to implement and not usually followed. Recent technological developments could offer means of improving the collection of this information. The location and timing of landslips is difficult to predict but they are almost always triggered by relatively high rainfall. When the landslips described in this report took place, Network Rail’s adverse weather risk management process used forecasts of heavy rainfall to implement special precautions at locations where landslips were considered relatively likely. During the investigation, Network Rail has introduced a new process which also takes account of ground saturation and (in addition to likelihood) the possible consequence of a landslide.

RAIB has made five recommendations, addressed to Network Rail, relating to improving management of earthwork and drainage risk arising from neighbouring land; considering all information provided by examiners when
undertaking evaluations; and enhancing the new adverse weather risk management process.

The full report may be found here:

4. Other RAIB reports (GB heavy rail) – none

5. Overseas accidents (Feb–Mar 14)

Fatigue

US: Train strikes escalators at Chicago Airport, 32 injured, 24 March 2014

At 02:52 (local time) on 24 March 2014, a Chicago Transport Authority (CTA) ‘Blue Line’ service struck and overrode the buffers stops before colliding with the escalators beyond. Thirty-two people were injured, none seriously.

A spokesman for the National Transportation Safety Board (NTSB) said that an emergency stop system activated as it should have done, but failed to stop the train. The Board later added that the driver – a CTA employee of just two months – had fallen asleep at the controls as the train entered the station. It was not the first time she had done so.

The driver appears to be what is known in the US as an ‘Extra Board’ driver (generally known as a ‘Spare Link’ driver here). The Extra Board covers for turns that have no allocated driver, either due to vacancy, sickness or leave. An Extra Board driver has little advance notice of what shift they will be working the next day – they may be called to duty by telephone once their statutory rest hours have been achieved. There are very few limitations on their hours of duty: federal law prohibits more than 12 hours, whilst the minimum rest period could be 12 or even eight hours, depending on company policy.

On North American railways, turns of duty are allocated on a seniority basis. Every so often, each member of train crew ‘bids’ for their shift of duty, stating their preference for a particular turn or shift assignment. The most senior personnel get first choice, and then in seniority order, with the most junior staff getting whatever is left. This means that the senior personnel usually get the most desirable turns (suit personal circumstances; sociable hours; easy, interesting or prestige job) whilst the junior hands get the least desirable (that is, unsociable or most demanding). Thus some of the most demanding work falls to those with the least experience to deal with it.

A brief note on the GB implications

An accident like this is less likely here, as TPWS is fitted to terminal platforms. On the London Underground, signalling controls and trains stops were applied to all terminal lines after the 1975 accident in which a rush-hour train was driven into a dead-end tunnel at Moorgate, resulting in 43 fatalities and 74 injuries.
In general, buffer stop collisions here are limited to low-speed incidents due to the misjudgement of braking, errors moving units during uncoupling, or rollbacks because the brake has not been properly applied. However, the incidents at Norwich (21/07/13) and Chester (20/11/13) show that collisions in terminal platforms can still occur.


(Possible) overspeeding

US: ‘Green Line’ train derails, injures 10, 10 March 2014
On the afternoon of 10 March 2014, a ‘Green Line’ commuter train derailed and struck a retaining wall west of Kenmore station in Boston. Ten people were injured. The cause has yet to be ascertained, though reports suggests speed to have been a factor.

It later transpired that the driver had been in charge of a train that had struck a passenger while pulling in to Park Street station in 2010. The investigation into that incident revealed that the passenger had leaned over the yellow line on the platform in order to retrieve something. Though not to blame for the accident, he was dismissed for failing to report the incident. He was later re-employed after arbitration.

Level crossing collisions

Turkey: Nine killed in level crossing collision near Mersin, 20 March 2014
On 20 March 2014, at least nine people were killed when a passenger train struck a minibus on a level crossing near Mersin. They – and a further five injured – had been aboard the bus. There were no reported train passenger injuries. The local media said the barriers may have been up at the time of the incident.

Environmental conditions

France: Two killed French Alp derailment, 8 February 2014
At around 11:00 (local time) on 8 February 2014, two people were killed and several were injured after a passenger train derailed in the southern French Alps. The two-car unit was heading from Nice to Digne-les-Bains, when a boulder fell from the mountainside and struck one of the carriages.

Dangerous goods

Russia: Dangerous goods derailment leads to mass evacuation in Kirov, 5 February 2014
On the morning of 5 February 2014, a freight carrying LPG derailed in the Kirov region of central Russia. Thirty-two tank wagons in the 72-car consist were involved; a dozen burst into flames. More than 700 local residents and staff...
from a nearby factory were evacuated. There were no reported injuries.

The fire was localised after nearly six hours. A spokesman for the Russian Emergencies Ministry assured the press that the LPG had not leaked as far as the nearby Vyatka river.

US: Oil train derails in Pennsylvania, no injury, 13 February 2014
On 13 February 2014, a Norfolk Southern Corp (NSC) freight derailed in Vandergrift, Pennsylvania. Nineteen tankers were involved, four of which spilled some 3-4,000 gallons of crude oil before the flow was stemmed.

This is the tenth such derailment in North America in the last 12 months, and came shortly before the US Department of Transportation outlined its new testing requirements for oil transported by rail.

Hauliers will have to measure the flashpoint and boiling point of the crude they are shipping, but will not need to measure other specifications, such as vapour pressure and corrosiveness, as long as they are familiar with the characteristics of the oil.

Transportation Secretary Anthony Foxx said that, within the ‘reasonable, recent past’, companies must have performed the tests, which will help determine how likely the fuel is to ignite and dictates what type of wagon can be used. Officials have also warned companies not to re-label crude as a more generic category of flammable liquid in an attempt to get around the testing.

Unlike most hazardous materials, crude oil is not refined before being loaded onto trains. Its properties can also vary greatly between shipments. According to the Transportation Safety Board of Canada (TBSC), the crude that exploded in Lac-Mégantic had characteristics similar to unleaded petrol. It had been incorrectly classified as ‘packing group III’ – the least dangerous option crude oil – but should have been classified as a more dangerous flammable liquid. It had a high vapour pressure and a low flashpoint, which – together – made it ‘readily ignitable’.

Safety culture

US: Fifth accident prompts probe into Metro-North, 10 March 2014
The National Transportation Safety Board (NTSB) and the Federal Railroad Administration (FRA) are investigating the death of a track worker who was struck by a train on Park Avenue Viaduct, East Harlem, at around 00:54 (local time) on 10 March 2014. The incident occurred when Romansoff crossed to an open line from a third rail section that had been closed for point repairs. A ‘communication problem’ has been cited as a possible cause.
This is the fifth FRA investigation into Metro-North since May 2013 and the second involving the death of a track worker. It is the first major incident under newly appointed Metro-North President Joseph Giulietti, who has pledged to make passenger and employee safety his top priority since taking over in January.

An earlier investigation revealed a litany of ‘safety-critical shortfalls’ by Metro-North management, including ineffective training, sub-par supervision of track inspections and a dangerous emphasis on punctuality over safety and maintenance.

The FRA sent 14 teams to look into the causes behind the operator’s troubles. Members faulted the company for failing to review operational and accident data every six months and for failing to train individuals charged with certifying drivers’ and conductors’ qualifications to operate trains.

Investigators also found that: employees use their mobile telephones ‘inappropriately’; safety meetings were poorly attended; and that Safety Department employees were ‘disconnected from the daily operations of Metro-North […]’

The FRA has given the company 60 days to submit a plan for improving its safety department and bringing training up to adequate levels.
## Annex B - Communications Forward Planner

<table>
<thead>
<tr>
<th>Document Title/Subject</th>
<th>Communication Channels</th>
<th>May 2014</th>
<th>June 2014</th>
<th>July 2014</th>
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<tr>
<td>Quarterly Railway Group Standards</td>
<td>Catalogue, CD Rom and website</td>
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<tr>
<td>Monthly Safety Performance Reports</td>
<td>Email and website</td>
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<tr>
<td>Quarterly SPAD/TPWS (combined) report</td>
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<td>Bi-monthly RSSB Information Bulletin</td>
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<td>Quarterly Right Track magazine – issue 9</td>
<td>Newsletter</td>
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<td>Quarterly RISAS Newsletter</td>
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<td>RED 39</td>
<td>DVD and online via OpsWeb</td>
<td>May</td>
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<td>Development of an assessment process for the Compatibility of Rolling Stock and Differential Speed - Dissemination Briefing.</td>
<td>RSSB facilitated briefing</td>
<td>8 May</td>
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<td>Risk Management Forum</td>
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<td>Next Generation Rail: From Seed to Success.</td>
<td>RRUKA facilitated 3 day event</td>
<td>11-13 June</td>
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<td>Workshop on the management of musculoskeletal disorders (MSD) in the rail industry.</td>
<td>RSSB facilitated workshop</td>
<td>16 June</td>
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<td>Improving the methods used to provide access to and from trains for wheelchair users</td>
<td>RSSB facilitated launch event</td>
<td>17 June</td>
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