



Rail Safety & Standards Board

INFORMATION BULLETIN

Valuing Safety

In the April 2006 edition of Modern Railways the Rail Freight Group provided a critique of work being undertaken by the Rail Safety and Standards Board under our Safety Decisions Programme. The programme seeks to provide a clear framework for taking decisions in the railway industry and this includes clarification of the legal and regulatory framework in which the industry operates. A key part of the work is concerned with clarifying how the principle of 'reasonable practicability' should be applied in making the variety of decisions that arise in the industry. Our next publication 'How Safe is Safe Enough 2' is due to be published in October of this year.

In summary Rail Freight Group argued that the work being undertaken by RSSB was costly, bureaucratic and would lead to an unnecessary increase in safety spend in the industry. In particular they argued that the existing approach was sufficient; the Value of Preventing a Fatality (VPF) has been fixed by government at 1.5 million pounds and should be used in all circumstances when undertaking cost-benefit analysis.

We agree strongly with Rail Freight Group that unnecessary safety spend has been a burden which has crippled the industry and hindered its ability to compete with other transport modes and this is the reason why industry has asked us to undertake this work. However we disagree that the solution to this is maintaining the status quo. A fundamental reason for excessive safety spend in the industry is that what is 'reasonable' is not adequately defined in law. In particular the test of 'gross disproportion' is ambiguous and imprecise and causes confusion. Excess money is spent in the industry because people are uncertain of their obligations and fear prosecution. Or alternatively decisions aren't made at all and a state of paralysis exists which is bad for safety and for business. Our research supports the view that there is not a justification for requiring a test of gross disproportion. Instead we need a clearer framework which more clearly builds the public's willingness to pay into our decisions.

In reality companies do often spend more than the VPF; they tend to allocate additional money to prevent accidents to which the public are intolerant. Where risk is estimated using a quantified risk assessment, a process which is always complex and uncertain, they might consider allocating more money to err on the side of caution. Clarifying when such approaches are

appropriate is one way to remove the ambiguity caused by the test of 'gross disproportion'. We are developing a framework to help the industry take better decisions with confidence.

This is complicated and time-consuming work but with the support of the industry, we are making significant progress and the consultation documents we have recently issued are a step on the road to this objective. We are consulting extensively on these issues and would like to encourage responses from all with an interest in this subject.

Improved clarity in the process for taking decisions in the industry, once achieved, will have benefits that are significant and permanent and will provide a substantial step towards improving competitiveness with safety properly embedded within business decisions.

Information about the RSSB Safety Decisions Programme, and the current programme of industry consultation is available at:
<http://www.rssb.co.uk/sdmoukr.asp>

Safety Decisions Programme consultation

Valuing Safety

Consultation ends: 30 April 2006

Decision Taking Framework

Consultation ends: 30 April 2006

For more details contact **George Bearfield, programme coordinator** by e-mail george.bearfield@rssb.co.uk or visit: http://www.rssb.co.uk/sdp_industry_consultation.asp

A programme of industry workshops has also begun to brief out the content of the documents to attendees and provide them with exercises to help them to engage with the material. Two workshops have taken place and two more are currently planned at the following dates and locations:

Monday 24 April - York

Thursday 27 April - London.

To book your place please email Lorraine Forster at Lorraine.Forster@rssb.co.uk

One to one meetings and in house company briefings can also be provided if required. If you would like to know any more information about the Safety Decisions Programme or consultation on the documents currently released please contact the George Bearfield, programme co-ordinator on 020 7904 7706 or email george.bearfield@rssb.co.uk



Standards News

Review of GO/RT3251 Train Driving

As a result of the Strategy for Standards Management, this Railway Group Standard is undergoing a full and thorough review. Most measures in the standard have been identified as either out of scope, single duty holder responsibility or duplicating legislative requirements. The three remaining mandatory measures are concerned with:

- Minimum age requirements
- Visual acuity requirements
- Hearing requirements

A proposal, accepted by the Standards Committee, to revise the standard will also lead to the publication of updated guidance. A large amount of this will be made up of the contents of the existing Code of Practice (GO/RC3551). In addition, Good Practice Guides on Training, Assessment, Use of Simulation and Verification will be updated. The guidance will also incorporate the findings of various pieces of research and have a Human Factors input.

In order to secure the support of industry, and to ensure that their needs are being met, a steering group has been convened with representatives from TOCs, Freight Operators and Network Rail that will steer the content and production of the guidance.

For more details contact **Louise Webb, standards project manager** on **020 7904 7483** or email louise.webb@rssb.co.uk

New Guidance Note to support GE/RT 8023 – compatibility between electric trains and electrification systems

Following experiences gained from the introduction of new rolling stock onto the former Southern Region to replace Mark 1 vehicles, the Vehicle Traction Supply System Interface Committee (V/TS SIC) discussed the issues that arose and submitted a proposal to produce a guidance note. The note will provide information which should be beneficial for future projects.

A sub-group of the V/TS SIC, the Systems Loading Working Group, has undertaken significant research for this area which will form the basis of the guidance note. The group is drafting the guidance note, GE/GN8623 which is scheduled to be published later this year.

For more details contact **David Knights, principal energy engineer** on **020 7904 7638** or email david.knights@rssb.co.uk

Managing Emergency Speed Restrictions (ESRs)

Industry consensus has been reached on changes to the rules which will mitigate the performance impact of ESRs when they are imposed and which will not diminish safety.

A proposal, arising from the cross-industry Operational Efficiencies Group and presented by Network Rail, to mitigate the performance implications when ESRs are applied, was considered by the TOM Standards Committee. The proposal seeks to:

- Remove the requirement for the Infrastructure Controller to stop and caution trains, and instead allow drivers to observe speed boards; and
- Where an ESR has been applied, but the speed boards are not yet in place, allow drivers to proceed at the speed advised to them by the signaller (instead of imposing a blanket 20 mph speed restriction).

Network Rail is developing of the safety/risk justification for the changes. As soon as this has been done, RSSB's Traffic Operation and Management unit will progress the necessary changes to the rules.

For more details contact **Paul McAleer, senior project manager (TOM)** on **020 7904 6765** or email paul.mcaleer@rssb.co.uk

Human Factors

Fatigue, resulting from the schedules of work and rest, is an important issue in the rail industry. Unfavourable shift systems can have wide-ranging effects, both on the personnel concerned, on the efficiency of the organisations for which they work and, most critically, on the safety of the rail system.

In acknowledgment of this, RSSB's Human Factors team, supported by Her Majesty's Railway Inspectorate (HMRI), are running three one-day seminars to share the findings from research into shift work and fatigue, forthcoming legislation, guidance and the updated HSE fatigue risk index.

In May, RSSB will be running a seminar for Train Operating Companies. Two seminars were held in March for ASLEF Health and Safety Representatives.

For more details contact **Ann Mills, principal human factors specialist** on **020 7904 7690** or email ann.mills@rssb.co.uk

Publications and Withdrawals in the RGS Catalogue

Twenty-seven items have been authorised for publication or withdrawal for the April 2006 Catalogue, as follows:

- a) One new Rail Industry Standard – RIS-1530-PLT Engineering Acceptance of Possession-Only Rail Vehicles and Associated Equipment.
- b) Ten revised documents - GO/RM3053 Working Manual for Rail Staff – Handling Carriage of Dangerous Goods, and its nine sections.
- c) Six Rule Book documents: TW1 Preparation and movement of trains: General; TS3 Absolute block



regulations; TW8 Level crossings; BRIEF Rule Book Briefing Leaflet; Issue Rule Book Issue History; and the AM Amendments Module.

- d) GE/RT8001 Changes to Specified Operations Publications
- e) In accordance with the Strategy for Standards Management, there have been nine withdrawals:
 - GM/TT0136 Plant and Machine Room Management
 - GM/RC1501 Code of Practice – Maintenance of Jardine and Smith Warning Device
 - GM/RC2518 Code of Practice – Welding, Cutting and Repair of Railborne Plant
 - GC/RT5153 Subterranean Fires - Managing the Risk
 - GC/RT5100 Safe Management of Structures
 - GC/RT5122 Bridge Strikes from Road Vehicles or Waterborne Vessels
 - GC/RT5143 Flooding, Scour, Wave and Tidal Action – Managing the Risk
 - GC/RT5180 Safe Asset Management of Infrastructure – Tunnels
 - GC/RC5511 Recommendations for the Safety Management of Structures

For more details contact **Anson Jack, director standards** on **020 7904 7703** or email anson.jack@rssb.co.uk

Issues regarding withdrawal of GE/RT8067 (Personal Track Safety) and GO/RT3358 (Persons Responsible for Protecting Work On or Near the Line)

In accordance with the Strategy for Standards Management, the above standards have been proposed for withdrawal.

Whilst the responses have generally supported the change (including train operators and Network Rail), a number of opportunities to clarify the relationship between the strategy for standards and the contractual matrix have been identified.

The key point relating to these withdrawals is that the measures that are withdrawn are those that relate to single duty holder activities. All measures that relate to interfaces or where duty holders of different types need to co-operate, will remain within Railway Group Standards.

For more details contact **Marie Marks, head of standards management** on **020 7904 7588** or email marie.marks@rssb.co.uk

Global System for Mobile Communications – Railway (GSM-R)

The first use of GSM-R technology on the network will be in a trial in the Strathclyde area. The programme led by Network Rail to introduce this technology requires a significant input in rules for the operation and equipment.

The Operational Concept for GSM-R was approved by Traffic Operation and Management (TOM) Standards Committee and is currently out for industry consultation for adoption as a relevant strategy under the Railway Group Standards Code.

A new standard, GE/RT8082 (which will be issued as a rapid response standard) will contain the mandatory technical requirements for GSM-R train radio and the existing standard, GE/RT/8081 will be reviewed to ensure no contradictions exist and to address any operational requirements now considered to be superseded. The documents are due to be submitted to standards committees for approval late May/June 2006 and issued in August 2006 ahead of the first application of GSM-R at Strathclyde.

GSM-R Industry Consultation

In order to facilitate the safe application of GSM-R in the UK, RSSB have carried out a comprehensive review of the existing rule book, which has resulted in proposed amendments to a number of Rule Book Modules. These amendments were issued for industry consultation in February, the closing date for which was Friday 24 March 2006.

To assist the consultation process RSSB, in partnership with Network Rail and ATOC, organised a number of briefing sessions across the UK in Glasgow, York, Birmingham and London.

The purpose of these briefings was to provide delegates with a brief introduction to the GSM-R system, outline the GSM-R Programme Trial in Strathclyde and to outline the operational implications with regards to the implementation of GSM-R in the UK, including the proposed amendments to the Rule Book. In addition, they provided delegates with the opportunity to raise any queries or comments with members of the Network Rail led National GSM-R Programme Team. The briefings were met with a positive response and were attended by over 140 delegates from all parts of the industry.

RSSB are involved in the development for national roll-out. The Rules for the trial will be available early July. For more details contact **Steve Roberts, head of new systems** on **020 7904 7483** or email steve.roberts@rssb.co.uk

Got an issue with a Railway Group Standard? Call the **RSSB Enquiry Desk** on **020 7904 7518** or email enquirydesk@rssb.co.uk.

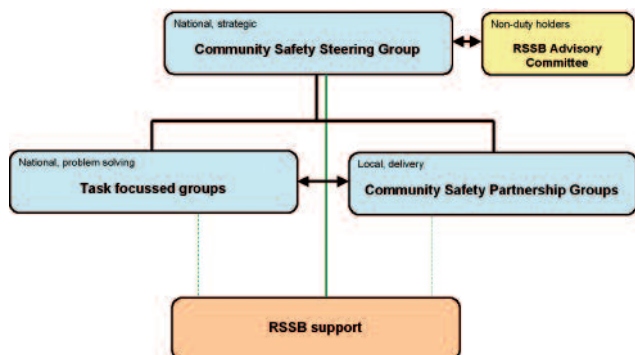
If that doesn't sort out the issue please contact **Anson Jack, director standards** on **020 7904 7703**.



National Community Safety Forum

More than 100 community safety practitioners from across Britain gathered in Birmingham for the National Community Safety Forum. Delegates from railway businesses including Network Rail, train operators, and the British Transport Police were joined by others in the community safety field representing local authorities, civil police forces, the Home Office and the Department for Transport. The all-day forum organised by the Rail Safety and Standards Board (RSSB) Community Safety Support Unit (CSSU), featured an opening plenary session, eight workshops outlining examples of good practice in the field, an extensive exhibition show-casing examples of campaigns and initiatives across the industry and a wrap-up question and answer session to round off the day.

Key to the day was the roll-out of the new community safety arrangements at strategic, tactical and delivery levels which are being implemented across the network following a review of activity.



New Structure

The Community Safety Steering Group with senior representatives of the main duty holders plus BT Police and chaired by RSSB will set the strategy and priorities, monitor progress and improve effectiveness. There will be nine groups called Community Safety Partnership Groups (CSPGs) to harness cross-industry effort at the local level, responsible for developing and delivering local plans to deliver the national strategy. These groups will be made up of senior representatives of all local duty holders and BT Police, with other stakeholders invited to participate as necessary. National task groups such as the Rail Personal Security Group will continue to focus on addressing specific areas, new groups being established and others being disbanded once work has been completed.

The Forum included presentations on building better links with crime and disorder reduction partnerships; the use of diversionary tactics with young people; the effective use of data intelligence; using the criminal justice system to get results; tackling workforce violence; managing personal security and safety at stations; making the best use of community safety research and getting effective messages into communities.



Exhibition stand at the National Community Safety Forum

The exhibition highlighted several campaigns including work being delivered by Arriva Trains Wales, Southern, Northern Rail, the BTP and Network Rail. In addition there were interactive elements to the exhibition including demonstrations of how lesson plans are used with digital whiteboard technology in the classroom – a key facility available through the industry's www.trackoff.org education website – plus an interactive "ghost box" developed by Network Rail highlighting railway safety messages for youngsters attending crucial crews or junior citizen schemes. Delegates could also view a wealth of DVD and audio-visual material produced by the industry for use in communities and schools.

Early analysis of feedback suggests the event was well received with delegates variously describing it as excellent, thought provoking, very interesting, extremely useful and a good opportunity to network.

This year's forum was the second national gathering of community safety practitioners from across the industry and beyond – the first being held in March 2005 - and was developed based on the feedback from last year's event.

The Community Safety Support Unit (CSSU) was established as a two-year project by RSSB and funded through the industry's research and development programme. The project comes to an end in May of this year. The newly established Community Safety Steering Group (CSSG) will be determining how the industry will work together following the CSSU project, to tackle railway crime, level crossing safety, personal security and fatalities management going forward.

For more details contact **Maurice Wilsdon, head of national initiatives** on **020 7904 7510** or email maurice.wilsdon@rssb.co.uk



Appointment of Head of Systems Coordination

As a result of a review of the System Interface Committee management structure, the Standards Assurance department has been changed to the Systems Coordination department and will provide coordination for System Interface Committees. The new department's responsibility combines the role of the Head of Systems Interface Committees with the role of Head of Standards Assurance.

Adam Milligan has been appointed to the position of head of systems co-ordination with effect from 3 April.

For more details contact **Adam Milligan, head of systems co-ordination** direct on **020 7904 7629** or email adam.milligan@rssb.co.uk

Hydrogen Fuel Cells

Hydrogen fuel has been researched extensively in other transport sectors, particularly automotive. The main reasons for the current interest in hydrogen as a fuel source for transport applications relate to climate change impacts and energy security issues. Hydrogen is seen as being a potentially "clean" source of energy in the future, with the additional possibility of reducing the transport sector's reliance on crude oil supplies. RSSB has carried out an initial study exploring the issues that the technology presents to the rail industry, how it can be developed and whether or not there is a business case for such development.

The United Kingdom railway industry retains a relatively high reliance on diesel power compared with its major continental neighbours. It has initiated this work to investigate the current state of hydrogen fuel technology and its long-term possibilities for the UK railway, essentially as an alternative to further electrification, in pursuing reduced hydrocarbon dependence.

The project specification was developed with the help and support of the Railway Forum, Rail Industry Association, Department for Transport and Rail Research UK.

The work considered use of hydrogen in fuel cells as well as internal combustion engines (ICEs) finding that, whilst hydrogen ICEs are further developed and cheaper than fuel cells at the moment, they are only about half as efficient. With the present method of producing hydrogen, ICEs have a worse impact on CO₂ emissions than current diesel technology, but fuel cells show a substantial improvement. Hydrogen fuel cells are very unlikely to be used in mainstream rail applications until there has been an order of magnitude reduction in cost

and improvement in the average operating lifetime. Commercially, hydrogen fuel technology is unlikely to become a mainstream part of the transport energy mix until at least 2020, and the first applications are likely to be for road vehicles.

For more information on the research project contact **Jim Lupton, head of engineering research** on **020 7554 4611** or email jim.lupton@rssb.co.uk

The report and research brief (T531) are now available on the RSSB website at www.rssb.co.uk

Rail Industry Research

check out www.railwayresearch.org

Supported by the Advisory Group for Rail Research and Innovation, this newly launched website is the first comprehensive and credible database of railway research, giving the industry and other research organisations a one-stop-shop to access a wealth of existing research. Currently the website holds 4300 records including 150 published research reports by RSSB and this is set to grow.

The site will assist in identifying what has already been learned, stop duplication of research and reduce the time taken to locate study findings. On behalf of the RSSB research programme, the University of Birmingham, working as part of Rail Research UK, will maintain the bibliography and increase the number of references, to capture as much knowledge as possible.

For more information contact **Guy Woodroffe, head of strategy and government relations** on **020 7554 4625** or email guy.woodroffe@rssb.co.uk

SIC Trains and Infrastructure Seminar – Making the Interface Work Better

On the 8th February the Institution of Mechanical Engineers hosted a seminar on the work and progress of the cross industry System Interface Committees (SICs) where various issues were identified.

Each SIC is identifying optimum industry solutions to the issues raised. The challenge for the industry will be to integrate the recommended solutions, which may be largely technical into future strategies, business plans and commercial relationships.

RSSB are playing a key role in providing system level solutions to industry interface problems by facilitating the activities of all six SICs and their Sub Groups. It also provides a research and development capability to develop solutions and, if applicable implements the cross industry solution through the Railway Group Standards process.

For more details contact **Adam Milligan, head of systems co-ordination** on **020 7904 7629** or email adam.milligan@rssb.co.uk



Events

Date	Name of event	Location
June 4 - 8 2006	World Congress on Railway Research	Montreal, Canada
10 - 14 September 2006	9th International level crossing and trespass prevention symposium	Fairmont Queen Elizabeth Hotel, Montreal

If you would like to receive further information about any of these events please contact **Kerry Taylor**, conference manager on **020 7904 7934** or email kerry.taylor@rssb.co.uk

Risk Management Forum – 28-29 June 2006

The Risk Management Forum will be held at Nottingham University's Jubilee Campus and the theme this year will be 'Practical management of human behaviours'. In addition to the main theme, time will be devoted to developments in general risk management and consider European legislation in this field.

The programme will give delegates hands-on experience in the application and use of risk management techniques and will be of most benefit to rail industry safety directors, safety managers, accident investigators, risk practitioners and anyone who needs to understand the impact of new safety legislation, assess safety risk and make safety decisions.

For details of the programme and speakers or to book a place contact **Kerry Taylor**, conference manager on **020 7904 7934** or email kerry.taylor@rssb.co.uk

Spotlight The Precursor Indicator Model (PIM)

Multi-fatality accidents like the Ladbroke Grove collision of 1999 are, thankfully, few and far between. Obviously, as an industry, we need to reduce their rate of occurrence even further. In order to gain a fuller

understanding, the Safety Intelligence Team realised it was essential that the precursors to such accidents be analysed. To this end, a Precursor Indicator Model (PIM) was developed.

The model measures the underlying risk from train accidents by calculating the monthly risk from 84 distinct precursors. The PIM provides an indication of the risk from train collisions, train derailments, trains striking bufferstops, train fires and trains striking road vehicles at level crossings. The outputs are presented via our suite of safety performance reports. Since its original conception some six years ago, the PIM has matured to the extent that it is now used by a number of bodies, including Network Rail and the industry regulators.

With the risk per precursor calculated, indicators can be shown at any one of four levels:

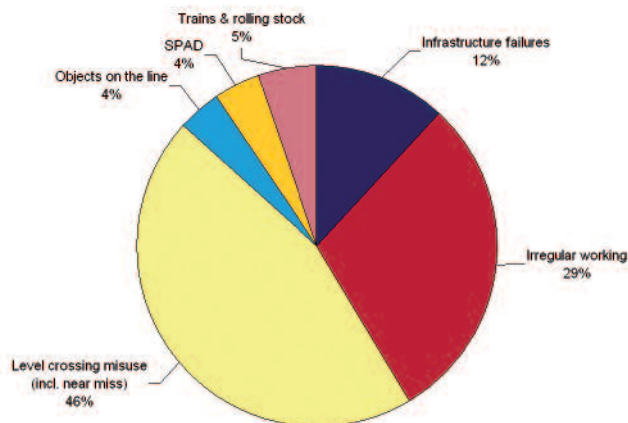
Precursor (there are 84 of these).

Sub group (there are 26 of these).

Group (there are six of these).

Overall (the total).

2005 Proportion of train accident risk by group (from PIM)



The picture portrays the PIM proportions particular to 2005. Note that level crossing misuse accounts for nearly half the total train accident risk.

PIM in motion

The train accident PIM continues to be extended to meet the ever-expanding needs of its users; plans to introduce a means of analysing data on further levels are already under way. The success of this methodology has led to a consensus that it be used to measure other areas of risk. We have already begun to construct a version of the model to measure track worker safety, which will be implemented later in 2006. In addition, a station safety adaptation is currently being considered.

For more details contact **Adrian Smith**, safety intelligence analyst on **020 7904 7521** or email adrian.smith@rssb.co.uk