

Annual Review April - December 2006

RSSB works with stakeholders to improve the level of safety in the rail industry, reduce unnecessary costs and improve business performance. RSSB seeks to embrace the latest technology, consider influences and best practice from Europe and world-wide and help the industry to grow in a sustainable manner.

RSSB has undertaken more work in-house, to build greater expertise for the industry, enhanced risk and safety management and provided our members with the tools and information to meet new regulations and support their own business needs.

The research programme continues to deliver leading-edge solutions in support of a diverse range of cross-industry challenges ranging from training packages to crashworthiness of rolling stock.

Emerging European standards have been at the forefront of our work to implement the strategy for standards management on Britain's railways.

RSSB supported Formal Inquiries and the Rail Accident Investigation Branch during its initial setting up phase. Following a full year of RAIB operations the RSSB Formal Inquiries capability was closed on 8 January 2007.

Considering a longer-term perspective on safety this year, RSSB developed the 2007 – 2009 Strategic Safety Plan while consultation with members on the safety decisions programme has helped to shape the industry's approach to safety in the decision making process.

This work has been achieved through the cooperation of our members and the skills, knowledge and commitment of RSSB's staff.

Len Porter

Chief Executive

Risk & Safety Intelligence

ASPR

This year saw the publication of the first Annual Safety Performance Report to be produced by RSSB entirely in-house. Other 2006 Safety Performance Reports covered level crossings (April), railway crime (July), station safety (September) and workforce safety (November). A new 'spotlight' feature focused on various Railway Group member initiatives, in a move to help promote best practice throughout the industry.

SMIS

2006 saw the launch of SMIS 7, a system that continues to be developed to meet the needs of industry. One significant move has been the improvement of the irregular working component, which will give a better understanding of the types of incidents that occur in this area. This will, in turn, help the industry provide counter-measures to reduce irregular working.

Safety Risk Model v5

Version 5 of the SRM was released via Issue 5 of the Risk Profile Bulletin (RPB) in August. The most significant changes from Issue 4 include the impact of the removal of Mark 1 rolling stock from the network, improvements in the modelling of movement and non-movement accident consequences and the addition of five new hazardous events (including workforce manual handling). Following the release of SRM Version 5, the SRM templates for use with Guidance Note GE/GN8561 (Guidance on the Preparation of Risk Assessments within Railway Safety Cases) were also updated. These can support all operating and maintenance companies in creating a comprehensive risk profile associated with their operations.

Network Modelling Framework

RSSB supported the Department for Transport through a research project to develop a safety module for the Network Modelling Framework (NMF). This is designed to assess the safety implications of changes to the infrastructure and operational performance of the railway. The safety element is modelled using an adapted version of the Safety Risk Model. Version 1 of the completed module was successfully delivered to the Department for Transport at the end of May for integration into the wider NMF. A further version, including a number of refinements and an update to SRM version 5, was provided in November.

Common Safety Indicators

RSSB is compiling common safety indicators (CSI's) to help companies meet the requirements of the Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS). A dry run, covering the first six months of 2006, showed that RSSB was prepared for when the process 'goes live' in 2007. The CSIs are a set of harmonised statistics that have been developed by the European Rail Agency. As such, they will:

- Facilitate the assessment of performance against common safety targets.
- Assist the monitoring of general developments in railway safety.
- Allow meaningful comparisons to be made between European member states.

RSSB will extract most of the information from SMIS on the industry's behalf. This will ensure a consistent approach and help avoid duplication of effort. In addition, RSSB has been working with the ORR to develop guidance on how transport companies can fulfil their responsibilities in relation to the annual reporting requirement in ROGS. The guidance was presented to the industry for comment during December.

Formal Inquiries

RSSB issued the last reports from Formal Inquiries in 2006 and began the process to close down the Formal Inquiries department. Reports into a run away Class 66 locomotive at Blake Street and the Elsenham station level crossing accident of December 2005 were the last to be produced by RSSB. The Formal Inquiry Annual Recommendations Report for 2006 has been incorporated into the Annual Safety Performance Report.

Safety Policy

Safety decisions programme

Consultation on the discussion documents *Valuing Safety* and *The Decision-Taking Framework* in 2006 resulted in substantial responses from stakeholders. Nearly 100 different railway industry representatives participated in workshops or consultation meetings, and a large number of formal responses were received from various organisations. The output of this exercise – along with regular consultation with the ORR – has informed the programme's progress. The Safety Decisions Programme is on course to conclude its work during 2007 with the publication of *Taking safe decisions* and other supporting documents.

Strategic Safety Plan

RSSB facilitated the development of the industry's 2007-2009 Strategic Safety Plan (SSP) – the first to take a longer-term perspective. It was developed by bringing together plans made by industry companies in their own individual safety plans, thus creating a link between the SSP and the duty holder planning process. The latest version of the SRM estimated the risk in 18 risk areas, the top nine of which were found to account for more than 95% of the total system risk. These form the key risk areas featured in the 2007-2009 SSP, allowing resources and effort to be concentrated on where they will have the most impact in terms of the balance between safety, performance and cost.

Influencing legislation and policy

RSSB tracks emerging health and safety legislation which may affect the railway industry. This information is published to members in the Safety Legislation Update, which is updated quarterly and is available via the RSSB website. RSSB also responds to Government consultation exercises on new legislation or policy issues where there is an impact on the industry; in 2006/07, these included smoke-free legislation, sustainable development and level crossing legislation. Where appropriate, RSSB works to facilitate an industry consensus, which is then reflected in its response.

Coordination of European activity on safety policy

During the year, RSSB worked with industry colleagues on the development and implementation of European railway safety and interoperability legislation through attending the UIC Safety Platform (and its subsidiary groups), along with representation on the European Rail Agency (ERA) working groups. The focus for this work has been the development of the Common Safety Indicators, Targets and Methods and the Safety Certification and Authorisation criteria which are required by the Railway Safety Directive. RSSB provided a member of staff to join an ERA working group, nominated through other industry parties who have rights to representation on the ERA Group. RSSB was also invited directly to join an Economic Survey Group set up by the ERA to oversee the economic evaluation of the ERA's outputs.

National Programmes

Operational Safety

The National SPAD Focus Group (NSFG) has continued its work to understand and address SPAD risk. In particular it has focused its efforts on raising awareness and reducing the risk

of TPWS “reset and continue” events, sharing lessons and good practice through the RED programme and the SPADWED website. At the end of 2006, RSSB members supported the replacement of NSFG and other groups with a single new group to address all aspects of system operational safety risk (Operations Focus Group).

The 21st Century Professional Driver Guidance on lifestyle and self management

Recognising the importance of personal lifestyle, fatigue, shift work and body clock impact for train drivers in safely carrying out their duties, RSSB has produced an interactive DVD to help drivers understand and address these matters. The DVD contains film, animation and a series of interactive exercises to address the issues and also contains techniques for maintaining concentration and advice on how to obtain support for personal problems. The DVD has been prepared with significant input from drivers from a number of train operating companies. It takes an open and honest approach to very real issues which are not always easy to discuss in the workplace. It is accompanied by extensive briefing notes for trainers to deliver awareness sessions. 4000 copies has so far been distributed across the industry.

Community Safety Steering Group

Recognising the need for a better coordinated and more proactive approach towards the whole field of public behaviour and crime on the mainline railway system, the Community Safety Steering Group (CSSG) has been established to provide industry direction. Day to day delivery of control measures is the responsibility of each company, however CSSG will support the local geographic coordination of effort through nine Community Safety Partnership Groups (CSPGs). CSPGs also provide links to local authority sponsored Crime and Disorder Reduction Partnerships. CSSG also sponsors the annual rail Community Safety Forum, the Rail Personal Security Group (RPSG) and National Level Crossing Safety Group.

SWeRVe

To help rail companies to reduce the risk of workforce assaults by passengers and members of the public, RPSG has produced a new education package called SWeRVe (Stop Work Place Related Violence). SWeRVe includes a hard hitting DVD and a power point presentation for trainers to use on conflict management courses for front line staff. The DVD consists of 6 episodes, each showing typical scenarios than can occur if not handled appropriately.

TSSG

Following discussions with Network Rail and the Infrastructure Contractors, it was agreed that lead responsibility for coordination of track side safety messages and campaigns to their workforce should transfer to Network Rail. This will enable Network Rail to coordinate with its Safety 365 and other workforce improvement programmes. As a consequence the long standing Track Safety Strategy Group (TSSG) has been disbanded and RSSB has organised a full disposition of its activities. In preparing the disposition, it was agreed with members companies that in future RSSB will provide direct support to the train operators in respect of trackside safety and also coordinate efforts with Network Rail.

Railway Industry Supplier Approval Scheme

After significant development with members and other industry parties, the Railway Industry Supplier Approval Scheme (RISAS) formally commenced operation in May 2006. Initially concentrating on safety critical products and services used in train maintenance, RISAS provides a single, robust and recognised third party supplier assessment scheme which replaces the need for individual client audits and other industry supplier audit schemes. RSSB has developed a web based system to support RISAS and also undertakes the independent accreditation of the supplier assessment bodies. RISAS is overseen by a Board composed of industry representatives.

National Reporting Online

Launched in February 2006, NIR-Online facilitates the improvement of knowledge and best practice by providing an accessible, searchable database containing urgent safety-related defect information for rail vehicles, plant and machinery deployed on the mainline network. NIR features include the ability to share documents, photographs and drawings. Registered users are notified of new NIRs by email or text message. The web-based application has over 100 companies and 1,200 individual users within industry.

NIR-Online is funded and co-ordinated by RSSB on behalf of the industry. RSSB is now working with its members to further develop the system to cover infrastructure and workforce safety bulletins and alerts.

System Interface Committees

The purpose of a System Interface Committees (SIC's) is to assist the railway industry to manage all aspects of identified system interfaces in the most cost effective and efficient way.

- The Vehicle/Vehicle SIC has been considering train mass with the aim of identifying the main barriers to vehicle mass reduction and how to overcome them; it has developed a series of project initiatives which are now being taken forward. It has also developed the whole-cost life model for rolling stock.
- The Vehicle/Structures SIC is helping the industry to develop and make use of the potential gauge and load capabilities of the UK rail network. One of its major initiatives has been the improvement of the Route Availability (RA) system which manages the interface between train weight and underline bridge strength. A new supplementary RA10F category has been developed which should allow speedier compatibility acceptance and better freight business planning.
- The Vehicle/Track SIC provides a focus for wheel/rail and vehicle/track interaction for the railway industry. Its work has included developing the Vehicle Track Interface Strategic Model (VTISM), which enables whole life economic evaluations of vehicle and track designs; and producing advice and guidelines to the industry on how to manage rolling contact fatigue (RCF) and other wheel problems
- The Vehicle/Train Control and Communications SIC has carried out work aimed at improving the reliability of Automatic Warning Systems and Train Protection and Warning Systems, and supporting the industry in managing the future of Radio Electronic Token Block signalling.

- The purpose of the Vehicle/Traction Supply SIC is to manage all aspects of vehicle to traction supply interfaces. Portable fuel alternatives such as Bio Diesel and Ultra Low Sulphur Diesel were the subject of research and are now being studied in engine tests to allow the industry to respond to legislation governing greenhouse gas and particulate emissions.

For more information visit <http://www.rssb.co.uk/sysic.asp>

Risk Management Forum

The 2006 Risk Management Forum attracted 200 delegates representing 105 companies. It focused on the practical management of human behaviour. The Keynote address was given by Professor James Reason and considered culpability. The subsequent presentations widened the debate, covering topics from human performance to energy efficient driving, sleep apnoea, cab ergonomics and workforce supervisory skills. Three workshops were also presented, dealing with fatigue issues, human reliability assessment and RSSB's *How Safe is Safe Enough?*

Standards in Great Britain

RSSB is responsible for the production and upkeep of Railway Group Standards (RGS). Mandated on Railway Group members, they are technical and operational standards which set out the requirements for system safety and safe interworking. RSSB has integrated the management of RGSs with the work that it does to support the industry on technical specifications for interoperability (TSIs).

A working group of the Industry Standards Coordination Committee – a cross-industry body with representation from all sectors (including ORR and DfT as observers) has been undertaking a review of the Railway Group Standard (RGS) Code, prompted in part by the publications of ROGS and the Railways (Interoperability) Regulations 2006. The main aims are a more flexible and efficient standards management process, to ensure that the Code is fit-for-purpose in the new legislative environment, and to achieve greater alignment with European standards.

The second version of the Strategy for Standards Management was published and updates the first version detailing progress in areas that were identified for further action, particularly in relation to cross-industry committees. The process for managing deviation applications relating to Railway Group Standards has been streamlined and is supported by improved forms.

Standards in Europe

RSSB's work on standards continues to have a strong European flavour, supporting and coordinating the British input into Technical Specifications for Interoperability (TSIs) and EuroNorms, and supporting the coordination of those standards into domestic practice. RSSB finalised work at the European Association for Railway Interoperability (AEIF), completing the revision of the High Speed TSI; and coordinated GB input to the EU and European Rail Agency (ERA) briefings on lessons learned from ten years of the AEIF TSI process.

The industry standards committees, which oversee Railway Group Standards, also have a coordinating role in the development of TSIs and ENs and support GB representatives on the TSI working groups. RSSB has also secured the position of the British Chairman of the CEN Railway Applications Committee.

Work done by RSSB and the standards committees, to identify and propose a set of National Technical Rules to Department for Transport (DfT), meant that Great Britain was one of the few Member States which was able to notify the European Commission of its NNTRs prior to the deadline required by the Interoperability Directives.

RSSB personnel were nominated, by the Association of Train Operating Companies (ATOC) and HM Government, into ERA working groups for infrastructure and rolling stock, and into support roles for many of the European industry mirror groups, which are built on the model developed in Britain.

Research and Development

Seatbelts and window requirements

An extensive review of the effects of fitting seatbelts in passenger trains has shown that passengers restrained by two-point lap belts would be more vulnerable to injury. The results of research into three-point seatbelts and the role of windows in containing passengers are expected to be published in the summer of 2007.

Sustainable Rail Programme

The Sustainable Rail Programme included a number of projects during 2006 that have supported the concept of sustainability for Britain's railways. As well as supporting the development of a Route Map towards a rail sustainable development strategy, RSSB has also facilitated a range of other activities for the industry and the Department for Transport.

The Sustainable Rail Programme included research into the engineering aspects of sustainability, with an award-winning project that examined the use of sulphur-free diesel fuel, and another reviewing the potential uses of hydrogen powered fuel cell motors on the railways. Other projects on railway electrification; reducing vehicle mass; metrics and benchmarks, foresight studies and futures planning are underway and will continue in 2007.

Sharing results

In May 2006, RSSB participated in the World Congress on Rail Research in Montreal where the work of the RSSB managed industry research programme was showcased. Feedback from delegates was extremely positive and many described the R&D programme as leading edge. In particular, they were impressed by the way that R&D is managed, and by the way that research output is made so readily available. Key relationships were also established, that will facilitate closer links with other research programmes.

With support from the Advisory Group for Rail Research and Innovation and the RSSB R&D programme, the University of Birmingham, working as part of Rail Research UK, will maintain the website www.railwayresearch.org which was launched in the spring of 2006. The site has links to nearly 4500 research records, including over 150 research reports published by RSSB. The site should reduce duplication of research, make results easier to find, and identify lessons already learned.

Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS)

In preparation for ROGS coming into force, RSSB worked with its members and ORR to develop an understanding of both the intermediate and long-term changes required by duty holders. RSSB published ROGS briefing materials and a 'Question and Answer' guide on its website, to assist members with the consistent implementation of ROGS.

RSSB organised four briefing sessions to explain the key changes to duty holders, providing an opportunity for stakeholders to raise questions. We will be working with our members to help them prepare and implement their replacements for the Railway Safety Case, part of which is to compile common safety indicators to meet those requirements.

ERTMS and GSM-R

The introduction of the European Rail Traffic Management System (ERTMS) to the UK rail network is a major challenge since it involves a fundamental change in the way the UK railway operates. The programme, which started in May 2001, centres around the proposed national rollout of ERTMS Level 2 without line side signals on the rail network. RSSB is engaged as part of the cross-industry programme team and is providing important input into the system and operational design, which will lead to the development of standards, rules and signalling principles to support ERTMS operation.

A significant cross-industry review, 'Red Diamond', by the ERTMS Strategy Group in December 2006 concluded that widespread application of ERTMS on Britain's railways, supported by an appropriate migration strategy, is affordable and beneficial. Through the Programme, RSSB is supporting strategic work to determine the most suitable and cost-effective widespread roll out of ERTMS for Great Britain. RSSB's work included completion of a high level modelling activity exploring normal and perturbed railway scenarios, linked into the requirements database used to specify the UK ERTMS. The purpose of linking the models to the requirements is to provide a mechanism from which any changes can be effectively tracked and the implications exposed.

The technology on which existing UK railway voice radio systems are based is reaching life expiry and will become progressively more expensive to maintain. The Global System for Mobile communications – Railways (GSM-R) will make possible a significant improvement in the quality of voice and data communications across the entire network and all applications will be catered for within the one system. The new radio system is capable of identifying the appropriate signaller for a driver to talk to based on the position of the train. It also allows signallers to broadcast messages direct to drivers in the event of a potentially unsafe situation. Trackside workers will use a handheld portable version, which removes the need to rely on the National Radio Network lineside system. GSM-R which meets the needs of TSIs, will replace, the National Radio Network and the Cab Secure Radio system.

The Operational Concept has been produced by RSSB as part of the Industry's implementation of GSM-R radio communications in GB. It describes how the system is envisaged as operating from the point of view of the direct users of GSM-R, and has been published as a 'relevant strategy' under the RGS Code.

Train Horns Steering Group

Following a significant increase in complaints from line side residents during 2005, RSSB set up, chaired and facilitated a cross-industry train horns steering group in January 2006 to consider the balance between the safety benefits of a train horn and the noise nuisance experienced by railway neighbours. A number of research projects and a risk based approach was adopted and carried out in 2006. In December the steering group unanimously agreed a set of proposals for implementation across the industry to reduce the scale of the problem. Changes in the standards for horns, the times that horns have to be sounded, the location of Whistle Boards and the further development of new technology were included in the recommendations for implementation during the course of 2007.