Safety Assurance Guidance

Guidance and examples of good practices in safety assurance in Britain’s railway industry

An effective Safety Management System is driven by good Safety Assurance
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Foreword by ORR

A business will be safe if its people manage risks effectively every day, including the risks it shares with other businesses. The role of ORR is to motivate businesses to have excellent health and safety management and to check that they identify and assess risks properly, control them effectively and comply with the law.

We expect leaders in the rail industry to understand the risks they manage and how to measure their performance in controlling them.

This guidance will assist railway companies to measure their performance and seek continuous improvement.

I commend it to you.

Ian Prosser
HM Chief Inspector of Railways

This document was endorsed by the Safety Policy Group (now succeeded by the System Safety Risk Group) and was steered and assisted in its development by a group of nominated industry representatives:

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Office of Rail Regulation
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RSSB
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Key to the colour coding and formatting

Below is an explanation of how to use the colours and symbols to navigate through this document.

 Highlights reference to safety assurance within the model.

 Highlights reference to safety management system within the model

 Good Practice

 Example of an interface project

Text this colour and underlined is a hyperlink in the digital version of this document.

Text in this font is an example that may be of practical use to the reader.

This document is also available online with links and downloadable elements.

For more information go to: www.rssb.co.uk
Safety assurance in the railway industry - setting the scene

1.1 Who should read this guidance?
1.2 Roles and Responsibilities
1.3 Safety Assurance Model
1.4 Railway Management Maturity Model
1.5 Supplier Assurance
1.6 Appendices
1 Safety assurance in the railway industry - setting the scene

1.1 Who should read this guidance?

This guidance is for the Heads of Safety (or their equivalent) in mainline railway companies. We anticipate that companies will wish to adapt the guidance to their own requirements in order to help people with particular roles, such as:

The guidance may also be useful to other stakeholders, including passenger organisations and bodies such as local authority highways departments and the British Transport Police.

Table 1 Audiences

<table>
<thead>
<tr>
<th>Audience</th>
<th>How guidance may be used</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professional heads</td>
<td>To build good safety assurance processes in their disciplines</td>
</tr>
<tr>
<td>Safety and assurance managers</td>
<td>Using the tools and information to improve safety assurance</td>
</tr>
<tr>
<td>Project managers</td>
<td>Applying safety assurance to their project, using shared risk registers at interfaces</td>
</tr>
<tr>
<td>Staff with responsibilities for safety management at interfaces</td>
<td>Using shared risk registers at appropriate levels of detail</td>
</tr>
<tr>
<td>Company representatives at industry safety forums</td>
<td>Applying the safety assurance model as appropriate for the role of the forum, eg high level review</td>
</tr>
<tr>
<td>Contractors and suppliers</td>
<td>Reviewing customers’ safety assurance requirements and using these to develop their own systems, particularly to manage shared interface risks</td>
</tr>
<tr>
<td>Health and safety representatives</td>
<td>Improving their effectiveness by understanding the safety assurance model</td>
</tr>
<tr>
<td>Non-mainline railway bodies</td>
<td>Although not all the legal requirements for mainline railways apply, the concepts within the guidance should still be useful</td>
</tr>
</tbody>
</table>

The guidance may also be useful to other stakeholders, including passenger organisations and bodies such as local authority highways departments and the British Transport Police.

What parts of the guidance should I read?

This guidance explains how safety assurance can help improve how you implement your safety management system (SMS). This continuous improvement can lead to cost savings, resulting from greater effectiveness in risk control, less reliance on external assessments, and fewer accidents.

The assurance framework builds on the Plan – Do – Check – Act cycle. The guidance provides tools and techniques which should lead to more efficient processes and better control of business risk.

This guidance is not intended to be read cover-to-cover. Readers wishing to refer only to specific parts may find the following reader’s guide (with internal links) helpful:

• A clearer understanding of safety assurance: within a company; between companies; for the railway system - Section 1
1 Safety assurance in the railway industry - setting the scene

- Information on what the European Regulation Common Safety Method (CSM) for Monitoring will require, from June 2013 - **Section 2.2.2 and Appendix F**
- How the ORR's Railway Management Maturity Model (RM3) relates to safety assurance and how it could be applied across the industry - **Section 1.4**
- Examples of how safety assurance techniques can be applied to manage risks, processes and behaviours more effectively and efficiently - **Sections 2 and 3**
- Shared Risk Registers - A useful tool representing a step-change in the management of interface risks - **Section 3 and Appendix G**
- Roles and responsibilities - Clarification on the contribution to safety assurance by different industry parties - **Sections 1.2 and 4**

The guidance is intended as a practical aid to improving safety assurance. A self-assessment ready reckoner of the main safety assurance components is at **Appendix B and Appendix E** provides a template Safety Assurance Framework and Plan.

A four page Summary and role of the senior manager which makes the case for good safety assurance is available from RSSB.

**Why do we need guidance?**

This guidance should help transport operators meet the requirements of the **Railway and Other Guided Transport Systems (Safety) Regulations 2006** (ROGS), ie:

- Their Annual Safety Reports to the ORR include the findings of internal Safety Management System (SMS) audits. (Regulation 20)
- SMSs must show how continuous improvement of safety management is ensured, (Schedule 1)

The European Union **Regulations for Common Safety Methods (CSMs) for Monitoring and for Supervision** apply from early June 2013. They introduce new requirements for Transport Operators (railway undertakings, infrastructure managers) and entities in charge of maintenance, affecting safety assurance arrangements (CSM for monitoring) and the role of the ORR (CSM on supervision).

The CSM for Monitoring Regulation will require changes to many Transport Operators' SMSs. This guidance is compatible with the CSM for Monitoring and **Appendix F** maps the CSM's requirements to the appropriate section of this guidance. A four page RSSB **Explanation of the CSM for Monitoring** was distributed in the industry in February 2013 and is available from RSSB.

This guidance explains safety assurance by reference to a risk-based approach and contains examples of how to assure processes’ effectiveness. It emphasises the need to understand people’s behaviour and the incentives and disincentives that may lead to unintended consequences through encouraging inappropriate behaviour. **For example** -

- Operational performance indicators that give rewards used alongside Safety Performance Indicators (SPIs) that give no rewards, may favour performance that conflicts with safety
- Rewards for low accident or near miss levels that may result in under-reporting
- Not using the correct safe method of work so as to get the job done quicker
- Omitting inspections due to staff shortages
Intelligent audit should detect where things are likely to lead to the wrong behaviours, e.g. long or short term shortages of staff. Similarly, an SPI could detect the lack of inspections before an accident occurs and the review of this should expose the underlying reasons. HSG48 Reducing error and influencing behaviour gives further guidance on understanding behaviours in relation to health and safety.

**What is Safety Assurance?**

There has been a lack of understanding across the industry about the concept of safety assurance. Instead of searching for a precise definition, it may be more helpful to gain a general understanding of safety assurance and how it applies in practice and this document aims to do this. However, terminology that relates to specific aspects of safety assurance, for example to supplier assurance, has been defined across the industry. It is useful to know about these as there may be overlap with wider safety assurance activities. These definitions are in Appendix D.

Delivering effective safety assurance relies on several useful properties:

- It can be given and it can be received
- It is dynamic, rather than static
- It combines information (preferably from several sources) and assessments (expert judgements)
- It requires either actions, or a positive decision that no action is needed
- It can apply at different organisational levels and both internally and externally
- It addresses risks, processes and behaviours

Assurance that is limited to compliance only - a ‘tick box’ approach - is likely to limit understanding of company objectives and interface risks. This guidance assumes the wider approach described in RSSB's Safety Management System Principles (See Appendix A).

**Why is assurance important?**

Successful assurance, driven by line management, improves the effectiveness of safety management. The review stage of assurance also allows managers to take a step back and to test and observe policies and arrangements.

Most rail safety professionals understand that major accidents often result from similar high-level SMS failures. Many major accidents over the last 20 years have confirmed this. One significant common element is inconsistent application of lessons from previous accidents and other safety assurance-related information. Effective safety assurance processes would have identified and rectified these failures, saving lives and resources. RSSB’s Investigation Guidance, part 2 section 6, contains more information on learning from investigations and comments on 5 major accidents since Clapham Junction in 1988 and their common failure modes.

Good safety assurance, coupled with good SMS processes, can lead to better risk management, improved performance and reduced loss due to accidents.

**What parts of the industry does the guidance relate to?**

Safety assurance in the industry has three overlapping dimensions: assurance within a company, assurance across interfaces with one or more other companies, and assurance across the whole railway system. The guidance is intended for all parts of the industry, but due to the complexity and different processes, it separates safety assurance into these three dimensions. The three are not mutually exclusive and, to some extent, they are interdependent, but their separation should make the task of understanding and applying this guidance easier.
See Diagram 2.

Diagram 2 Dimensions of safety assurance

When applying the model to any one of these dimensions the scope of what is being assured could be defined as a ‘system’. However, for the sake of simplicity, this document refers to system only in the context of the whole railway system.

Company (Section 2)

Company safety assurance is the assurance provided by the company to the company itself. Evidence of this assurance may also be sought by others as a contribution to their company-to-company safety assurance and for the railway system (eg by ORR).

Company to Company (Section 3)

Company-to-company safety assurance is the assurance given by a company to another company that exports or imports risks. All companies must manage their supply chain risks. Safety assurance arrangements should extend to contractors and suppliers.

Railway System, ie the whole industry (Section 4)

Safety assurance of the whole railway system is the assurance given by the industry to those not part of it, (eg Government, passengers and the public). However, companies can gain assurance from parts of the industry acting at a system level.
Note: Non-railway interfaces should also be recognised and managed as part of Company and/or Company to Company assurance processes e.g. trespass and vandalism, users of level crossings or other businesses operating immediately adjacent to the railway e.g. utility providers.

### 1.2 Roles and Responsibilities

Infrastructure managers and railway undertakings have the principal roles and responsibilities for safety assurance. The ORR and RSSB, plus some other industry bodies (note the RAIB reference below Table 7), are also influential. In this complex and fast changing industry it is important that there are clear roles and responsibilities for managing safety at interfaces and across the system. This guidance aims to help the industry clarify these roles and responsibilities.

**Table 2 Safety assurance (SA) – basic roles and responsibilities**

<table>
<thead>
<tr>
<th>Organisation</th>
<th>Company</th>
<th>Company-to-Company</th>
<th>Railway System</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>providing SA</td>
<td>accepting SA</td>
<td>providing SA</td>
</tr>
<tr>
<td><em>Transport Operator</em></td>
<td>Assure themselves, eg via internal and external audit regimes</td>
<td></td>
<td>Challenge and assure each other, eg via joint risk registers and Shared Risk Registers (developed in part from the SRM)</td>
</tr>
<tr>
<td><em>Transport Operator</em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ORR</td>
<td>Assures and supervises, eg RM3</td>
<td>Oversees, eg Annual Safety Report</td>
<td>Assures and supervises, eg RM3</td>
</tr>
<tr>
<td>RSSB</td>
<td>Facilitates, eg via guidance</td>
<td>Facilitates, eg SMIS, allowing comparison with benchmark</td>
<td>Facilitates, eg Safety Risk Model showing national risks</td>
</tr>
<tr>
<td>Contractor/supplier</td>
<td>Assures, eg via RISAS assessments</td>
<td>Share information, eg RISAS assessments</td>
<td></td>
</tr>
<tr>
<td>Passenger Bodies</td>
<td>Yes eg annual reports</td>
<td></td>
<td>Yes eg annual reports</td>
</tr>
<tr>
<td>Trade Unions</td>
<td>Joint safety Inspection and accident investigation</td>
<td>Yes eg annual reports</td>
<td>Yes eg annual reports</td>
</tr>
</tbody>
</table>

* Transport Operator includes Railway Undertakings (TOCs and FOCs and others who operate rolling stock on the main line) and Infrastructure Managers (Stations and Infrastructure). The CSM for Monitoring places similar responsibilities on Entities in Charge of Maintenance.
1.3 Safety Assurance Model

This guidance introduces the Safety Assurance Model which is central throughout. Sections 2 and 3 apply this model and give guidance, checklists and examples of good practice.

The SMS and Safety Assurance models working together

Many models illustrate the cycle of improvement in management systems. In general, they reflect the simple ‘Plan – Do – Check – Act’ cycle, sometimes known as the Deming Cycle (after statistician Edwards Deming) or the Continuous Improvement spiral. This is the basis of the HSG65 model and is used to support the industry’s Modernisation of Safety Cooperation initiative, which is restructuring cross-industry safety groups (see section 4).

Our safety assurance model goes back to first principles of ‘Plan – Do – Check – Act’.

Safety assurance parallels the application of safety management systems (SMSs), as shown in Diagram 3. They are interdependent. If SMS activities are not done well, good safety assurance will be impossible and, in turn, the SMS will be ineffective.

The first stage of the safety assurance model determines what is to be assured; the last stage allows the assurance process to lead to improvement. The ‘Check’ stage of the SMS model (Monitor and Review) duplicates the core part of the safety assurance model.

Throughout the cycle of the model, risk management principles apply, ie the resources applied should be proportionate to the assessed risks.
The safety assurance model can be applied to the three dimensions: company, company-to-company, and, in part, to the railway system as a whole. The first two are within the control of an SMS, but are presented separately as company-to-company requires cooperation with others, and therefore some additional management processes. Safety assurance for the whole railway system differs in that there is not a ‘controlling mind’, but the principles of the model can still be applied.

Table 3 below gives examples of how the safety assurance model (with its core stages shaded light green) can be used in conjunction with SMS actions across the three dimensions.

### Table 3 Safety Assurance Model – Examples in the three dimensions

<table>
<thead>
<tr>
<th>Stages</th>
<th>Dimensions</th>
<th>Company</th>
<th>Company-to-Company</th>
<th>Railway System</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 SMS</td>
<td>Assess risks and agree controls</td>
<td>Assess safety risks including operations, engineering and projects and agree controls</td>
<td>Assess imported, exported and shared risks, eg from projects, then agree on controls, individual or joint</td>
<td>Industry groups and companies individually may agree on controls and coordination of them</td>
</tr>
<tr>
<td>1 SA</td>
<td>Set monitoring strategy</td>
<td>Decide the information required to check controls and how to obtain it</td>
<td>Decide the information needed to check on controls and how to obtain and exchange it</td>
<td>Industry groups and companies may decide what to monitor to check on controls</td>
</tr>
<tr>
<td>2 SMS</td>
<td>Apply Controls</td>
<td>This is the SMS application of the controls</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 SA</td>
<td>Monitor controls</td>
<td>Apply controls and monitor as agreed</td>
<td>Apply controls and monitor as agreed</td>
<td>Companies apply controls and monitor</td>
</tr>
<tr>
<td>3 SMS</td>
<td>Monitor and review</td>
<td>This stage of the SMS should duplicate core safety assurance activities (2SA and 3SA) and so the focus in later model tables is on Safety Assurance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 SA</td>
<td>Assimilate and Review information</td>
<td>Obtain, review and filter data from the various sources (see 2.2.2) for the review body</td>
<td>Individually or jointly obtain, review and filter shared and individual data</td>
<td>Industry groups review and filter data.</td>
</tr>
<tr>
<td>4 SMS</td>
<td>Assess new risks and improve Controls</td>
<td>At senior company Safety Meeting, agree new risk profile based on filtered data and act on it.</td>
<td>At senior level, eg Route level group, agree new joint risk profile and act on it, eg via JSIPs</td>
<td>RSSB creates new risk profile and industry groups agree new controls and actions.</td>
</tr>
<tr>
<td>4 SA</td>
<td>Follow up on new controls</td>
<td>Safety team track status of actions and review the assurance cycle</td>
<td>One company may chase up another</td>
<td>Secretary of industry group may chase up</td>
</tr>
</tbody>
</table>

**Safety Assurance Framework and Plan**

Setting the monitoring strategy is key to successful safety assurance. Users should find the Safety Assurance Framework and Plan in Appendix E helpful in developing their arrangements.
Further considerations for applying the model

Exchange of Information

Good communication of the right information within and between companies that have interface risks is necessary to control risks. This is true throughout the safety management cycle, as shown in table 4 below:

Table 4 - Exchange of information

<table>
<thead>
<tr>
<th>Stage of safety assurance</th>
<th>Source of Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assess risks</td>
<td>Performance data and expert judgment drawn from pool of corporate knowledge</td>
</tr>
<tr>
<td>Agree controls</td>
<td>Knowledge of current controls</td>
</tr>
<tr>
<td>Set monitoring strategy</td>
<td>Knowledge of audits and performance indicators etc</td>
</tr>
<tr>
<td>(Apply then) monitor controls</td>
<td>Agreed monitoring arrangements</td>
</tr>
<tr>
<td>Assimilate and Review information</td>
<td>New data</td>
</tr>
<tr>
<td>Assess new/changed risks</td>
<td>New data and expert judgment drawn from pool of corporate knowledge</td>
</tr>
<tr>
<td>Improve controls (and follow up)</td>
<td>Brief on new controls</td>
</tr>
</tbody>
</table>

Steady State and Change

Change can bring new and unexpected risks; applying safety assurance in a period of change may be very different from the steady state (though even the steady state is subject to a level of constant change, whether externally or internally driven). The safety assurance model can show a cycle for either:

- Applying the model to the current application of a SMS, or parts of it
- Safety assurance over the lifecycle of a project, or the introduction of major change

Those involved in managing major change will be aware of the Regulation CSM on Risk Evaluation and Assessment which came fully into force on 1 July 2012. This CSM applies to significant changes to all railway sub-systems, significant changes to the operation of the railway, and significant organisational changes that could impact on the operating conditions of the railway system. Where the proposed change is not considered significant (in line with the criteria contained in the Regulation) it should be managed under the change management processes as described in the proposer’s SMS.

The CSM’s framework is based on the analysis and evaluation of hazards using one or more of the following risk acceptance principles:

- application of codes of practice
- comparison with similar systems (reference systems)
- explicit risk estimation.

This requirement to assess risk fits in the first section of the SMS cycle, the ‘Plan’, though the CSM on Risk Evaluation and Assessment does give consideration to monitoring and reviewing when determining the significance of the change. This guidance focuses on the Safety Assurance Model but more useful
information on risk assessment can be found in the ORR guidance on the application of the common safety method (CSM) on risk evaluation and assessment. In addition, the RSSB website page: Management of Engineering Change, contains several guidance references and notes and more guidance will be developed in the near future and updated over time.

Safety assurance is important in maintaining good change management processes and risk assessments, eg during mergers of companies or changed activities, organisations or personnel. An example of a possible risk resulting from change is loss of corporate memory; if an effective process for retaining information is not in place when key personnel move, or a franchise changes.

“In August 2009, Malahide Viaduct (on the Dublin to Belfast line in Ireland) collapsed into the sea immediately after a passenger train passed over it, narrowly escaping disaster. In its subsequent report (published August 2010), the Rail Accident Investigation Unit (RAIU) found an underlying factor to be that: ‘There was a loss of corporate memory when former Iarnród Éireann staff left the Division, which resulted in valuable information in the relation to the historic scouring, and maintenance not being available to the staff in place at the time of the accident’.”

Underlying Causes

The rail industry generally understands that good accident and incident investigation requires an open minded approach that gets to the underlying causes of the event. Systemic problems can then be identified, better controls can be introduced and risk reduced. RSSB’s Investigation guidance focuses on identifying underlying causes, setting recommendations that will improve safety, and learning lessons. It applies human factors techniques and includes investigation tools which may be useful in safety assurance.

The same approach - ascertaining underlying cause or failure - can easily apply to other information that measures the effectiveness and appropriateness of controls. Accident investigators repeatedly ask ‘why?’ and ‘what?’ to follow a ‘thread’ that leads to a conclusion. This approach can work for active monitoring (eg audit), as well as for reactive monitoring (eg accident investigation).

Audits should identify whether there is a process, whether it is applied as intended and whether it is effective in controlling risks. Supplementary and lateral questioning can uncover systemic issues and failures and so lead to significant improvements.

The ‘underlying failure’ approach can also be applied to inspections and setting activity Safety Performance Indicators (see Section 2.2.2).

Wherever monitoring exposes problems at a local level consideration should be given to whether the problem may be systemic.
### Exchange of Information

<table>
<thead>
<tr>
<th>Question</th>
<th>To who</th>
<th>Answer</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has operator X been trained in activity Y?</td>
<td>Depot Manager</td>
<td>No</td>
<td>Train the operator X in activity Y</td>
</tr>
<tr>
<td>What % of operators have not been trained in activity Y?</td>
<td>Depot Manager</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>Why have 30% not been trained?</td>
<td>Depot Manager</td>
<td>Staff can’t be released for a day</td>
<td></td>
</tr>
<tr>
<td>Where is training undertaken?</td>
<td>Depot Manager</td>
<td>Head office 50 miles away</td>
<td></td>
</tr>
<tr>
<td>Why is trainer not brought to depot?</td>
<td>Depot Manager</td>
<td>There is only one trainer</td>
<td>Suggest more training is requested</td>
</tr>
</tbody>
</table>

This line of questioning can be escalated:

<table>
<thead>
<tr>
<th>Question</th>
<th>To who</th>
<th>Answer</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do other depots have the same problem?</td>
<td>Engineering Director</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Would one more trainer allow all to be trained?</td>
<td>Engineering Director</td>
<td>Yes</td>
<td>Consider additional trainer who will travel to depots</td>
</tr>
</tbody>
</table>

1.4 Railway Management Maturity Model (RM3)

RM3 builds on SMS guidance, such as HSG65 and OHSAS18001, with other features from recent accident reports and academic research, to assess organisations’ ability to achieve excellence in risk control. RM3 fits well with the safety assurance model. It is also relevant to the company-to-company dimension and, as it is applied and reviewed across the system, it is likely to make a significant contribution to the industry’s overall safety management and performance.

As part of their supervisory duties, ORR inspectors assess railway operators’ and railway infrastructure managers’ compliance with ROGS and other health and safety law. ORR inspectors check that transport operators have safety management systems in place and that these effectively control health and safety risks and that reliable safety assurance processes are in place.

When planning its audits inspections, and the level of its intervention, the ORR will consider the maturity level of an organisation. Their intention is that the higher the management maturity and reliability of the safety assurance, the fewer the resources that will be allocated to the audit.

ORR considers that the higher the maturity level then the higher the factor of safety, should something go wrong.

Some transport operators have developed internal and external audit regimes to mirror RM3 and ORR offers training in RM3 for transport operators’ auditors. The potential benefits of this are:
1 Safety assurance in the railway industry - setting the scene

- Applying a well-researched process, with professional training available for auditors
- Using a model that is used by others, allowing for comparison benchmarking to identify and learn of good practices from others
- It is designed to evaluate against the requirements of ROGS and Management of Health and Safety at Work Regulations 1999.
- It promotes a value system with self-sustaining inherent controls, which reduces reliance on formal controls such as second and third party audits
- Using compatible internal and external audit systems should make it easier to do the audits and so save resources
- Less intervention by ORR as maturity is demonstrated

For RM3 enquiries contact the ORR at: assurance@orr.gsi.gov.uk

1.5 Supplier Assurance

Supplier assurance is one specialist, but an important, component of safety which is associated with high level risks. The modern railway is critically dependent on its supply chain and therefore needs processes to establish that suppliers are suitably competent, commercially sound, adequately resourced and can consistently and safely deliver products and/or services to customers’ specifications. Such processes are typically called supplier assurance and are usually the responsibility of procurement, projects and engineering functions.

An ‘Assurance Generator’ model, agreed with all industry parties, details the key steps in seeking and providing supplier assurance through the procurement lifecycle.

There are longstanding issues with GB railway supplier assurance, the most notable being repetitive audits of suppliers by customers who have adopted different schemes, resulting in repeated requests for similar – sometimes identical information. Additionally there is confusion amongst the supplier community about customer requirements.

RSSB has commissioned research to model the impact of the current arrangements, and has produced guidance: Securing Supplier Assurance; guidance on the principles of supplier assurance and how to engage with existing arrangements for today’s GB mainline rail industry. This includes a standard vocabulary, a guide to existing schemes and arrangements, supplier assurance principles, and a policy framework. It also identifies tactical improvement opportunities.

By mid-2014 a new Railway Industry Standard, RIS-2750-RST, will define arrangements for seeking and providing assurance. RSSB is developing the enabling tools to help implement the requirements of this new RIS.

In addition, a programme to modernise the Link-up supplier qualification and audit scheme is well advanced. This new scheme, the Railway Industry Supplier Qualification Scheme (RISQS), will have a governance model similar to that established for the RISAS scheme so that rail companies will formally regain control of their own qualification and audit scheme. It will continue to use the Link-up branding, being known as Link-up Engage.

As GB rail’s culture and behaviour continues the move towards a more co-operative and mature relationship with its supply chain, this should greatly improve the industry’s efficiency in managing its suppliers.
1.6 Appendices

With the rail industry, RSSB has developed much useful guidance:

- Guidance relating to safety assurance is outlined in Appendix A and there are references and hyperlinks throughout this document
- Appendix B provides a common vocabulary for safety assurance
- Appendix C is a ready reckoner for companies to identify how their safety assurance arrangements compare with this guidance
- Appendix D provides a list of the acronyms used
- Appendix E assists with the development of a Strategy, or Framework and Plan
- Appendix F maps the CSM for Monitoring against this guidance
- Appendix G provides a Template Shared Risk Register for adaption
Company Safety Assurance

2.1 Introduction
2.2 Company use of the Safety Assurance Model
2.3 Safety Assurance and behaviour
2.4 Change and Safety Assurance
2 Company Safety Assurance

2.1 Introduction
This section deals with safety assurance for internal company risks, processes and behaviours. It includes practical guidance and examples of good practice. Safety assurance at the interface with other railway companies requires a range of additional cooperative processes, and therefore is considered in the next section.

2.2 Company use of the Safety Assurance Model
The Safety Assurance Model, Diagram 3, can be applied to the SMS, or parts of it, or over the lifecycle of a project, or the introduction of major change.

Table 5 Company use of the Safety Assurance Model

<table>
<thead>
<tr>
<th>Stages</th>
<th>Company</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Assess risks and agree controls</td>
<td>Assess safety risks including operations, engineering, projects and infrastructure (note interface risks are a sub-set of this) then decide on controls</td>
<td>--</td>
</tr>
<tr>
<td>1 Set monitoring strategy</td>
<td>Decide the information required to check controls and how to obtain it</td>
<td>Determine a programme of audits and SPIs to be monitored</td>
</tr>
<tr>
<td>2 Apply Controls</td>
<td>Apply controls</td>
<td>--</td>
</tr>
<tr>
<td>2 Monitor controls</td>
<td>Monitor as agreed</td>
<td>Conduct audits (of process and behaviour) and collect data for SPIs</td>
</tr>
<tr>
<td>3 Assimilate and Review information</td>
<td>Obtain, review and filter data from audits, inspections, SPI reports, accident investigations and change management and project reports</td>
<td>Summarise audit findings and SPI key trends for high level safety meeting to assess them</td>
</tr>
<tr>
<td>4 Assess new risks and improve Controls</td>
<td>At senior level safety meeting, agree new risk profile based on filtered data, learn lessons and agree new or enhanced controls and act on these</td>
<td>--</td>
</tr>
<tr>
<td>4 Follow up on new controls</td>
<td>Company process to follow up on actions</td>
<td>Safety team to follow up on actions</td>
</tr>
</tbody>
</table>
2.2.1 Assess risks and agree controls

The SMS model starts by identifying hazards and assessing the related risks. Risk assessments may be done during regular planned reviews, but can also focus on:

- risks related to one function of the organisation, such as maintenance
- interface risks (see section 3)
- risks associated with a specific project or major change (also covered in section 3)

A company may choose, at a point in time, to assess all of its significant risks or it may divide the task up. It is important, however, that the process results in a company-wide risk ranking, so that senior managers can understand their risk profile and prioritise actions. Engineering, operations, project and maintenance risks should be comparable to allow company-wide risk-based decisions on controls.

A good risk assessment, before the application of a cycle such as that in diagram 3, requires consideration of a wide range of information sources. These should include those listed in section 2.2.2. Input from discussions at joint safety committees can be useful. In addition, external sources may also provide useful background information: ORR, including any enforcement actions taken by them, RAIB reports and recommendations, lessons from European rail incidents and the results of Passenger Focus’s National Rail Passenger Surveys.

The assessed risks will be based on past performance and judgements on the future using expert knowledge of influencing factors such as new safety initiatives. RSSB’s Safety Risk Model (SRM) enables users to identify key areas of risk associated with their operations and to prioritise their investment in safety, using a risk based approach. This can be useful in the risk review process (See Appendix A).

An example of a risk assessment exercise, using the SRM (for an isolated part of one company) was seen during research for this guidance. A thorough review of risks was conducted using the following steps:

An example of a risk review exercise

- Understanding the risk assessment methodology to be used (eg semi-quantitative)
- Identifying relevant hazards based on review of the SRM
- Applying frequency and severity rating: higher, lower or similar to the SRM figure
- Risk ranking sense check
- Identifying existing controls
- Considering the controls’ effectiveness using SMIS data
- Considering new or enhanced controls

The monitoring strategy was then based on the new controls to manage the new risks profile after consideration of hazards, risks and existing controls.

After determining the main risks, decisions are needed on how to control them. The staff making risk control decisions need not be the same as those assessing the risks.
2.2.2 Set monitoring strategy

Once the controls are agreed, the next step is agreeing how to measure their effectiveness. A monitoring strategy is needed. Developing this will need to consider the available sources for the necessary information (listed below), how the sources will be used, by whom, the timescales and the reviewing process.

The monitoring strategy should cover processes and procedures and technical, organisational and operational risks and behaviours. It should be based on an understanding of the management weaknesses which are likely to lead to inappropriate behaviours, (eg tight deadlines may lead to shortcuts and failure to maintain risk control measures). The resources for monitoring should be prioritised to identify anticipated higher risk weaknesses so that these are more likely to be detected at an early stage.

The CSM for Monitoring includes requirements for setting a monitoring strategy and plan(s). These are described in:

- A four page brief on the CSM for Monitoring, issued by RSSB in February 2013.
- Appendix F: CSM for Monitoring – Mapping of requirements to this guidance

Transport operators already have in their SMS, or in other documentation, many of the elements of the strategy and plan required by the CSM. These must now be collated, documented and made available to the ORR, including analysis and evaluation of areas of potential non-compliance and, implementation and evaluation of actions plans to close non-compliance gaps.

Monitoring can use many approaches to obtaining information. The main sources used in the rail industry (other than supplier assurance arrangements referred to in section 1.5 and any external accreditations) are:

**Sources of information:**

1. Audits (including RM3)
2. Setting Safety Performance Indicators (SPIs) and monitoring via Safety Performance Reports (include fault reporting systems)
3. Inspections and testing
4. Accident investigation outputs/recommendations/risk assessments
5. Fault reporting
6. Peer review
7. Consider planned change of risks to ensure good safety assurance is maintained, eg projects and other major changes
8. Safety culture surveys

Companies also have additional legal requirements involving, for example, the monitoring of rolling stock components, plus commitments within the SMS, such as:

- *Safety targets and provision of safety information [ROGS Schedule 1 Safety Management System]*
- *Annual safety reports [ROGS Regulation 20]*
• **RIDDOR 1995**
• Railway Group Standards (eg GE/RT8047 Reporting of Safety Related Information)

*The ROGS guidance of April 2006 explains the relationship between these requirements and Common Safety Targets and Indicators.*

When developing the Monitoring Strategy it would be useful to consider to what extent, if any, these legal requirements could be integrated with it.

**Sources of information**

There follows guidance and good practice examples on some of the main sources of information. This is not an exhaustive list.

**Audits**

Audits offer a snapshot of the effectiveness of the systems in place at the time of the audit. They can be targeted on risk areas and can be more informed if applied with knowledge of factors that may influence a company’s performance.

These might include: recent personnel changes, changed activities or systems, accident investigators’ recommendations, proposed franchise changes and recent or proposed major re-organisations.

A review of a company’s senior safety group minutes can provide important intelligence on safety management weaknesses and strengths (eg whether or not lessons from previous safety audits or accidents and incidents have been considered, learned and applied). Such a review also gives a chance to assess whether the senior management team is asking the right critical questions and is routinely receiving the most appropriate information.

A check on any significant accidents and enforcement actions within the previous year, and how related recommendations have been handled, can identify weaknesses. Examination of organisational charts can identify long-term vacancies in key posts, such as trainers and supervisors, which may also point to failures to apply, or weaknesses in, the SMS.

Audit gives the opportunity to test company objectives, high level policies and knowledge at board level, against what is understood and happens at the front line.

There are many quality and safety systems which include auditing and certification schemes eg:

• ISO 9000 – family of standards for quality management systems administered by accreditation and certification bodies (ISO)
• ISO19001, ISO 14001 - International Quality and Environment Certification (ISO)
• ERA/GUI/04-2011/SAF - ERA’s SMS Application Guide on Internal audit (ERA)
• HSG65 – Successful Management of Health and Safety (HSE)
• OHSAS 18001 - Occupational Health and Safety standard (BSI)
• Railway Industry Supplier Approval Scheme (RISAS) (RSSB)
• International Safety Rating System (DNV)
This guidance does not critique these systems but key principles and examples are included throughout and the following basic tips may also help:

**Audit tips**

- The resource applied to auditing should be proportionate to the level of risk
- Plan well – consider intelligence, be very clear on scope and objectives
- Put interviewees at ease
- Be flexible about use of lists of questions – suit the situation
- Open questions will give more information than closed ones that prompt yes or no replies
- Summarise key points at the end of each session
- Look for positives as well as weaknesses and acknowledge them
- There should be no surprises in the report or the close-out meeting (the audit should be used to generate a dialogue about improving the SMS’s application and effectiveness)

The law no longer requires railway SMS holders to obtain third party SMS audits. However, such audits can provide a desirable independent component within the overall monitoring strategy and give assurance that internal audits and other monitoring activities are effective.

**Safety Performance Indicators**

This guidance focuses on setting a monitoring strategy that builds on processes already in place. It refers to indicators that measure old and new controls, derived from safety assurance processes, project risk management and change management. It is therefore sensible to integrate safety assurance processes with the setting of SPIs.

Companies will already monitor some key indicators through safety performance targets. These will typically be reported monthly and presented at a senior safety meeting. Any new SPIs should also be reported on at appropriate levels, as should other safety assurance activities such as audits, inspections, accident recommendations tracking, and competence management assessments.

SPIs can be integrated with other monitoring tools to contribute to safety assurance. For example, investigation reports or safety culture surveys can identify weaknesses that may result in additional SPIs. In addition, good SPIs can detect sudden deterioration in risk controls which other tools may not detect. Audits can assist in evaluating and explaining SPI trends.

Until recently most rail companies have used SPIs that are ‘lagging’ or ‘outcome’ indicators, measuring what went wrong, such as the number of lost time accidents. More companies are now also adopting ‘leading’ or ‘activity’ SPIs, that give a measure of the effort put into the risk management system.

Activity and outcome indicators can complement each other to provide ‘dual assurance’, eg improved driver training (activity) may reduce SPADs (outcome). However, further review may be needed to better understand where results appear to conflict, eg all drivers have received improved training but SPADs have gone up.

RSSB’s *Measuring Safety Performance* gives guidance on setting of activity and outcome SPIs and is a useful resource for reviewing and developing SPIs. This safety assurance guidance therefore limits itself to setting out the benefits of good SPIs, which should:
• Help manage risk
• Complement the safety assurance process
• Enable benchmarking
• Improve efficiency

**Measuring Safety Performance - Principles**

These are a few principles for those involved in setting and reviewing SPIs with more details provided in the RSSB document:

• There should be an on-going sense of unease so that people think about what can go wrong and don't become complacent

• Senior managers should continuously question whether they monitor the right things

• Not every aspect of SMSs can be measured. A few well targeted SPIs, focussed on the critical (the most important barriers to prevent an accident) and vulnerable (those for which there is the least confidence that they will continue to be effective) areas should be selected

• SPIs should be clearly defined so they are consistently recorded, reported and understood across the organisation

• There should be an awareness of the risk of creating disincentives to safety, eg pressure to reach targets may lead to under-reporting( and so there is a need to balance these with positive incentives for reporting accident, near-miss or non-compliance data)

• Activity SPIs should be responsive to change which may prompt a new activity SPI or a change to an existing one

• Activity indicators can be used for a limited period of time and to meet a set of specific objectives, eg to monitor the roll-out of an important safety brief. This requires discipline to stop/change the measure once the objective is achieved, eg a measure of the percentage of adequate staff briefings may stop after 6 briefings and be replaced by a sampling in an annual audit.

**Inspections**

Inspections are more focussed than audits; they usually examine in detail a smaller topic, such as a single location, activity, process or output.

Inspections normally look either at conditions, for example planned general inspections (PGIs) of workplaces, or the outcomes of an activity, such as quality of workmanship of a train maintainer.

In both cases the outcome is assessed against a standard set of criteria and typically results in 'pass/fail' answers. Planned inspections are systematic. The frequency, topic(s) and depth of inspection should all be based on the risk and consequences if the hazard is uncontrolled.

Using the two examples above, if a PGI wasn’t undertaken to check stair treads regularly, then falls may happen more often. Similarly, inadequate quality checks on bearing maintenance may mean shoddy work is tolerated, increasing the risk of bearing failure and derailment.
Inspections should not be ‘box ticking’ exercises. An adequate scrutiny against the standards being applied should be done and recorded. Defects and deficiencies should be put right in a timely way. As with other assurance activities, outputs should be examined for trends. A trend that uniformly and consistently shows no failures may suggest that the standard or examination protocol is not looking at the right things, or that inspections are not being done effectively.

Planned inspections help reduce risk. However, they have the limitation that special preparations may be made to influence the inspector. A degree of randomness, or ad hoc or unobtrusive inspections, can avoid this. Unannounced drugs and alcohol testing is an example of an ad hoc inspection.

Trade Union safety representatives are entitled to perform workplace inspections. These can be more useful if done with the location manager and possibly a member of the safety team present. These inspections may test workplaces against a checklist, which may mirror some of the PGI items. The hazards and unsafe conditions can also be allocated a basic risk level, for example high, medium or low, to assist with prioritising actions.

**Accident Investigations**

Accident investigations can provide information on the effectiveness of systems for inclusion in the overall safety assurance review. Part of the monitoring strategy should therefore be to obtain information on recommendations arising from investigations. RSSB’s Investigation guidance helps with safety assurance through its focus on good accident investigation and integrating the lessons learned from accidents into SMSs.

**Fault Reporting**

The rail industry has various fault reporting systems, such as NIRs (GE/RT8250 Reporting High Risk Defects). The output from these should form part of the monitoring strategy. For example, the review on the monitored information to be conducted by the safety group could include:

- Relevant NIRs – describe the fault
- Actions taken
- Results from actions taken

**Peer Review**

Peer review of safety management within a railway company could include the following examples of semi-independent scrutiny:

- Engineers with operators
- Depot to depot
- Company to company within a franchise group (possibly elsewhere in Europe)

Such reviews help facilitate learning from others, sharing good practice and improvements in SMSs.

Effective peer review may allow less ‘top down’ management. Senior managers may limit their involvement to, for example, suggesting risk topics for review and then later considering the outputs alongside other monitored information.
Planned changes and risk

Processes for managing change are a key part of SMSs. Planning for the change should be closely linked to planning the monitoring strategy. Regular monitoring of change programmes against their outputs can provide assurance that the change is well managed, and provide early indications of emerging problems. This helps control the risks and may generate lessons for the whole company.

Safety culture surveys

Assessing safety culture allows companies to better understand employee attitudes, values and perceptions towards safety, and the company’s approach to managing health and safety. By identifying both strengths and weaknesses this provides useful input into the overall safety assurance process, enabling a company to improve its approach to health and safety. Weaknesses can be considered and rectified before they result in failures or accidents. Such surveys should usually be done no more often than once every 18-24 months. More information on the Safety Culture Toolkit is available on RSSB’s website.

Safety tours by senior managers are not included in this list, though they can also contribute to improved safety management. This is more through leadership and visibility than being part of formal monitoring.

2.2.3 Apply controls

Having assessed the risks and determined how they will be controlled, applying the controls is the day-to-day business of the company, working to its SMS.

2.2.4 Monitor controls

This stage runs in parallel with the company’s on-going activities and the implementation of its SMS (as noted in Table 3). It is crucial to safety assurance and involves a formalised process of checking that controls are properly applied and are effectively controlling risks. Companies should ensure the competence of staff involved in monitoring activities. A good understanding of risk management and monitoring techniques is essential.

2.2.5 Assimilate and Review Information

This stage of the SMS and safety assurance ‘Plan-Do-Check-Act’ cycles is essential for improving safety management. Typically reviews may take the form of monthly or quarterly reports on the progress of SPIs, audit findings, accident investigation and enforcement recommendations, etc. Some safety teams may also suggest actions to the review group.

A good quality review will require the data from the monitoring process to be filtered, assimilated, and presented helpfully. This should result in an informed, risk-based discussion and decision making, leading to improved business performance. Good decision making also relies on presenting appropriate data to the right level of management. Those carrying out the review should understand high-level risks, inherent controls, and be prepared to challenge things that may look good, but have been routinely ignored because they are perceived to be performing well.

It is important that the board/senior executives can compare risks from different sources and prioritise controls, such as those related to operations, maintenance and projects. They should also consider the outcome of safety assurance in the context of wider business risks (such as claims, complaints and reputation). To do this attention needs to be paid to defining the range of risk areas to be discussed and the competence of the attendees to deal with those risks.
In preparing information for review, companies should consider any themes arising from the data, and the correlation (or lack of it) between different data sources. Where possible, apparent contradictions and different stories should be explained. Unexpected data should be carefully investigated for possible explanations, for example:

- Changes over time to data and risk profiles, and trends
- Inadequate independence in the review of the system of management
- Poor identification of measures to show how the SMS is performing
- Statistical anomalies
- Inability to learn from the findings made, eg because of poor communications

RSSB’s Safety Management Systems Principles, in section 3.3.3, gives guidance on the reliability of measurement processes. Those who prepare data for review should be aware of potential problems, such as variations within data. One example worth repeating:

It is not unusual to hear that in a particular month a figure such as zero SPADs is highlighted as good performance. If in the next month there are two SPADs this may be flagged as a poor performance. In fact the system has not changed and the difference may simply be a statistically insignificant variation. If managers praise and blame employees based on these ‘good’ and ‘bad’ data, those at the receiving end may rightly feel they have been treated unjustly – having put the same amount of effort into both months’ performance. Actions based on these types of data would be better founded on a longer period, with statistically significant trends identified and investigated.

Safety Management Systems Principles, Steps 5 and 6, give guidance on data analysis and presentation. Companies would benefit from:

- An effective tracking system for the various elements of safety assurance (audit findings, accident investigation recommendations etc), to help in assimilating information
- Reducing as far as possible the time between data collection and its reporting to the reviewing body
- Appropriate competent staff processing and reviewing the monitored information. For a full SMS review this may be done by a member of the safety team; for a project it may be the person with safety responsibilities for the project.

This approach can be applied to projects and change management, ensuring that risks are assessed, controlled, and the controls checked for effectiveness. Good reviewing should lead, not only to improved delivery of the project/change, but also to better project and change management in future.
Risk Review Meetings

Whether at this stage, or at the start of the cycle, risk review will benefit from structured meeting management and the following basic elements should be included:

Meeting remits

- Advance circulation of papers and agenda
- Defined frequency and length of meetings
- Clear representation, accountability and authority of attendees
- Standing agenda items (e.g., outputs from each of the monitoring processes)
- Clear identification of who should act, how and by when
- Who the minutes and actions go to, including senior managers
- Follow up of previous actions
- Relationship with other meetings (possibly a hierarchy: above, below and across)

2.2.6 Assess new risks and improve controls

After the review of the effectiveness of risk controls, a newly assessed risk profile is developed. Lessons should then be learnt and new or enhanced controls considered.

The RSSB’s Investigation Guidance states that ‘Once lessons have been learned the benefits will be gained through, for example, updated procedures, training and briefing of staff and changes to monitoring and review processes’. The SMS may need to be amended to incorporate such changes, followed by monitoring of the impact and, ultimately, review of effectiveness. RSSB’s Taking Safe Decisions gives guidance on safe decision making and is useful to those managing the ‘improve controls’ stage of the SMS Model.

2.2.7 Follow up on new controls

This stage is the last part of the safety assurance cycle: a process should be in place to ensure that the lessons are integrated into future activities and behaviours. This could be addressed by a tracking system and a standing item at safety meetings on close-out of safety assurance actions.

Close-out should also include:

- Reviewing effectiveness of the Safety assurance actions taken to improve safety management
- Checking that the correct application of the controls is achieving its expected outcomes
- Checking that the whole safety assurance cycle has been effective
2.3 Safety assurance and behaviour

A holistic approach to safety management will consider the wider characteristics of unwritten rules and inherent controls. The Standards Australia handbook [HB 254-2005 Governance, Risk Management and Control Assurance](www.rssb.co.uk) describes inherent controls in terms related to behaviour such as commitment, ethics, communication, trust and an active approach to learning.

Today’s railway industry understands some aspects of this and the concepts are integrated into, for example, the safety culture toolkit in relation to trust, two-way communications and learning from accidents. RSSB’s [Safety Management Systems Principles](www.rssb.co.uk) describes the SMS as comprising arrangements plus SMS ‘enablers’ (i.e., the components, many behavioural, that put it into action). These include behaviours inherent in good risk management, change management and accident investigation.

As these informal aspects of management may or may not be effective it is important to include them within the safety assurance process. There are various ways to address this:

<table>
<thead>
<tr>
<th>Checks on inherent control - Examples</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Underlying Causes</strong></td>
<td>This approach should expose weaknesses e.g., local managers not being trusted or lack of up-to-date competence [see section 1.3 content under the heading opposite]</td>
</tr>
<tr>
<td><strong>RM3</strong></td>
<td>The higher level of maturity determined via the RM3 process leading to the lower level of intrusion. RM3 refers to inherent controls and specifically to some of the key issues, such as organisational culture (RM3 section OC6).</td>
</tr>
</tbody>
</table>
| **Audits - Check for feedback** | Questions could seek:  
  • Examples of health and safety reps’ proposals being implemented  
  • Changes made in response to suggestions from below  
  • High level commitment to changing processes after learning lessons |
| **Perception Surveys** | These could be used to detect early signs of staff/middle management views conflicting with company objectives |

2.4 Change and safety assurance

The GB railway industry includes many companies and a change in one can affect others and, as time goes by, the impact may be compounded. It is therefore important that every change is well managed and SMSs are flexible and responsive so as to:

- Respond to external changes (e.g., an interfacing company’s major project or change in an industry standard)
- Better manage any internal changes (e.g., re-organisation, new activities or actions related to learning lessons from Safety Assurance activities)

Good change management should apply from the senior policy making level to the daily front-line awareness of, and response to, change. Safety assurance is a part of managing change, and an understanding of the sources of change is needed at each stage of the safety assurance model:
The following approach to change can apply to audits or other forms of monitoring in companies and at their interfaces with others. They should give clues to potential problems.

### Safety Assurance Model and Change

<table>
<thead>
<tr>
<th>Safety Assurance Model Stages</th>
<th>Preparation for planned change or known external change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Assess risks and agree on controls</td>
<td>Be aware of the main risk impact from forthcoming changes and enhance or add new controls in response to change</td>
</tr>
<tr>
<td>1 Set monitoring strategy</td>
<td>Decide on any monitoring of the changed situation</td>
</tr>
<tr>
<td>2 Apply controls</td>
<td>Train/brief staff to apply the controls</td>
</tr>
<tr>
<td>2 Monitor controls</td>
<td>Monitor controls</td>
</tr>
<tr>
<td>3 Assimilate and Review information</td>
<td>When assimilating and reviewing data be aware of how changes may have affected it</td>
</tr>
<tr>
<td>4 Assess new risks and improve Controls</td>
<td>With good knowledge of recent changes assess new risk profile then decide on any relevant new controls and apply them</td>
</tr>
<tr>
<td>4 Follow up on new controls</td>
<td>Follow up to ensure close out of actions and lessons learned</td>
</tr>
</tbody>
</table>

### Audit questions related to change

Have there been (or about to be) any recent significant changes?

- New activities/equipment
- Loss of experienced managers/staff
- Mergers/re-organisations

These can point to issues where further scrutiny would be beneficial.

On the other hand, the lack of change in processes may point to issues in need of further consideration:

- Has the format of the report to the senior safety team been changed/improved?
- Has the Human Resources team checked with line managers on updates to recent job adverts and descriptions (or are old ones used)?
- Have the minutes of the senior safety team meeting led to information in publications read by staff?
Company to Company
Safety Assurance

3.1 Introduction
3.2 The Company to Company application of the Safety Assurance Model
3.3 Shared Risk Register
3.4 A culture of shared risk management
3.5 Change and Safety Assurance
3 Company to Company Safety Assurance

3.1 Introduction

This section has four parts:

- A brief introduction on interface risks
- Applying the Safety Assurance Model to interfaces
- The Shared Risk Register
- A short reference to change

Interface Risks

Risks can be exported to or imported from other companies. The control of these risks may be the responsibility of either or both companies involved. The following diagram shows the simple divide of possible risks and controls:

Diagram 4 Risks and controls at the interface

<table>
<thead>
<tr>
<th>Controls</th>
<th>Risks</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ours</td>
<td>Our Risks</td>
<td>Our Controls</td>
</tr>
<tr>
<td>Theirs</td>
<td>Their Risks</td>
<td>Their Controls</td>
</tr>
</tbody>
</table>

Risks at interfaces include many of the significant risks that the industry faces today. For example, the agreement sought by a TOC at the train/platform interface could be:

- The top right box could be: Their Risks = uneven platform surface and Our Controls = warnings to passengers before leaving the train
- The bottom left box could be: Our Risks = new rolling stock with different doors and Their Controls = training of platform staff

Before privatisation interface risks were, in the main, managed within one organisation. Now different companies, with differing interests, priorities and incentives, are legally required (not least by ROGS) to cooperate in managing them. This requires thorough understanding of interface risks, competent staff, dynamic systems and assurance that controls are applied and are effective.

This section focuses on the interfaces shown in the shaded boxes above. A company’s SMS and its safety assurance arrangements will not be effective without systematic consideration of interface risks. This can be achieved by using Shared Risk Registers (see section 3.3). Interfaces with others may include:

- RU with RU (and within that permutations of TOCs, FOCs and OTM operators)
- IM with RU
3 Company to Company Safety Assurance

- IM or RU with contractors and suppliers
- IM or RU with management body for adjacent project

It is important to bear in mind that the drivers for these relationships will differ depending on the legal (eg IM with RU) or contractual (eg RU with supplier) context. An outline framework of interfaces, using the example of a TOC, is shown in Diagram 5 below. This illustrates the range of interface risks and monitoring processes requiring assurance.

This guidance could also be used to assist with non-railway interfaces, such as those with highway authorities, utility companies or with major projects adjacent to the railway.

Diagram 5 Assurance - Outline Framework of Interfaces for a TOC

This outline illustrates the main safety assurance interfaces, suggests some of the monitoring/review techniques available, and lists the various methods of co-operation.

Assurance Techniques & Tools

1. Audit arrangements (internal & external)
2. Setting joint Safety Performance Indicators
3. Inspections and testing
4. Joint accident/incident investigations
5. Fault reporting
6. Peer review
7. Risk assessments for projects and change
8. Supplier assurance arrangements
9. External accreditations (ISO)
This section provides information and examples of good practice for assurance arrangements/activities at the interface between companies.

**ROGS**

The ROGS Regulations set the legal framework for some elements of safety assurance. Schedule 1 (2) (f) says:

*The basic elements of safety management are:...(f) arrangements for the provision of sufficient information relevant to safety-...(ii) between the operator in question and any other transport operator…on the same infrastructure.*

The ROGS guidance expands on this, asking for ‘adequate management of safety information internally and the exchange of such information between transport undertakings and infrastructure managers’.

**Information**

The way a company deals with exchanging safety information should be documented in their SMS. One method is to use a Shared Risk Register (See Section 3.3).

Such interface risk registers are not new, with railway safety cases previously containing lists, for example:

- Interface organisations
- Description of interface risks
- The responsible manager/s
- The forum for joint risk management (e.g., weekly conference calls or integrated control rooms or quarterly high-level meetings)

SMSs have expanded on this and some have detailed descriptions of the interface risks, how they are managed, and how this management activity is checked at a sufficient frequency by companies.

**RM3**

The ORR’s RM3 includes a section (OC5) on System Safety and Interface Arrangements. This means that ORR checks how transport operators manage interface risks. The ORR considers that the continued application and development of RM3 by companies will help them develop their own safety assurance at interfaces. It should also help improve safety assurance between companies and for the whole railway system.

**CSM for Monitoring**

The CSM for Monitoring covers interface risks and the European Rail Agency’s (ERA’s) guide to the CSM will (soon after June 2013) include some examples which may be useful in developing safety assurance based on this guidance.
3.2 Company to Company application of the safety assurance model

Safety assurance is as important for managing risk at the interfaces as it is for in-company risks.

**Diagram 3** shows the path of continuous improvement in managing safety risks, both via SMS application and, running in parallel, the safety assurance model.

In this section, we show how the safety assurance model applies to interface safety risks. As before, the focus is on the core safety assurance elements, but the model relies on doing the right things at all stages of the SMS model.

### Table 7 Safety Assurance Model and Change

<table>
<thead>
<tr>
<th>Stages</th>
<th>Company to Company</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Assess risks and agree on controls</td>
<td>Assess imported, exported and shared risks, including those arising from change and projects, and then agree on controls (either individual or joint, eg alternating inspections or spot checks on dispatch activities)</td>
</tr>
<tr>
<td>1 Set monitoring strategy</td>
<td>Agree the information needed to later check on controls and how to obtain and exchange it</td>
</tr>
<tr>
<td>2 Apply controls</td>
<td>Apply controls, individually or jointly</td>
</tr>
<tr>
<td>2 Monitor controls</td>
<td>Monitor as agreed, individually or jointly</td>
</tr>
<tr>
<td>3 Assimilate and Review information</td>
<td>Individually or jointly obtain, review and filter data from audits, inspections, SPI reports, accident investigations, and change management and project reports</td>
</tr>
<tr>
<td>4 Assess new risks and improve Controls</td>
<td>At senior level, eg Route level, agree a new risk profile based on filtered data, act on it and then agree on new and/or enhanced controls for the new risk profile and who will act and implement them</td>
</tr>
<tr>
<td>4 Follow up on new controls</td>
<td>Review the process and each company may follow up on the other if actions are not taken to agreed timescales</td>
</tr>
</tbody>
</table>

### 3.2 Company to Company application of the Safety Assurance Model

In this section the concept of a log of risks, leading to a system for managing these risks, a Shared Risk Register, is introduced. It is developed in detail in section 3.3.

In this section, the safety assurance model is applied to the functioning of a SMS, or parts of an SMS, or to the functions of a company. This is described in sections 3.2.1-7 below. In parallel with this, a project interface risk example is progressed at the end of each stage as immediately below:

In this section, we show how the Safety Assurance Model applies to interface safety risks. As before, the focus is on the core safety assurance elements, but the model relies on doing the right things at all stages of the SMS model.
Project Risks - Example

The following fictitious example of a major project is outlined at each stage of the model below in the same coloured boxes:

At a terminal city station four new platforms are to be built with an overhead line power supply.

The main actors are the IM that owns the station and the main RU, but other RUs will also be affected.

3.2.1 Assess risks and agree on controls

From a list of the company’s main hazards compile a log of interface risks. Some Network Rail Routes have developed such logs in the form of a matrix of imported/exported/shared risk. The Industry Shared Risk Database (ISRD) (See Appendix A), which provides guidance for RSSB members about managing risks shared between duty holders on the mainline railway, can help in building a risk log across functions, such as:

- Operations
- Maintenance (infrastructure and rolling stock)
- Projects

Identify the interface companies for each of these interface risks (ISRD may help), such as:

- Infrastructure manager
- Railway undertakings including lead TOCs and other TOCs and FOCs
- Other transport interfacing companies such as non-mainline RUs and LUL
- Suppliers (infrastructure and rolling stock)

The shared risks may be assessed in different ways and options could include a company:

- Reviewing all interface risks
- Conducting joint risk assessment exercises separately with each interface company (eg line/route joint risk assessments)
- Conducting a joint risk assessment exercise with all the interfacing companies present

Network Rail has developed ‘Bow-Tie’ diagrams for interface risks such as those at the platform/train interface. (‘Bow-Tie’ diagrams summarise (in the left hand bow) the potential actions that could prevent an undesired event (the bow-tie’s knot) happening. The right-hand bow details the actions that might minimise the event’s consequence.) These diagrams could be reviewed jointly to identify improved controls.

The remit for meetings assessing interface risks should be similar to that described at the end of sub-section 2.2.5 but will probably have additional requirements regarding inter-company communications and contact details.

One option could be to develop a template on interface risks between two companies. For example, one company could:

- Use the ISRD to help select the top 10 risks,
- Identify the key controls,
Select activity and output SPIs to measure (Noting the relationship with any current Joint Safety Improvement Plan (JSIP))

Section 3.3 on the Shared Risk Register offers a detailed process and template for following through the safety assurance model from this first stage, then the assessment of shared risks, through to deciding on the new controls.

Analyse the register of interface risks and agree with interface companies what individual and jointly agreed controls are needed, eg:

- Individual; such as driver competence systems
- Joint; such as speed checks or spot checks on dispatch activities

1 Project Controls

The IM and RU review the register of risks and agree on, and ownership of, individual and joint controls, eg:

- Weekly briefing of key staff
- Regular checks on signage (one party may install and move signs as the project develops and the other’s staff may feedback on their effectiveness in a Project Log Book)
- Regular checks on passenger areas for hazards

When developing improved safety assurance for interface risks, it is important to understand existing interface safety assurance arrangements and either build on or replace them. This may mean additions/changes to roles and responsibilities to meet the interface information exchange and meeting requirements.

Joint Safety Improvement Plans (JSIPs) developed between Network Rail and TOCs and FOCs are in place on Network Rail Routes. JSIPs demonstrate a commitment to controlling interface risks and to joint target-setting and then monitoring. The JSIP process, at Route level, will have the best results if it is closely integrated into the companies’ safety assurance processes. More comment on JSIPs is included after section 3.2.5.
3.2.2 Set monitoring strategy

The CSM for Monitoring requires that relevant safety-related information on weaknesses, defects and non-compliances obtained through monitoring be exchanged between transport operators and with their contractors. The resources for monitoring should be prioritised to identify anticipated higher risk weaknesses so that these are more likely to be detected at an early stage. Analysis of the log of interface risks to determine what information is exchanged should ensure good management of these risks. This would benefit from being done jointly with the interface companies identified, as happens already in some JSIPs.

Determining how to obtain the information is the next step. Doing this jointly can bring benefits. Typical information sources on interface risks are:

<table>
<thead>
<tr>
<th>Monitoring - Information sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Audit reports</td>
</tr>
<tr>
<td>2. Safety Performance Indicators (SPIs) monitored via Safety Performance Reports (include fault reporting systems)</td>
</tr>
<tr>
<td>3. Inspection reports</td>
</tr>
<tr>
<td>4. Accident investigation reports/recommendations/risk assessments</td>
</tr>
<tr>
<td>5. Fault reporting</td>
</tr>
<tr>
<td>6. Peer review</td>
</tr>
<tr>
<td>7. Consider planned change of risks to ensure good safety assurance is maintained, eg projects and other major changes</td>
</tr>
<tr>
<td>8. Safety culture surveys</td>
</tr>
</tbody>
</table>

In addition external sources referred to in Section 2.2.1 may also provide useful background information.

Audits

The resource applied to auditing should be proportionate to the level of risk. As some shared risks may be high for one interfacing company and low for the other, resourcing needs discussion and agreement.

Options on audits that could be used to assess the control of interface risks include:

<table>
<thead>
<tr>
<th>Interface audits</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Company A audits interface Company B</td>
</tr>
<tr>
<td>• Company A audits itself, then shares the findings with Company B</td>
</tr>
<tr>
<td>• Joint audit by Company A and B on both companies</td>
</tr>
<tr>
<td>• Third party on Company A and/or B, commissioned by A and/or B</td>
</tr>
</tbody>
</table>
Joint audits need not mean additional audits. They could allow for rationalisation, eg Network Rail and TOC conduct a combined/shared station audit to replace their own separate audits.

Some examples of audits noted during the research for this guidance are listed below, with notes on additional good practice that could be employed.

- Selective audits of planned maintenance and electrical testing at facilities with interfaces, eg driver mess-rooms on IM managed stations. Such audits of shared facilities can be planned jointly and findings shared.

- A programme of internal and third-party audits and checks mandated within a rolling stock supplier assurance plan. Under this cooperative process the maintainer applies a programme of audits and these are supplemented by the TOC as required. A proactive approach by TOCs to such an assurance plan should improve assurance on the control of risks down the supply chain, including the role of ROSCOs.

- The adoption by Transport Operators, of RM3 (or adaptations of it), for internal audit of SMSs, or aspects of them. Matching the application of RM3 by Transport Operators should enhance industry safety assurance.

- Coordination of independent audits within a franchise group to increase consistency on audits of the railway undertakings within the group.

- Emergency preparedness can be an important interface risk area, and this should be included in audit regimes, in addition to exercises to test the emergency plans.

In addition to audits the following is also worth noting: One TOC has an annual safety representatives’ day with other TOC plus Network Rail route reps and local managers are invited to attend, to encourage them to work together. Such initiatives can improve understanding of interface risks, and so improve safety assurance.

Safety Performance Indicators

Jointly agreed SPIs can be monitored (eg for a change in operations or during a project).

Internal company SPIs can be shared with other companies to give assurance through comparison and sharing good practice.

Information on safety performance can be exchanged via reports and reviewed at regular meetings, such as OPSRAMs, with trends analysed and joint solutions sought.

Fault reporting

The rail industry has various fault reporting systems, such as NIRs (GE/RT8250 Reporting High Risk Defects). The output from these should form part of the monitoring strategy.

Better use could be made of rolling stock safety information by exchanging risk-based information between ROSCOs, between ROSCOs and TOCs or FOCs, and between TOCs and FOCs. This should bring further benefits in improved fleet performance.

Cross-industry groups representing the operators of particular rolling stock, along with the ROSCOs, can play an important part in companies’ monitoring strategies – from the initial review of risks, through monitoring controls, to considering improved controls.

At present, there is no comprehensive, structured process for exchanging all the rolling stock safety information that may be useful to others. It is important that all railway undertakings consider the full range of their rolling stock risks and the information available elsewhere in the industry.
Accident investigation recommendations

Good liaison between companies involved in an accident/incident should lead to better investigations, recommendations and learning.

At present OPSRAM meetings discuss closing-out accident report recommendations and in some this extends to RAIB’s recommendations. Network Rail route recommendations panels also discuss progress on recommendations, some with TOCs attending.

The industry could improve its management of investigation recommendations by more structured and cooperative approaches to discussing and closing them.

Planned Inspections

Carefully targeted joint inspection activity brings benefits to all parties. An example would be sharing the results and actions arising from inspections of a multi-user station. The effectiveness of joint inspections can be enhanced by applying agreed criteria for prioritising actions and allocating these to specific managers.

Peer Review

Peer reviews bring benefits from an increased level of independence with up-to-date expertise. They help spread good practice. Examples include sharing of audit reports and other checks between Network Rail and railway undertakings, or between companies within franchise groups. Other peer review activities might include, TOC to TOC testing of CMS arrangements for drivers by driver managers, or on dispatch of trains at stations.

As industry cooperation improves, the industry’s safety groups could act as the focus of peer review activities, from planning through to proactive reviews of good practice and learning from accidents.

Projects and change risks

Transport operators have their own project management processes, such as Network Rail’s GRIP (Guide to Railway Investment Projects). These are likely to include an assessment of shared risks and agreement on controls. However, for some, monitoring may be limited to what is already routinely monitored (eg lost-time accidents). If a project warrants specific new controls then at least some of these should be monitored for effectiveness.

During the research for this guidance we found good examples of coordinated briefing on changes and projects across interfaces. In one example, Network Rail liaised on the construction of a new rail interfacing city tram system on behalf of the rail industry and gave comprehensive briefings to TOCs and FOCs at an OPSRAM meeting.

Safety Culture assessments

Safety culture surveys to assess safety risks at an interface are not common in the railway industry, but they could be of use to each party in shared high hazard environments such as busy stations or major projects. These could assist in identifying communications and other problems and, once reviewed, should assist with consistency and cooperation. Such an approach could highlight underlying concerns or inconsistencies of approach or behaviours, particularly where shared risks are concerned.
3.2.3 Apply controls

Having assessed the risks and determined how they will be controlled, applying the controls is the day-to-day business of each company, working within its SMS.

3.2.4 Monitoring Controls

Each company needs to monitor risk controls, in line with the jointly agreed programme and methods. Section 3.2.2 details each of the elements of the monitoring strategy.

3.2.5 Assimilate and Review Information

Effective review is crucial to assuring safety at the interface. It should be undertaken jointly by the appropriate people from each company to allow well informed decision making. They should be at the right level and have the necessary competences.

Before submission to a review meeting, all relevant data should be collated and filtered to facilitate discussion. See section 2.2.5. for more comment on good information and review.

2 Project Monitoring

The IM and RU also agree on how to check on the various controls and what should be deemed as acceptable, eg:

• Joint audits/inspections to include questions on whether staff have had effective briefings, having agreed that 90% must be completed and all of these must be judged to be effective
• Weekly check on Project Log Book

It is also necessary to agree on how to exchange the information, eg: audit findings relating to shared risks will be sent to the interface company.
5 Project review of monitoring information

All the information should be collated and filtered to be suitable for the level of review, eg:

- The number of inspections undertaken, say 80%, gives limited information, so possibly try:
- A summary of the effectiveness of the implementation of the controls will probably be more useful, eg:
  - A professional judgement on effectiveness of briefings
  - Key problems identified and addressed
  - Key problems still to be resolved

Jointly review the effectiveness of the controls in different situations, eg:

- At a monthly joint meeting with a standing agenda
- In a well-informed, one off, review of relevant data
- When there is a need to resolve particular problems

The review of the monitored information could be conducted in various ways, eg:

- A joint meeting of experts covering all risk types
- A joint meeting of functional experts (eg Operations)
- A company meeting using information from the interfacing company
- Variations of the three bullets above

Joint Review Meetings (See also section 2.2.5)

Information gathered through stages 3.2.4-6 (audits, SPIs etc) will be sent to interfacing companies for them to consider. This may be integrated into the JSIP process. Some issues will need joint discussion about possible action, and most of the information will benefit from joint review. Such discussions may involve more than one interfacing organisation.

Senior managers need to gain assurance on the control of all significant risks. This may not be easy. As the JSIP process develops and cooperation improves companies should give consideration to:

- The potential range of shared risk areas to be discussed, eg operations risks associated with major projects, possessions, properties, Network Rail owned stations, route crime, depots and sidings and Network Rail’s National Delivery Service.
- The benefits of covering all types of safety risks in a single meeting versus separate meetings, noting that relevant organisations need to be represented and have the necessary competent people present.
- Recognising that some issues may merit discussion in more than one meeting (eg maintenance risks may be reported to an OPSRAM but also to a maintenance-only meeting).
- Recognising that some information may need sharing more widely, particularly where there are multiple interfaces, eg Network Rail Route with a lead TOC and with other TOCs/FOCs.
3 Company to Company Safety Assurance

- Structuring JSIPs and industry meetings such as OPSRAM more closely around a safety assurance cycle.
- Maintaining a list of the shared risk registers and safety interface plans of each interfacing duty holder.

Where there is a significant match between a route and its lead TOC, such as in Scotland or Kent, effective communication and review should not be difficult. In other cases more effort will be needed to ensure that the necessary communication and review happens, for example, where there are several TOCs of a similar size to the lead TOC on one Route, or where a large TOC/FOC operates on several routes.

Devising an appropriate framework of joint meetings also needs to take account of the following complicating factors:

- Most managers responsible for interface risks will also manage internal risks that need to be dealt with at the same or other meetings
- Managing interface risks may involve different exchanges of information at different levels of the companies, eg local day-to-day verbal exchanges and company-level quarterly meetings

The exchange of information and meeting structures are evolving as the Network Rail routes and RUs learn from each other.

6 Project re-assessment of risks and agreement on new controls

Change controls and/or monitoring, eg:

- Ensure information on the following week’s changes and risks are supplied to those doing the briefings
- Learn lessons for the management of the next project

3.2.6 Assess new risks and improve controls

After informed review of the monitored data by the relevant review body the new risk profile can be understood and new or enhanced controls of interface risks agreed.

3.2.7 Follow-up on new controls

Follow-up processes should be built into the review processes but additional ad hoc arrangements may be required to allow one company to check on actions allocated to another.

Consideration should also be given to:

- The jointly agreed controls achieving the intended outcomes
- The effectiveness of the actions taken
- The effectiveness of the application of the whole Safety Assurance cycle
3.3 Shared Risk Register

Companies will have in place methods for dealing with some shared risks. Developing a Shared Risk Register (See template in Appendix G) can facilitate a systematic and comprehensive approach to managing all shared risks and a formal, detailed record of roles and actions.

As a first step companies should agree on their mutual need to manage interface risks and how this will be done.

The main elements of a Shared Risk Register would be:

- The interfacing companies
- Description of interface risks
- Defined roles and responsibilities and risk owners
- How the interface is to be managed
- Indicators to be used to measure effectiveness of controls
- What and how information, including indicators, is to be obtained and exchanged
- The methods of review and for agreeing consequent actions

Shared Risk Register – Scale of risk

The resources allocated should be proportionate to the risks. The sample template in Appendix G can be adapted to suit the level of risk. The range of applications in approximate descending order of scale of risk may be:

- A new transport operator with a new SMS
- Merged transport operators developing existing SMSs
- An annual review of a SMS and company risks, including interface risks
- A joint company review of interface risks
- A review of risks before a project with significant rail safety interfaces
- A joint functional review, eg TOC with rolling stock supplier
- A local manager’s day to day management of risk

Preparation for Shared Risk Register

Good preparation for the initial review of joint risks will help make the process efficient and minimise the resources needed. Considerations include:

- Making the review simple, focussing on the main risks
- Considering in advance what you want from your interface partner
- Listing in advance initial views of your company’s main interface risks
- Reviewing the ISRD to check and compare your perceived main risks with the ISRD ranking
3 Company to Company Safety Assurance

It may save time to have some agreed criteria before meeting, to determine which interface risks are to be considered. The following suggestions may help:

- Can a particular risk to you only be controlled by someone else?
- For your risk assessment do you need information from someone else?
- Can a risk to third parties (such as passengers) only be controlled by joint action with someone else?

**Stages of Shared Risk Register**

The stages of the Shared Risk Register will require meetings which may be linked to existing meetings and activities like JSIPs and OPSRAM and should cover:

**Initial meeting:**

- Identifying shared risks
- Considering the adequacy of existing controls
- Identifying new or enhanced controls – joint or individual
- Agreeing monitoring and review arrangements, including:
  - Setting SPIs (see section 2.2.2)
  - Identifying who in each company will be responsible
  - Organising the new controls and monitoring arrangements to make best use of resources, eg add actions X and Y to existing quarterly inspection
  - Reviewing meeting details, eg frequency and who attends

**Review meeting:**

- Review well assimilated information
- Assess new risks and improve controls
- Agree follow up process

A record should be kept of agreed actions and followed up as necessary.
**SPIs and the Shared Risk Register**

Most companies will be used to tracking SPIs, and output SPIs are well established. However, activity SPIs are less well established. Some examples are:

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### Examples of some shared Activity SPIs

(review whether to continue after 6 months)

<table>
<thead>
<tr>
<th>Interface risk</th>
<th>Interface control</th>
<th>Examples of interface activity SPIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Train door trapping and dragging passenger</td>
<td>Training dispatch staff for all trains they may dispatch</td>
<td>% of staff briefed in the past period</td>
</tr>
<tr>
<td>Slipping on concourse of busy junction station</td>
<td>Quick response procedure for spillages</td>
<td>Weekly check of records for time taken to respond to spillages</td>
</tr>
<tr>
<td>Trespass on track over 10 miles of city railway</td>
<td>Drivers report on trespassers and signs of trespassers</td>
<td>Number of outstanding repairs</td>
</tr>
</tbody>
</table>
3.4 A culture of shared risk management

Effective risk management at interfaces requires a culture of shared risk management, with the concept of risk registers included in day-to-day management at every level; for example, a station passenger diversion around building works for a few days or temporary walking route for other TOC staff during a depot refurbishment.

Wherever people come across interface risks relevant to their responsibilities, they should think of how best these can be dealt with, rather than assuming others will manage them. A culture that encourages this improves overall risk management and safety performance. The following check list could help:

A basic checklist for managing shared local risks

- Are there new interface risks posed by or to you?
- Assess the interface risks with the other party/parties
- Agree on any new or enhanced controls
- Agree on how to monitor the controls’ application and effectiveness
- Arrange future review
- Improve if required

3.5 Change and Safety Assurance

The frequent changes in the industry may affect interface risks and as later changes are added the risks may be compounded. As change is proposed interface risks should be reviewed, information exchanged and the framework of meetings reviewed.

Additionally, annual review of all safety assurance processes is a good practice and should detect changed circumstances and risks, the effectiveness of information exchanges and of meetings that deal with safety.
Railway System Safety Assurance

4.1 Introduction
4.2 ORR - Roles and Responsibilities
4.3 Transport Operators – Roles and Responsibilities
4.4 Cooperation and Industry Safety Groups
4.5 RSSB – Roles and Responsibilities
4.6 Safety Assurance Model for the Railway System
4.7 Peer review
4.8 Railway System safety assurance and Improvements
4.9 Change and Safety Assurance
4 Railway System Safety Assurance

4.1 Introduction

Railway system safety assurance relates to the arrangements and activities undertaken by the whole industry to provide confidence to external stakeholders, including funders (the Department for Transport (DfT) and the devolved administrations in Scotland and Wales), passengers and others affected by railway activities and operations.

The Railway Safety Directive (RSD) states that:

(5) All those operating the railway system, infrastructure managers and railway undertakings, should bear the full responsibility for the safety of the system, each for their own part. Whenever it is appropriate, they should cooperate in implementing risk control measures. Member States should make a clear distinction between this immediate responsibility for safety and the safety authorities’ task of providing a national regulatory framework and supervising the performance of the operators.

As previously mentioned in Section 1 there has been a lack of understanding across the industry about the concept of safety assurance. Railway system safety results from all duty holders taking responsibility for their part of the system, co-operating as appropriate and so assuring themselves, both individually and jointly with interfacing companies. Measuring railway system safety assurance is difficult, though performance trends give clues, as RSSB’s Annual Safety Performance Report demonstrates.

Application of the safety assurance model to the railway system is the content of Section 4.6.

4.2 ORR - Roles and Responsibilities

While not directly responsible for either managing risks or for safety performance, ORR has a significant role in the industry’s safety assurance processes.

- Certificating and authorising SMSs
- Monitoring and developing the safety regulatory framework
- Supervising IMs and RUs on the use of their SMSs

The ORR issues safety certificates to railway undertakings and safety authorisations to infrastructure managers on the basis that risks will be controlled in line with their SMSs. The Safety Directive (2004/49/EC) requires the ORR to ‘monitor, promote, and where appropriate, enforce and develop the safety regulatory framework’. The CSM on Supervision will (from mid-2013) require them to ‘oversee compliance with the legal requirement for a railway undertaking or infrastructure manager to use a safety management system to ensure the control of all risks associated with their activities (including the supply of maintenance and material and the use of contractors)’.

The ORR:

- Has developed a supervision strategy and has supervision plans in place
- Collects and analyses information from various sources
- Makes proposals to Government to overcome any deficiencies identified in the safety regulatory framework
The activities of ORR (including enforcement, inspections, follow-up of RAIB recommendations, investigations and reports) contribute significantly to safety assurance of companies, between companies and of the railway system.

ORR’s supervision is risk-based, proportionate, targeted, transparent, consistent, planned and carried out by competent people. Their programme of work is based on an assessment of high, medium and low priorities as described in the document Strategic Risk Priorities.

ORR intends to continue promoting more openness within the industry about sharing assurance information. Problems found and poor practices identified could also be shared so as to address weaknesses.

### 4.3 Transport Operators – Roles and Responsibilities

Transport operators provide the most important input to system safety assurance. For example, ROGS requires that operators produce an Annual Safety Report that includes the findings of safety auditing. Good quality reports will help enhance overall safety assurance. Another example of the wider safety assurance provided by railway companies can be seen in their active participation in regional emergency planning bodies. Transport operators’ responsibilities for managing the direct or indirect risks they control, and those that they export to others are, of course, key.

Previous sections have explored safety assurance for companies internally and at company-to-company interfaces. If safety assurance within and between individual companies is done well this makes a positive contribution to the safety assurance of the whole railway system. Individual companies

Transport operators’ main contribution to system safety assurance is the improvement of the effectiveness of their own SMSs and by cooperating with others. There needs to be:

- Good internal safety assurance
- Good interface safety assurance
- A positive response to ORR’s application of RM3
- High quality ROGS annual reports
- Effective participation in industry safety groups
- Good cooperation in safety management with others, eg via joint safety improvement plans

### 4.4 Cooperation and Industry Safety Groups

RSSB’s 2009 *Duty of Cooperation Guide* provides a summary of the inter-company managerial cooperative arrangements needed to comply with Regulation 22 (Cooperation) of ROGS.

Industry bodies have recognised the importance of system safety assurance. Since mid-2012 improvements have been made by the industry, under the ‘Modernisation of Cooperation’ initiative. Each of the groups established by this initiative will be responsible for a proportion of the mainline railway’s total system risk and each group will provide assurance through its governance structure that the proportion of system risk for which it has a responsibility, is being addressed.

For example, the System Safety Risk Group will address the totality of industry system risk and so play an important role in providing assurance to the Board of RSSB that these risks are both understood and being addressed. On the Wessex Route, the Wessex Route Safety Group will provide assurance to the Alliance Governance Board (for the SWT/Network Rail Alliance) that the systems risks appropriate to the route are both understood and being addressed.

ATOCC’s Operations Council and its sub-groups carry out benchmarking to facilitate communication between best performers and weaker TOCs.
The restructured industry groups resulting from “Modernisation of Cooperation” will play an important role in safety assurance across the industry, at company interfaces and within companies:

**Potential benefits of industry groups to individual companies:**

- Addressing company concerns via a national group
- Sharing safety information and good practices
- Sharing solutions to industry problems
- Comparing with others in the industry
- More exposure to lessons from other industries

The industry safety groups will have different remits and will function differently, dependent on their risks, but will have similar standing agendas, structured around reviewing high-level information, as part of the safety assurance cycle. This may include:

- Reviewing previously selected SPIs (including outcome and activity interface SPIs and other SPIs that may not be interface SPIs but are common to other companies)
- Reviewing progress and key issues from safety audits
- Reviewing the integration of lessons learned from accidents into industry safety management systems
- Reviewing, spreading and embedding examples of good practices
- Reviewing lessons from projects and major changes across the sector
- Reviewing effectiveness of close-out of previously agreed actions
- Dealing with input from and output to other industry groups, and bodies like RAIB and ORR.

**4.5 RSSB - Roles and Responsibilities**

RSSB has a significant role facilitating system safety management and safety assurance. It uses its resources, competence and expertise to inform, educate, take initiatives and coordinate safety cooperation across the industry, thus enhancing safety assurance for companies internally, at interfaces and for the railway system. For example, RSSB’s activities also contribute to ORR’s understanding of risk, via the SRM.

The RSSB Board also contributes to system safety assurance by its systematic review of the main industry safety risks and consequent changes to strategy.

Many RSSB products and services help provide confidence in system safety, and so form part of overall safety assurance, including:

- Collation of safety performance and risk data (eg via the Safety Risk Model, the Annual Safety Performance Report, the Learning from Operational Experience Report and Right Track)
- RSSB’s Board’s annual risk review of safety on GB rail
- Feedback on the application of standards etc by the various Standards Committees
- The Industry Shared Risk Database that helps the industry control shared risks
- Coordination of cross-industry and route level groups, such as Operations Focus Group and OPSRAMs
• Guidance documents, which help the industry’s safety management. Accident investigation guidance, for example, helps the production of good recommendations, which add to safety assurance by addressing problems not identified by other activities.

Knowledge that the industry uses these services, and their use leads to better control of risks, gives assurance to stakeholders (eg SPAD Risk Ranking and guidance documents). A service that gives a view of national risks (eg the SRM) can give direct assurance to stakeholders, as does mandatory distribution of information on discovery of rolling stock faults (eg NIR).

### 4.6 Safety Assurance model for the Railway System

At the industry level there is no ‘controlling mind’ or single body responsible for all safety management of the railway. However, the principles of the safety assurance model are relevant and this can be seen, for example, through industry safety groups’ actions over time. The following table gives examples of the roles of transport operators, ORR and RSSB in the stages of system safety assurance. As before, the core elements of the safety assurance process (defining a monitoring strategy, monitoring and reviewing data) are reliant on the quality of all stages of the SMS cycle.

<table>
<thead>
<tr>
<th>Stages</th>
<th>Company to Company</th>
<th>Examples of roles played by Transport Operators, ORR and RSSB</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Assess risks and agree on controls</td>
<td>Assess risks across the industry including from major change and projects then decide on controls, individual or joint</td>
<td>Transport operators may consider system risks in industry groups and these groups may recommend system and individual company controls</td>
</tr>
<tr>
<td>1 Set monitoring strategy</td>
<td>Decide what information is needed to check on controls and how to obtain and exchange it</td>
<td>Industry groups may agree on a few high level SPIs or other information to measure effectiveness of controls</td>
</tr>
<tr>
<td>2 Apply controls</td>
<td>Apply controls</td>
<td>Transport operators apply controls</td>
</tr>
<tr>
<td>2 Monitor controls</td>
<td>and monitor as agreed</td>
<td>Transport operators monitor controls</td>
</tr>
</tbody>
</table>

Table 8  Safety Assurance Model applied to the Railway System (Continued on next page)
Table 8  Safety Assurance Model applied to the Railway System (Continued from the previous page)

<table>
<thead>
<tr>
<th>Stages</th>
<th>Company to Company</th>
<th>Examples of roles played by Transport Operators, ORR and RSSB</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Assimilate and Review information</td>
<td>Obtain, review and filter joint and individual data from audits, inspections, SPI reports, accident investigations and major project reports</td>
<td>Industry groups may have a resource to filter the data before it is assessed by the group</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ORR collates information on SMS controls gained from its inspections and application of RM3.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RSSB may process data for the use of industry groups in addition to obtaining and analysing data for the general use of the industry, eg via the SRM</td>
</tr>
<tr>
<td>3 Assess new risks and improve controls</td>
<td>At national or possibly route level agree new risk profile based on filtered data and act on it. Then decide on new controls, individual or joint</td>
<td>Industry groups may formally review new risk information after a period of applying new controls and then agree new or enhanced controls</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ORR regularly reviews risks as its work programme is risk based and this may lead ORR to recommend new controls</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RSSB’s board regularly reviews the main industry safety risks and may support the process for agreeing new controls</td>
</tr>
<tr>
<td>Follow up on new controls</td>
<td>Check that lessons are learned and applied</td>
<td>Industry groups may follow up on previous actions</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ORR will follow up on its recommendations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RSSB may raise outstanding actions at industry meetings</td>
</tr>
</tbody>
</table>

Note – At the review stage there are many reports and sources of information that may be used; eg, RAIB reports, ASPR, ORR annual reports, PIM, RIDDOR output.

Note – RAIB also contributes to the safety assurance of the whole railway system, particularly via its investigation and special topic reports which provide important information on lessons to be learned, and this RAIB assurance role is policed by the ORR. Industry safety groups and individual transport operators should review these reports and act on applicable lessons.

4.7  Peer Review

As industry cooperation develops and improves, the safety groups have the opportunity to act as the focus of peer review activities across their constituencies, from planning through to the review of good practices and other lessons. For example, the nuclear industry has developed a programme to help members of WANO compare their operational performance against best international practice through an in-depth, objective review of their operations by an independent team from outside their organisation.

The review, carried out at the request of the plant, is conducted over two weeks by an international team of staff from other nuclear power plants. These WANO peer reviews allow members to learn and share the best worldwide insights into safe/reliable plant operation, and thereby improve their own performance.
4.8 Railway System Safety Assurance and Improvements

System safety assurance combines many safety management assurance activities by transport operators, with the industry publicly reporting on its safety performance. The range of industry actions that contribute to safety assurance include:

- ORR’s application of the CSM on Supervision, specifically the requirement to express views and make proposals to the Government to overcome deficiencies identified in the safety regulatory framework
- RSSB Board’s regular review and re-assessment of high level risks
- RSSB’s annual Learning from Operational Experience reports which include lessons from other industries and countries, eg the RAF Nimrod crash in 2006
- RSSB’s collation of safety performance and risk data via both the Safety Risk Model and the Annual Safety Performance Report
- The cooperation demonstrated via the high level industry groups, which includes aspects of safety assurance such as the reviewing of monitored information and making decisions based on such reviews
- Transport operators’ application of safety assurance at interfaces, (eg by using Shared Risk Registers)
- Continued improvement in safety information supplied by the industry to Government and local authorities and positive responses to their feedback
- Activities of wider industry groups that include representation from passengers and trade unions

Though these activities are not all coordinated, they have led to significant improvements in safety management and performance.

One example of this is the industry’s concerted efforts to analyse the risk from SPADs, to agree controls, monitor them and review and collectively enhance these controls, resulting in the continued significant reduction in the number of SPADs since 2006, with a lesser reduction in overall SPAD risk.

Another is the industry’s efforts to improve safety performance at stations. Improved guidance for staff and managers has led to improvements in cross functional communications, the sharing of good practice on station safety and the promotion of collaborative working amongst all industry partners, representing a step change in industry cooperation.

There is obvious potential for a more formalised approach to monitoring and reviewing system level safety - the ‘Check’ stage of the SMS and safety assurance models.

The industry collectively, and individual companies, provide a level of safety assurance via their interactions with the media, both providing information on safety performance and responding to particular accidents. This assurance can be important in maintaining public confidence that the railways are safe. However, the increased use of social media could escalate the need for suitable and rapid responses. Social media could also be the vehicle for giving these responses and providing assurance.

4.9 Change and safety assurance

Change at national level can have an effect on other parts of the system and when this is compounded by other changes over time the outcome could be negative unless each change and its associated risk is well managed. Good application of safety assurance by companies and industry groups help greatly in controlling risks resulting from change.
Appendices

App A  Related guidance from RSSB
App B  Use of Guidance - Ready Reckoner
App C  Vocabulary
App D  Glossary
App E  Safety Assurance Framework and Plan
App F  CSM for Monitoring – Mapping of requirements
App G  Template for Shared Risk Register
Appendix A

Related guidance from RSSB

RSSB facilitates safety management and Safety Assurance for individual companies and across the railway system through many guidance documents and systems, the most relevant of which are described in this appendix.

RSSB Guidance and Systems – Those included in this Appendix A

- Safety Risk Model and Risk Profile Bulletin * www.safetyriskmodel.co.uk
- Industry Shared Risk Database * http://isrd.rssb.co.uk/
- Investigation guidance *http://www.rssb.co.uk/NP/SMS/Pages/AccidentInvestigationGuidance.aspx
- RISAS/ Supplier Assurance *http://www.rssb.co.uk/NP/SCHEMES/Pages/RailwayIndustrySupplierApprovalScheme(RISAS).aspx
This table indicates how these RSSB guidance and systems contribute to safety assurance.

<table>
<thead>
<tr>
<th>Service</th>
<th>Company</th>
<th>Co-Co Interface</th>
<th>System (stakeholders / society)</th>
<th>Potential contribution to safety assurance</th>
</tr>
</thead>
<tbody>
<tr>
<td>RISAS/ Supplier Assurance</td>
<td>RISAS gives direct supplier assurance of rolling stock overhaul of critical products/services</td>
<td>Knowledge that neighbours use this system should give a good level of confidence</td>
<td>Limited impact on direct assurance of industry stakeholders so far</td>
<td>(System)</td>
</tr>
<tr>
<td>Industry Shared Risk Data base (ISRD)</td>
<td>Indirect impact but can assist with selection of investigation recs and SMS controls</td>
<td>Limited impact but can be used to inform discussion with neighbours on shared risks</td>
<td>Limited impact on confidence of industry stakeholders so far</td>
<td>(Co-Co)</td>
</tr>
<tr>
<td>Investigation Guidance</td>
<td>Improved accident investigation should be the result, leading to confidence that accident risk is reduced</td>
<td>Improved accident investigation should result, leading to confidence that shared accident risk is reduced</td>
<td>Improved accident investigation should result, leading to confidence that industry accident risk is reduced</td>
<td>(Company, Co-Co, System)</td>
</tr>
<tr>
<td>SMS Principles guidance and good practice</td>
<td>Using the guide to improve SMSs will give some level of safety assurance</td>
<td>Use of the guide should allow better targeted TOC/NR controls and get/give some confidence from/to neighbours</td>
<td>Others’ use of the guide to improve SMSs across the industry will give some level of industry confidence</td>
<td>(Company, Co-Co, System)</td>
</tr>
<tr>
<td>Safety Risk Model</td>
<td>Minimal safety assurance at company level</td>
<td>Minimal safety assurance at interfaces</td>
<td>Presence and use of system gives high level of safety assurance as it provides a view of national risks and is probably the world’s most advanced rail safety risk model</td>
<td>(Co-Co)</td>
</tr>
<tr>
<td>Risk Profile Tool (SRM RPT)</td>
<td>Can be used to evaluate company risk profile and compare with national profile so giving some level of safety assurance</td>
<td>Companies can do interface risk profile which gives some level of safety assurance at interfaces</td>
<td>Presence and use of system gives some level of safety assurance to stakeholders</td>
<td>(Company)</td>
</tr>
<tr>
<td>Measuring Safety Performance – SPIs</td>
<td>The use of better risk based indicators will lead to better and direct safety assurance</td>
<td>Joint setting of indicators should lead to better safety assurance</td>
<td>As industry SPIs improves safety assurance will also improve and risks should be better controlled.</td>
<td>(Company)</td>
</tr>
</tbody>
</table>
A1 Safety Risk Model and Risk Profile Bulletin

The outputs from the SRM are issued in the Risk Profile Bulletin (RPB), this contains details of the risk profile and dominant risk contributors on the GB mainline railway. Its purpose is to provide information for use in risk assessments and to inform safety decision making. The document is supported by tables including:

- The frequency, consequence and risk estimates for each hazardous event
- The frequency and risk contributions for all precursors leading to each hazardous event
- A breakdown of risk into key risk areas and selected risk groupings

The SRM can be used to help develop transport operators’ risk profiles using the Safety Risk Model - Risk Profile Tool (SRM-RPT). The tool enables transport operators to:

- Comply with legislation, by providing a suitable and sufficient assessment of their risks
- Identify key risk control measures
- Demonstrate that risk is minimised ‘so far as is reasonably practicable’
- Have more effective safety planning
- Highlight areas where additional controls should be considered

The SRM-RPB and SRM-RPT are available to download from the Rail Risk Portal. The site is open to all, but users must register before access is granted. Anyone requiring training or support in the use of the SRM and its outputs should contact risk@rssb.co.uk.

A2 Industry Shared Risk Database (ISRD)

ISRD provides guidance to RSSB members about managing risks shared between duty holders on the UK mainline railway. This user-friendly database identifies shared risk areas which require a collaborative approach to risk control, clarifying the types of operators involved and suggests where the lead responsibility is likely to lie for each shared risk. The database has been developed around three key stages of accident causation and loss mitigation: hazard prevention, event prevention, loss mitigation.

The database is derived from the Safety Risk Model and it links to the wide body of knowledge contained in RGSs, RSSB research reports and RAIB accident investigations and recommendations.

In addition to its use in considering IM and RU risks, it can be of practical use in reviewing the content of SMS and in making recommendations in accident investigation reports. To use the ISRD, a company representative must register at http://isrd.rssb.co.uk/. The ISRD was being enhanced when this guidance was issued. An updated database should be available from late 2013.

A3 SMS Principles – Moving beyond compliance

The theme of this document is taking SMSs beyond compliance with legislation and industry and company standards, to making them bespoke to organisations’ individual circumstances and risks.

A4 Measuring Safety Performance

Measuring Safety Performance – How to develop and manage safety performance indicators for Britain’s railways includes extensive information on SPIs, which are a central component of safety assurance. It will help railway companies identify the SPIs that are most appropriate to their operations and to ensure their continued effectiveness.
RSSB research project T953 *Enhancing and promoting the use of safety performance indicators* builds on *Measuring Safety Performance* and has developed training/briefing materials to support the industry’s understanding of SPIs. It also tests and develops the guidance by exploring analytical techniques, reporting, understanding other industries’ activities and identifying good practice principles to support benchmarking. It is enhancing the existing guidance adding to the SPI toolkit for the industry to use. This research allows rail industry members to make more informed decisions with respect to safety risk management.

**A5 Investigation guidance**

RSSB’s *Investigation guidance* helps in safety assurance through its focus on good accident investigation and integrating lessons learned from accidents into SMSs.

This guidance is in three parts:

- The role of the senior manager  
  For Senior Managers
- Development of policy and management arrangements  
  For Safety and Accident Managers
- Practical guidance  
  For Investigators

Good accident investigation makes a significant contribution to safety assurance by identifying problems – in the case of near-miss investigations before loss occurs. Such problems may not be identified by other safety assurance activities. Good recommendations then lead to improved application of the SMS.
### Appendix B

#### Use of Guidance – Ready Reckoner

This template provides a quick check for readers to identify the main gaps and the actions they should take. (A part example of possible use is included) These can be used in conjunction with the Safety Assurance Framework and Plan in Appendix E.

<table>
<thead>
<tr>
<th>Stages</th>
<th>What is required internal/ interface</th>
<th>Current status y/n/part</th>
<th>Required actions (high, medium or low priority)</th>
<th>SPIs</th>
</tr>
</thead>
</table>
| 1 Assess risks and agree on controls | Review of all main risks (possibly annually)  
Review change/project risks  
Risk registers for above  
Joint actions on the above  
Agree new/enhanced controls  
Processes for inherent controls  
Processes for assurance of change  
Shared Risk Register | | | |
| 1 Set monitoring strategy | Strategy  
Plan  
To Include the following elements:  
• Audit  
• SPIs  
• Inspection/testing  
• Accident investigation  
• Peer review  
• Risk assessment output  
• Safety culture surveys  
Joint actions on the above elements | Part | Review risks then write strategy which will include existing monitoring activities, plus possible new ones (high) | Integrate risk review with a review of SPIs and the setting of new SPIs |
| 2 Apply controls | Apply company and any joint controls | | | |
| 2 Monitor controls | Apply the monitoring of the controls  
Joint actions on the above | Yes | Existing monitoring methods are applied | |
| 3 Assimilate and Review information | Process all monitored information for reviewing groups, including interface groups | Part | Better assimilation of information and a programme for the review of key risks, using data from all sources (High) | |
| 4 Assess new risks and improve controls | Reviewing groups to assess the new risks, including interface groups  
Apply new controls | | | |
| 4 Follow up on new controls | Safety team to log and chase up actions  
Similar for industry groups | | | |
**Appendix C**

**Vocabulary**

This safety assurance guidance seeks to provide the GB mainline rail industry with a common understanding of safety assurance vocabulary and it promotes a consistent use of terms that have previously been used with variable understanding of their meanings.

Safety assurance overlaps with supplier assurance and some terminology is common to both. **Securing supplier assurance** - Guidance on the principles of supplier assurance and how to engage with existing arrangements for today’s GB mainline rail industry was published in July 2011. It contains an agreed common vocabulary for the GB mainline rail industry with respect to supplier assurance. It was developed by RSSB and a cross-industry working group which later evolved into the Supplier Assurance Framework Project Group.

The table below repeats the most relevant terms from **Securing supplier assurance** and adds definition text to some of the terms. It also adds an explanation of safety assurance.

**Safety and Supplier Assurance Vocabulary**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accreditation</td>
<td>The granting of the rights to an agent to act as a Certification or Approval Body.</td>
</tr>
<tr>
<td>Assessment</td>
<td>Systematic and documented process for obtaining evidence and evaluating it objectively to determine the extent to which the criteria are fulfilled. The assessment may lead to the issue of an approval, certificate or other authority enabling the assessed organisation to perform a role or supply a product.</td>
</tr>
<tr>
<td>Assurance</td>
<td>A positive declaration intended to give confidence.</td>
</tr>
<tr>
<td>Competence / competent</td>
<td>The quality or state of being adequately knowledgeable and skilled to be able to consistently perform a specific act or task to an agreed level / standard. This agreed level of performance can range from novice to expert. Competence is the measurable outcome from the application of competencies. Additional information from the RS100 Good Practice Guide for Competence Development. Competence is made up of the following components which are known as ‘competencies’: technical skills and underpinning knowledge, non-technical skills (such as situational awareness) and functional skills (such as numeracy). Competencies are the skills (technical, non-technical and functional) and underpinning knowledge that enable someone to demonstrate a certain level of competence.</td>
</tr>
<tr>
<td>Competence Management System (CMS)</td>
<td>A risk-based system that identifies the competencies required to carry out a task, and ensures that those undertaking that task have, and continue to have, the competence required to do it. See ORR Railway Safety Publication 1 - Developing and Maintaining Staff Competence and ‘Engineering Excellence into Competence’ is a guide to developing a Competency Management System, published in June 2012.</td>
</tr>
<tr>
<td>Duty holder</td>
<td>A person or organisation holding a legal duty and, in particular, those placed by the Health and Safety at Work etc Act, the Management of Health and Safety at Work Regulations, the Railways and Other Guided Transport Systems (Safety) Regulations, the Construction (Design and Management) Regulations, and the Control of Major Accident Hazards Regulations.</td>
</tr>
<tr>
<td>Governance</td>
<td>The means by which authority is exercised. Undertaken by a body for purposes of bestowing authority, undertaking proper administration, achieving requisite performance and ensuring propriety.</td>
</tr>
<tr>
<td>Term</td>
<td>Definition</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>Management System Certification</strong></td>
<td>Management system certification provides assurance that the supplier has put in place a management system that makes it capable to comply with specified requirements.</td>
</tr>
<tr>
<td></td>
<td>NB: This means that the certification provides a positive evaluation of the capability of an organisation to comply with specified requirements, not that the requirements have, or will be, met.</td>
</tr>
<tr>
<td><strong>Safety Assurance</strong></td>
<td>Confidence that risks, behaviours and processes that are potential threats to safety are being managed and controlled to acceptable levels through appropriate measures (Not a formal definition but an explanation to give a general understanding)</td>
</tr>
<tr>
<td><strong>Safety Critical</strong></td>
<td>Refer to the ROGS definition in Regulation 23 (in particular paragraph 168 and the definition of ‘safety critical’ work on page 62).</td>
</tr>
<tr>
<td><strong>Safety Management System</strong></td>
<td>The organisation and arrangements established by a company to ensure the safe management of its operations (see ROGS for more detailed information).</td>
</tr>
<tr>
<td><strong>Supplier</strong></td>
<td>The generic term for any organisation or individual that provides, supplies, or seeks to supply, products. The word Contractor may be used to mean the same, particularly with regards to construction.</td>
</tr>
<tr>
<td><strong>Supplier Assurance</strong></td>
<td>The arrangements, implemented by a customer organisation, necessary to establish that supplier(s) are suitably competent, adequately resourced and can consistently deliver their products to the customer’s specification.</td>
</tr>
<tr>
<td><strong>Supplier Management</strong></td>
<td>The generic term for actions, processes and procedures applied by a customer, to ensure effective use of suppliers.</td>
</tr>
</tbody>
</table>
## Appendix D

### Glossary

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSI</td>
<td>Common Safety Indicator</td>
</tr>
<tr>
<td>CSM</td>
<td>Common Safety Method</td>
</tr>
<tr>
<td>CST</td>
<td>Common Safety Target</td>
</tr>
<tr>
<td>ERA</td>
<td>European Rail Agency</td>
</tr>
<tr>
<td>FOC</td>
<td>Freight operating company</td>
</tr>
<tr>
<td>GPG</td>
<td>Good Practice Guide</td>
</tr>
<tr>
<td>GRIP</td>
<td>Guide to Railway Investment Projects</td>
</tr>
<tr>
<td>IM</td>
<td>Infrastructure Manager</td>
</tr>
<tr>
<td>ISO</td>
<td>International Organization for Standardization</td>
</tr>
<tr>
<td>ISRD</td>
<td>Industry Shared Risk Database</td>
</tr>
<tr>
<td>JSIP</td>
<td>Joint Safety Improvement Plan</td>
</tr>
<tr>
<td>NIR</td>
<td>National Incident Report</td>
</tr>
<tr>
<td>NR</td>
<td>Network Rail</td>
</tr>
<tr>
<td>OHSAS</td>
<td>Occupational Health &amp; Safety Assessment Series</td>
</tr>
<tr>
<td>OPSRAM</td>
<td>Operational Risk Reduction and Mitigation Groups</td>
</tr>
<tr>
<td>ORR</td>
<td>Office of Rail Regulation</td>
</tr>
<tr>
<td>OTM</td>
<td>On Track Machine</td>
</tr>
<tr>
<td>PGI</td>
<td>Planned general inspection</td>
</tr>
<tr>
<td>RAIB</td>
<td>Rail Accident Investigation Branch</td>
</tr>
<tr>
<td>RIDDOR</td>
<td>Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (1995)</td>
</tr>
<tr>
<td>RISAS</td>
<td>Railway Industry Supplier Approval Scheme</td>
</tr>
<tr>
<td>RM3</td>
<td>Railway Management Maturity Model</td>
</tr>
<tr>
<td>ROGS</td>
<td>Railway and Other Guided Transport Systems (Safety) Regulations, 2006</td>
</tr>
<tr>
<td>ROSCO</td>
<td>Rolling Stock Operating Company</td>
</tr>
<tr>
<td>RPB</td>
<td>Risk Profile Bulletin</td>
</tr>
<tr>
<td>RPT</td>
<td>Risk Profile Tool</td>
</tr>
<tr>
<td>RU</td>
<td>Railway Undertaking</td>
</tr>
<tr>
<td>SMIS</td>
<td>Safety Management Information System</td>
</tr>
<tr>
<td>SMS</td>
<td>Safety management system</td>
</tr>
<tr>
<td>SPAD</td>
<td>Signal passed at danger</td>
</tr>
<tr>
<td>SPI</td>
<td>Safety Performance Indicator</td>
</tr>
<tr>
<td>SRM</td>
<td>Safety Risk Model</td>
</tr>
<tr>
<td>TO</td>
<td>Transport Operator (defined by ROGS)</td>
</tr>
<tr>
<td>TOC</td>
<td>Train operating company</td>
</tr>
<tr>
<td>WANO</td>
<td>World Association of Nuclear Operators</td>
</tr>
</tbody>
</table>
## Safety Assurance Framework and Plan

This template, with the available information from the current SMS processes, could be used to plot the top 10 risks and the two or three most critical controls for each. Then the existing monitoring arrangements can be added and reviewed for gaps, based on an assessment of what resources should be applied to each of the risks. As the existing arrangements and the filling of the gaps are built up, the plan can be rationalised and activities grouped to match overall resources with the risks, eg audits and inspections may be widened and frequencies changed.

<table>
<thead>
<tr>
<th>Term</th>
<th>Controls</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Audit</td>
</tr>
<tr>
<td>Risk A</td>
<td>Control A1</td>
<td>Annual internal</td>
</tr>
<tr>
<td></td>
<td>Control A2</td>
<td>6 monthly joint with TOC A</td>
</tr>
<tr>
<td></td>
<td>Control A3</td>
<td>Annual third party</td>
</tr>
<tr>
<td>Risk B</td>
<td>Control B1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Control B2</td>
<td></td>
</tr>
<tr>
<td>Risk C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## Appendix F

### CSM for Monitoring – Mapping of Requirements

The main requirements of the [CSM for Monitoring](#) are described in a four page explanation and are mapped below against where they are addressed in this guidance.

<table>
<thead>
<tr>
<th>CSM Article number and requirement</th>
<th>Section of guidance in which this is addressed</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art 1(1) Establishment of a CSM for Monitoring, effective from 7/6/13</td>
<td>P5 Why do we need guidance?</td>
<td></td>
</tr>
<tr>
<td>Art 1(2) Self checking of the application and effectiveness of the SMS then apply corrective actions</td>
<td>P8-10 1.3.1 The SMS and Safety Assurance models working together</td>
<td>The application of the model in sections 2 and 3 also follow through the process from start to finish</td>
</tr>
</tbody>
</table>
| Art 3(1) Extension of the requirements to contractors | P4 Table 1  
Diagram 2 and following text  
Section 1.5 Supplier Assurance | The extension to contractors is also implied throughout sections 2 and 3 |
| Art 3(2) Requirement for a Strategy, Plan, prioritisation, the analysis of information, implementation of an action plan and evaluation of the effectiveness of the process | Section 1.3 Safety assurance model  
Sections 2 and 3 - throughout | 1.3 introduces the model and 2 and 3 apply it, including following through the process from setting the strategy to the review of its effectiveness |
| Art 4(1 and 2) Exchange of safety-related information with other relevant parties | Section 1.3.3 Information  
Section 3.2.5 Assimilate and review information |         |
| Art 5(1) Inclusion of information on application of the CSM in the Annual Safety Report to the ORR | P5 Why do we need guidance?  
Section 4.3 Transport Operators – Roles and Responsibilities |         |
## Template for Shared Risk Register (between 2 companies)

### Interfacing companies
- [Enter company names]

### Date of Risk Review
- [Enter date]

### Attendees
- [List attendees]

### Risk scenario
*eg Platform/train interface*

<table>
<thead>
<tr>
<th>Risks</th>
<th>ISRD information on risks and controls</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>A falling between train and platform</td>
<td>[SRM HEM-06] Major risk requiring controls to lower risk of person falling</td>
</tr>
<tr>
<td>B</td>
<td>Door trapping</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Injury getting off/on train</td>
<td></td>
</tr>
</tbody>
</table>

### New controls (including responsible company)

| A          | maintain adequate white lines (IMS) |
| B          | training of dispatch staff (RU)     |
| C          |                                        |

### Monitoring (eg audit, SPIs, Inspection)

| A          | SPI = adequate white lines within 1 month of inspection and record whether 3 monthly inspections are held |
| B          |                                        |
| C          |                                        |

### Review forum/responsibilities

| A          | 1/4ly joint safety meetings with station manager |
| B          |                                        |
| C          |                                        |

### Review meeting: New controls/actions

| A          | no progress made so escalate to MD |
| B          |                                        |
| C          |                                        |