

Network Rail and Office of Rail
Regulation

**AO/038: Review of Safety Data,
2012-13**

Report

REP/223767/I1

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This report takes into account the particular instructions and requirements of our client.

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Appendix A

Mandate of Review

1 Executive Summary

This review covered the following areas:

- Contractor RIDDOR accident reporting;
- Occupational Health reporting by NR; and
- A review of the standard safety KPIs.

Contractor RIDDOR Reporting

The Reporter Team visited six contractors to review their reporting arrangements. Each had a very well developed set of reporting arrangements and a strong understanding of their legal obligations in reporting RIDDOR accidents to the statutory authority and their contractual requirements to report to Network Rail (NR).

In every case NR was one of several organisations for whom they worked and dependent on size each had systems to cope with working across other industries.

The RIDDOR records of each contractor were checked against accidents reported on the ORR portal. These matched for four of the contractors but on two the contractor had reported more accidents than shown on the ORR records. The reasons for this were not fully apparent. The ORR systems do not give receipts unlike the HSE equivalent and this should be examined.

Occupational Health Reporting

This is the first time the Reporter Team have examined occupational health reporting within NR. NR report some measures within the Safety, Health and Environment Period report and within the Annual Return.

In general the processes are not as well established as the safety KPIs and this is reflected in the scores awarded. NR has recently appointed a Head of Health and Wellness Strategy and there is an increasing focus on this important area.

Using the grading definitions set out in Appendix A, the confidence ratings for the measures examined are:

Hand Arm Vibration Syndrome (HAVS)

The HAVS KPI is rated as D6, as a consequence of the unreliability and inaccuracies associated with data collection for the employee population, current management of exposure, and weaknesses in reporting of RIDDOR reportable cases. This is below the ORR target rating of B2. To achieve a rating of B2, NR will need to put in place a far more robust set of procedures and checks than are currently planned.

Noise

Noise exposure is not currently a measured indicator in NR, and is not reported in the Safety, Health and Environment Performance Report. Noise exposure data is rated as D6. The rationale is similar to the HAVS KPI but is not RIDDOR reportable. The ORR target rating of 'B3' is not currently achieved. To achieve a

rating of B3, NR will need to put in place a far more robust set of procedures and checks than are currently planned.

Exposure to Lead

Exposure to lead is not currently a measured indicator in NR (apart from in the Annual Return) nor do procedures exist to ensure the data is captured. Lead exposure data is therefore not rated. The ORR target rating is B3 but until a set of data capture processes is in place this cannot be achieved.

Exposure to Asbestos

Exposure to asbestos is not currently a measured indicator in NR (apart from in the Annual Return) nor do procedures exist to ensure the data is captured. Asbestos exposure data is therefore not rated. The ORR target rating is B3 but until a set of data capture processes is in place this cannot be achieved.

Musculoskeletal Referrals

This KPI is rated at B2, and relates only to reactive referrals to the NR health service provider, BUPA. The ORR target grade is achieved.

Stress Related Referrals

This KPI is rated at B2, and relates only to reactive referrals to the NR health service provider, BUPA. The ORR target grade is achieved.

Review of the Standard Safety KPIs

Each of the KPIs in this category was subject to review last year. The confidence gradings are summarised below. All remain unchanged from last year.

Fatalities and Weighted Injuries Rate

This was rated B2 at the previous audit following improvements introduced. The KPI rating for this year remains at B2. This matches the ORR benchmark grade of B2. The highest Confidence Rating reasonably possible for this measure is considered to be A2 which will rely on a higher degree of automation within the data collation process between SMIS and the KPI suite.

Accident Frequency Rate

This was rated B2 at the previous audit following improvements introduced. The KPI rating for this year remains at B2. This matches the ORR benchmark grade of B2. The highest Confidence Rating reasonably possible for this measure is considered to be A2 which will rely on a higher degree of automation within the data collation process between the Safety Management Information System (SMIS) and the KPI suite.

Passenger Safety Indicator

This measure was rated B3 at the previous review. The KPI relies on a complex mix of model outputs and actual data and is therefore unlikely to ever be capable of delivering the highest levels of accuracy, but it is a well-documented process that remains stable. B3 therefore remains the rating. The ORR benchmark grading is B3. The highest Confidence Rating possible for this measure is considered to be B3.

Category A SPADs Risk Ranked 20+

The measure was rated A1* at the last review. The process remains robust and therefore the measure remains unchanged at A1* which matches the ORR benchmark score.

Irregular Working

This measure was rated B3 at the last review. NR continues to put a lot of management focus in the area but the rating remains at B3. This matches the ORR Benchmark and is likely to be the highest reasonably achievable score against the current industry culture. In the longer term following a sustained improvement in safety culture both within NR and its contractors then a score of B2 may be achievable.

Infrastructure Wrongside Failures

This measure was rated A1 at the last review. Despite the organisational changes which have occurred, and the changes to the way in which data is collated and reported, the base process remains unchanged and the measure remains at A1. This exceeds the ORR Benchmark of A2.

Route Crime

This KPI was rated B3 at the last review. The procedures remain unchanged from the last audit. The processes for capturing the data are well defined but rely on various sources. Crime data will never capture every event given its nature and B3 remains the appropriate measure. This matches the ORR benchmark of B3 which given the issues around identifying and capturing incidents is considered to be the highest reasonably achievable rating

Level Crossing Misuse

This measure was rated A3 at the last review. The process for the overall KPI is well defined. There remains a degree of unreliability with near miss reporting which is unlikely to improve much beyond its current level. The measure remains at A3. This matches the ORR Benchmark of A3. Any effort to raise this measure higher will require an intensive focus on the reporting of near misses by drivers or increased use of systems such as forward facing CCTV on trains.

Red Zone/Green Zone Working

Because there is no formal KPI requirement there are no clear guidelines on how the data should be recorded and no in-built checks. Accordingly the measure is ranked as C4. ORR has set a benchmark of B3 for the measure. In the view of the Reporter Team, the highest reasonably possible ranking is B2 based on a clear definition of the data to be captured and the process being clearly set out and followed.

2 Introduction

2.1 Background

Arup was appointed by the Office of Rail Regulation (ORR) and Network Rail (NR) in 2009 to undertake the role of Independent Reporter (Part 'A'). This commission requires the Reporter to review a series of measures produced by Network Rail for the ORR to ensure their correctness. These reviews are undertaken as part of a rolling programme and are reported to the ORR in a series of Quarterly Reports. This report covers the Reporter's data assurance activities in Quarter 4 of 2012/2013 to review a series of safety performance measures, the mandate for which is included in Appendix A.

2.2 Audit Methodology

The primary method of investigation has been to hold structured interviews with relevant managers within NR. An initial tripartite meeting was held on the 6th December with ORR and NR to clarify the remit and the approach to undertaking the work. Following this, the Reporter Team held interviews with the central reporting team and subsequent interviews further down the reporting chain. A summary of the meetings held is shown in the following table:

Date	Network Rail Attendees	Location
13/12/12	Head of Health & Wellness Strategy	Milton Keynes
13/12/12	Head of Analysis and Reporting	Milton Keynes
13/11/12	Head of Infrastructure Maintenance Safety & Compliance	Milton Keynes
18/12/12	Corporate S&SD Reporting Manager	Milton Keynes
20/12/12	Director, Safety & Sustainable Development, IP	Waterloo
10/01/13	Occupational Health Specialist	Kings Place, London
11/01/13	Safety Manager, Carillion	Derwent House, Derby
14/01/13	Safety Director, Babcock Rail	Blantyre, Motherwell
17/01/13	Corporate S&SD Reporting Manager, S&SD Data Quality Coordinator	Milton Keynes
17/01/13	Corporate and Regulatory Reporting Manager	Milton Keynes
18/01/13	Route Safety Improvement Manager, LNE	York
21/01/13	Route Safety Improvement Manager, Wessex	Waterloo
21/01/13	Signalling Reporting Manager	Milton Keynes
22/01/13	Team Leader Training and Medicals, Team Leader Medicals, HRSS + team members	Square One, Manchester
25/01/13	Head of Safety, Osborne	Reigate
25/01/13	Head of Safety Health Environment & Quality, Balfour Beatty Rail Ltd	Redhill
28/01/13	Route Safety Improvement Manager, Wales	Cardiff
29/01/13	Senior Health and Safety Advisor, BAM – Nuttal	Ashton in Makerfield
31/01/13	Managing Director, Track Renewals, Colas and	Dacre Street, London

Date	Network Rail Attendees	Location
	Senior HSEA Manager Amey Colas	
04/03/2013	Head of Management Information Reporting and Assurance	Milton Keynes

At each meeting the appropriate processes and procedures were reviewed and data was either verified on site or additional data was provided for subsequent analysis and checks.

2.3 Structure of Report

Section 3 reviews progress made on last year's recommendations¹.

The report then sets out the key findings of this year's review in three sections:

- An overview of the RIDDOR reporting arrangements observed in the six infrastructure projects and asset management contractors selected for review (section 4);
- A review of the current arrangements for the reporting of occupational health data (section 5); and
- An update on the latest position in regards to the standard KPIs reported through the Safety, Health and Environment Performance Report (SHEP) (section 6).

Sections 7 and 8 then respectively present our confidence ratings for each KPI, with their direction of travel since the last review, and recommendations from this review. Finally, section 9 provides a glossary of terms used throughout the report.

¹ AO/022 Data assurance 2011-2012, Q3 Safety Risk, Report of 21 February 2012

3 Review of previous recommendations

No.	Recommendation	Who	When	Progress
2012SAF01	Guidance should be given to ensure that irregular working practices or events, observed on Safety tours or site visits, are reported currently to Control and logged in line with the company Standard.	Rod Reid	June 2012	<p>NR gave the following update on progress on the recommendation: <i>“Guidance is being provided in three ways, through Close Call reporting, Life Saving Rules, and Leading Safety Conversations. These are in part designed to encourage openness to enable NR to better identify their key risk areas and what needs to be done to address them.</i></p> <p><i>The Close Call reporting system and supporting telephone number are now well established, and NR is offering further training for all responsible managers to encourage and support its use. Refresher training for all users is also being offered on an on-going basis. Materials promoting the new telephone number and its benefits are being issued across the company from March 2013, with further communications, promotions and positive news stories to follow as NR start to collect feedback as close call reports are closed out, the numbers of which being reported are increasing.</i></p> <p><i>The Lifesaving Rules have been developed to save lives, but the way they are being applied will also help create a fair culture at Network Rail. They are based on the main threats to life in the rail industry over the past 12 years, and have been written with input from more than 1,000 people across the business. A series of supporting communications have been created, including Lifesaving Rules managers’ packs and booklets for all employees, to familiarise all of NR’s people with the process, and set out what can be expected from staff in the future.</i></p> <p><i>Over 280 of NR’s senior leaders have attended or are booked to attend Leading Safety Conversations sessions, a new approach designed to help have more effective and productive safety tour conversations with employees, contractors and rail industry colleagues. Executives and senior leaders are being encouraged to enrol, with the aim of all attending before the end of the year”</i> The view of the Reporter Team is that the above activities are all important steps forward. However the specific focus of the recommendation is that during last year’s review specific cases were noted of irregular working being observed during safety tours but not being reported in line with the standard. To close this recommendation positive evidence is required that managers are advised to report events in line with the standard. On-going</p>
2012SAF02	Issue an updated Wrong Side Failure procedure for Track reflecting the changed requirements	Charles Hervey	June 2012	<p>There is currently a moratorium on the issue of new or revised standards whilst NR undertakes a root and branch review of all line standards. This means that a new standard cannot be issued. However, a revised Track Engineering Form (TEF) is now on the NR intranet which contains the latest requirements. Alongside this an agreed non-compliance notice is in place which is registered on the standards tracker with confirmation that the standard does not have the up-to-date TEF and that the revised form should be used with a description of the process. This has been briefed out. The revised process is therefore fully documented and in use but the standard</p>

No.	Recommendation	Who	When	Progress
				will not be revised in its current form and may well be superseded by the wider standards review. It is therefore believed that the requirements of this recommendation have been complied with. Closed
2012SAF03	Clearly define the red zone/green zone indicator definitions and set out clearly the data capture requirements for red zone/green zone including requisite checks.	Maintenance Director	June 2012	See section 6.9 of this report. The use of this measure appears to be very limited within NR since the demise of the Infrastructure Maintenance Delivery Unit safety league tables, and the terminology is in less common use than was the case 12 months ago. The NR position on this measure, and the requirements which it supports, must be clarified as no alternative measure of the exposure of staff to the risks from moving trains appears to be in use. Closed and replaced with recommendation 2013SAF03.
2012SAF04	Ensure that the restructuring of the Safety reporting procedures following the move from London to Milton Keynes maintain the current integrity checks	Rod Reid	Dec 2012	The Irregular Working and SPAD data integrity checks previously undertaken by the Safety Data Processor have been maintained within the team at Milton Keynes. An added benefit of the move to the Quadrant in Milton Keynes and the re-positioning of the role of S&SD Data Processor within the Corporate S&SD Reporting Manager's team is that there is now more direct face-to-case access to and on-going communication with the post-holders responsible for SMIS input, and therefore an improved line of communication with the RSSB. Evidence was provided at the meetings of the data integrity checks. Closed

4 Contractor RIDDOR Reporting

4.1 Reporting Arrangements

The requirement for the statutory reporting of accidents is set out in the RIDDOR Regulations. These set out which accidents must be reported and who is responsible for their reporting.

The Reporter team visited six of NR's principal contractors to understand how they carried out RIDDOR reporting alongside fulfilling their obligations for the reporting of accidents to NR under the contract arrangements. The mandate required a mixture of Infrastructure Projects (IP) and Asset Management contractors. After an initial meeting with the Director, Safety and Sustainable Development a list of contractors was agreed covering both areas.

The contractors visited were:

- Babcock;
- Carillion;
- Osborne;
- Balfour Beatty;
- BAM Nuttall; and
- Amey Colas.

The contractors provide works under a variety of different contract types with NR, covering track works, signalling schemes and buildings work. The work also covers work sites both on and off NR's controlled infrastructure. In each case the contractors carry out work for other organisations. This is important to note since they must have in place robust arrangements that cover accident reporting regardless for whom they are working. The statutory responsibility for reporting accidents rests with the employer, i.e. the contractor and not NR.

The levels of sophistication for accident reporting do vary dependent on the size of the organisations involved. Carillion, for example, has a central control function called Airline, based in Sheffield which provides 24 hour cover for accident reporting. Babcock has a similar arrangement with a control room based in Blantyre. Other organisations more typically rely on on-call structures to ensure that reporting is undertaken. In all cases, the contractor requires the reporting of all accidents, whether serious or minor, by staff on site. There is also a contractual requirement to report to NR specified within each individual contract. All accidents, after being reported either to the contractor's control room or to the relevant on call manager, must then be reported to the NDS 24/7 Control Room at Network Rail.

All of the contractors visited had sound processes for disseminating safety data very quickly to their own management teams via the use of status text messages. In the case of more serious accidents these could be quickly escalated to senior management level.

4.2 Reporting to Statutory Authorities

Where the accident triggers any of the reporting thresholds set within the RIDDOR Regulations, then accidents should be reported to the relevant statutory authority. It is important to note that this is an employer's duty i.e. the contractor and not a NR duty. In the case of accidents on the railway this is usually the ORR. However, for accidents that occur off the controlled infrastructure the reporting authority would normally be the HSE. The reporting to ORR is normally done via a web portal provided for this specific purpose. However, accidents are sometimes reported by telephone. (NR reports to ORR by a SMIS data download for accidents it is required to report.)

The ORR provided a spreadsheet with all RIDDOR accidents reported to them via the web portal for the last two years. This did not include any reporting undertaken via the SMIS bulk upload process carried out by NR and other SMIS users. During the contractor visits, the Reporter Team carried out a data check with the accident records for each contractor. All of the contractors visited did not use SMIS for accident reporting and usually reported using the web portal.

A summary of the checks is shown below.

- Carillion – 3 accidents on the ORR spreadsheet compared to 13 shown in the Carillion records.
- Babcock Rail – of the records available at the review the ORR spreadsheet recorded 3 RIDDOR accidents in 2012. Over the same period Babcock's records show 9.
- Osborne – all the records matched.
- Balfour Beatty – all the records matched.
- BAM Nuttall – all the records matched after HSE reported incidents were discounted. One incident recorded by ORR has been subsequently de-classified by the contractor as a RIDDOR following completion of the investigation.
- Amey Colas – all the records matched.

All of the accidents listed on the ORR spreadsheet were recorded by the contractors in their own systems and by NR in SMIS. However, the checks at Babcock and at Carillion did reveal they had more accidents than were listed on the spreadsheet. They were all shown as being reported to the statutory authority within their records. The ORR web portal does not issue receipts (the HSE portal does) so it is difficult to provide positive evidence that the report has been acknowledged. This was discussed with the head of the ORR reporting team who stated that if an accident is reported to HSE incorrectly it will not usually be redirected to ORR. The web portal users could print a screen shot as a record of a report being made but he stated he would look to mirror the practice of issuing receipts as done by the HSE system. Ensuring that reporting is undertaken to the correct authority is a complication in the process, and despite guidance being given, it is perhaps inevitable there will be errors.

An accident reported by BAM Nuttall was originally reported as a RIDDOR event. Subsequently further investigation revealed that the injury was caused outside work. BAM Nuttall records show that they informed ORR that this was no longer a RIDDOR accident. However, the ORR records still show this as a

RIDDOR accident. ORR have a manual process that enables incident status to be changed after further investigation but clearly on this occasion, capture of this change failed.

4.3 Reporting to Network Rail

NR is responsible for reporting all accidents that occur on its infrastructure as part of its overall reporting. This is recorded as part of the Fatalities and Weighted Injuries Rate (FWIR) and Accidents Frequency Rate (AFR) KPIs published each period in the SHEP. The KPIs include all contractor accidents as well as accidents to NR's own staff. These are recorded within SMIS. The NR Safety Reporting team normally become aware of accidents through the NDS 24/7 log. Each accident reported is given a unique reference number. NR supplied detailed SMIS data for periods 7, 8 and 9 showing all accidents recorded. This was compared to the contractor data provided during the Reporter Team visits.

In general the detailed checks found a match for the accidents reported. However, a few discrepancies were found which are summarised below:

- Amey Colas – four accidents were not in SMIS but all were located in contractor depots off the NR infrastructure.
- BAM Nuttall – two incidents recorded in SMIS were missing from their master records. Subsequent investigations showed that SMIS was correct and BAM Nuttall have followed up and confirmed they were on NR infrastructure. As they were in SMIS these were correctly captured in FWIR and AFR.
- Balfour Beatty – there are a number of discrepancies between the Balfour Beatty records and the supplied SMIS data. Across the three periods six incidents were reported in SMIS as Balfour Beatty accidents but were not in their records.

It is apparent that there are currently no routine checks between the contractors and NR, largely due to the time consuming nature of carrying out such an exercise. The checks were made more difficult because the contractor description in SMIS is not always used consistently and company names appear to vary. This is further complicated by the use of sub-contractors within the supply chain. Some of the contractors said they used to get the NDS log which was a useful check on accident reports. Consideration could be given to producing contractor specific summaries from SMIS on a periodic basis generated automatically for at least the principal contractors. This would then provide a simple cross check for the safety reporting teams in the contractor organisations to highlight any discrepancies.

All of the contractors spoken to will investigate all accidents in which they are the Principal Contractor regardless of whether the injured person was a direct employee or a sub-contractor. In many cases the contractors have put in place much tighter controls of sub-contractor resources to ensure they have a direct relationship with individuals. As an example Amy Colas described recent forums they have held with their suppliers, including labour only organisations, to ensure they understand their safety processes including the reporting arrangements. Most of the contractors stated their preference was always to use known individuals, particularly on critical work such as provision of Controller of Site Safety (COSS). This is however not always possible and if new individuals are used they will attempt to observe on site.

In the case of very small sub-contractor organisations, several of the principal contractors stated they had carried out RIDDOR reporting on their behalf to ensure that it takes place. However, in all cases they will carry out the required investigations in accordance with the Line Standard.

4.4 Conclusions

The arrangements for reporting of accidents within the contractors visited were good. There was a high degree of commitment to safety and clear evidence that accidents on work sites were very quickly escalated within the contractor's management team. The need to undertake RIDDOR reporting was clearly understood and each contractor visited had comprehensive records of the accidents they had reported. In two cases the Reporter Team found more accidents on the contractor's records than on the ORR web portal records. In some cases this was because the statutory authority was the HSE. The fact that the ORR do not give a positive receipt means that the contractor does not have a record that the report has been correctly registered and it is recommended that ORR introduce a similar process to HSE.

Carrying out checks between SMIS and the contractor systems proved a challenge due to various reasons, such as inconsistent use of contractor names and differences in named locations. It is recommended that NR produce a simple reconciliation report each period for the main principal contractors as an additional check to ensure that their records match. By focusing on the main Principal Contractors this should capture a large percentage of contractor accidents.

5 Occupational Health Data

5.1 Introduction

This is the first occasion on which Occupational Health data has been reviewed as part of the annual safety review. NR management of occupational health matters, and reporting of ill health under the RIDDOR regulations, is described in the Reporting & Investigation Manual, in a Level 3 Line Standard NR/L3/Inv/3001 “Statutory Reporting of Accidents, Incidents & Occupational Health”, dated 03.12.2011.

NR appointed a Head of Health and Wellness Strategy last year with a remit to improve the focus on overall staff wellbeing and with a long term focus on improving the management of occupational health. In the past, occupational health reporting in NR was almost entirely reactive. However, NR now has proactive medical screening and reporting arrangements in place for the most frequently encountered occupational health conditions, and is increasingly taking a proactive stance on managing exposure levels in respect of the highest risk situations.

In respect of reporting of occupational health conditions, the most comprehensive arrangements are in place for Hand Arm Vibration Syndrome (HAVS) but in many areas there is little in the way of formal process. In respect of exposure, NR has established a number of occupational health guidance briefings which set out ‘safe’ exposure limits for the highest risk situations – HAVS and Noise being the prime examples – and line managers have been tasked with managing employee exposure in real time. It is admitted, however, that in the absence of robust, automated machine usage monitoring technology, adherence to physical exposure limits cannot be assured, and is currently likely to be regularly and routinely disregarded.

Overall, however, there is no single set of occupational health processes setting out the requirements for all categories of diseases and conditions. As an example there is no matrix setting out how each reportable disease within Schedule 3 of RIDDOR should be monitored and reported.

5.2 Occupational Health Reporting Systems and Processes

The occupational health events reviewed in this section are:

- HAVS;
- Noise;
- Exposure to lead;
- Exposure to asbestos;
- Musculoskeletal referrals; and
- Stress related referrals.

5.2.1 HAVS

The NR arrangements fall into five categories:

- Identification of personnel affected or ‘at risk’;
- Identification of the HAVS condition;
- RIDDOR reporting;
- Setting of exposure limits, and briefing these out to relevant Managers and personnel; and
- Annual and 3-yearly assessments, according to circumstances.

Identification of personnel affected or ‘at risk’

This takes two forms:

- Information from the central recruitment team regarding new recruits to relevant employment positions – individuals receive a HAVS questionnaire with their ‘Welcome’ pack; and
- Information from Maintenance Delivery Units (MDUs), giving details of staff in the affected or ‘at risk’ groups, who are to be subject to assessment.

The arrangements are managed by NR’s HR Shared Services (HRSS) centre in Manchester. Whilst the links with recruitment have hitherto been tenuous, the arrangements are now more robust and reliable, but HRSS staff were unable to confirm the response rate to the questionnaire in the ‘Welcome’ pack. There does not appear to be a robust follow up procedure to capture missing responses.

The annual survey and call for information from Infrastructure Maintenance Delivery Managers (IMDMs) is therefore a prime source of data. IMDMs are required to:

- Complete the staff details spreadsheet identifying all staff in relevant employment positions and return this to HRSS;
- Initiate briefing for all relevant staff and confirm to HRSS that this has been done; and
- Distribute occupational health questionnaires to all relevant staff with a postage-paid envelope for return to BUPA, to enable BUPA to establish the current HAVS status of all employees.

Despite recent managerial endeavour to improve the quantity and quality of employee personal data on HAVS, the arrangements in place still fall some way short of capturing all, or nearly all, of the required information, according to the NR Occupational Health Specialist;

- The HAVS staff list – those affected by HAVS or in a ‘risk’ employment category – numbers approximately 7,000 employees, but was believed by the Occupational Health Specialist to be only about 85% accurate.
- HRSS carried out a rigorous ‘data cleanse’ of the staff register in 2011. This reduced the occupational health surveillance register from in excess of 22,000 names to 13,372, still significantly more than the 7,000 mentioned above.
- The return of the annual staff list from IMDUs, properly completed, is improving year on year, but is also felt to be about 85% accurate, with some

IMDUs not returning a list at all. Offending Units are chased by HRSS, with limited success.

- Response rate to the annual health surveillance questionnaire rarely exceeds 65%, despite recent initiatives to improve incentives to employees, or enforce completion prior to leaving the briefing session.

Administration routines in HRSS and within BUPA have historically been very complex, and although the two organisations do corroborate each other's records now, and HRSS Managers undertake routine checks and audits of data, updating staff records from returned spreadsheets and questionnaires remains unreliable.

Identification of the HAVS Condition

BUPA grade staff into one of four categories (tiers) reflecting current HAVS status based on historic knowledge and records, and information declared in the self-assessment questionnaire:

- Tier 1 - those staff with limited exposure, no significant health issues and no HAVS symptoms, and require only a base level of medical surveillance;
- Tier 2 - staff with greatest exposure, and therefore at highest risk, to be screened annually;
- Tier 3 - staff with evidence of, or demonstrated to have, a HAVS condition, and are referred as a result for annual screening; and
- Tier 4 - diagnosed condition, requiring treatment and occupational management of the condition (including restrictions on working).

Employees allocated to a 'Tier' position, or who move from one category to another, will be placed on the appropriate health surveillance plan.

According to HRSS management, of the approximately 13,000 employees on the HAVS surveillance register, 3,423 actually received a medical surveillance screening in 2012 either in the form of a completed questionnaire or a face to face medical. The target is 100%. When the 'missing' employees are factored in – those who have not completed a questionnaire, or have not been properly recorded on an IMDU spreadsheet return – NR's achievement of HAVS screening is likely to be nearer 40% of the population.

RIDDOR Reporting

Employees who have a potential or diagnosed HAVS condition are assessed for fitness to work by BUPA at one of three stages:

- Stage 1 – Fit normal duties, no restrictions;
- Stage 2 – Fit, but with restrictions; and
- Stage 3 – Unfit to work with tools.

RIDDOR reporting is triggered at Stage 1. It should be noted that NR used to report at Stage 2, but as early symptoms of HAVS are recorded at Stage 1, ORR have recently clarified with NR that they require that RIDDOR reporting should be at this stage. The regulations require the onset of HAVS to be reported, but *not* any further, future deterioration. Therefore, re-categorisation of an employee from Stage 1 to Stage 2 is not a RIDDOR reportable event.

RIDDOR reporting is initiated by HRSS in a period return to the central SMIS team at Milton Keynes. The SMIS team is responsible for reporting to ORR under the RIDDOR regulations. Currently, the period report from HRSS to the SMIS team itemises HAVS 'events' for the period – both new cases and changes of status - in the erroneous belief that all such events are RIDDOR reportable. It was suggested at the time of the Reporter visit that the reporting arrangements to SMIS should be amended to ensure accurate onward reporting of RIDDOR reportable events to ORR.

Setting of Exposure Limits & Briefing to Managers and Employees

The Reporter team was shown some of the high quality briefing and information publications which NR has been using recently to raise awareness of HAVS, and how employees can mitigate the impact of tools and equipment which create the symptoms. NR has established risk assessed exposure limits for different types of tools, which set out a maximum safe time duration for use of any one type of tool, or mix of tools, in a shift. It is challenging to ensure that such guidance, however well presented, achieves adherence amongst work gangs where time and workload pressures will be foremost. Furthermore, there is little evidence yet that the requirement to limit use of tools to mitigate or prevent HAVS has been embraced by work planners at DU level.

Medical Assessments

The targets established by NR with BUPA now include:

- Annual assessment and medical for staff who have triggered a Stage 2 diagnosis; and
- 3 yearly medical for all staff in the affected or 'at risk' groups, identified in the annual spreadsheet return.

NR appears to be some way from meeting these targets, as evidenced earlier. It is recognised that the physical logistics of calling staff from remote provincial IMDU depots to 'city centre' medical appointments are challenging, given the nature of shift patterns, travel arrangements and staff availability. A key initiative in this respect is the creation of two new mobile units, which will allow medicals to be taken to the staff in the remoter parts of the network. The first of these units is expected to be available in summer this year.

5.2.2 Noise

In general, the arrangements established for managing the occupational health aspects of exposure to noise are very similar to those adopted for HAVS, notably:

- The annual questionnaire to employees covers noise exposure;
- The annual IMDU staff return covers staff affected or 'at risk' from noise;
- NR have issued briefing material covering risk mitigation, and safe exposure limits; and
- Annual or 3 yearly medical assessments, according to circumstances.

Unlike HAVS, noise-related medical conditions or diagnoses are not RIDDOR reportable. Hearing deficiency, as with failing eyesight, is much more likely to be *not* employment related, but the testing regimes can differentiate noise induced

hearing loss from the normal ageing process. Linking this to work related conditions as opposed to other causes can be more difficult (for instance over use of loud headphones).

5.2.3 HAVS & Noise Exposure Initiatives

NR has been actively seeking to improve both its base data regarding staff affected or at risk, and the management of exposure, in respect of HAVS and noise. Two initiatives are at an advanced stage of development and will begin to be rolled out in 2013:

- Unique Position Numbers (UPN) for all established posts in the organisation, against which will be ‘flagged’ critical duties and responsibilities, including the requirement to work with or adjacent to tools and machinery. This will significantly improve the capture of data about the population of employees concerned.
- Sentinel 2, Swipe Card Access to Tools - this project will allow a range of tool use parameters to be loaded to a ‘chip’ in the personal Sentinel card of each employee authorised, trained and competent to use tools and machinery. The machine is initialised and activated when the employee ‘swipes in’. It is proposed that a warning will be given when usage thresholds are close to being exceeded. This initiative will help to close a significant gap in current managerial process – the regulation of actual equipment use to the established exposure thresholds.

5.2.4 Exposure to Lead and Asbestos

NR has limited data relating to employee exposure to lead and asbestos, and a limited range of proactive measures in place for managing such exposure. Whilst there are procedures that cover the management of lead and asbestos, there are no specific processes setting out how data capture should take place or how records should be reported. As well as general briefing to artisan and maintenance staff involved in such activities such as paint stripping (lead) and repair or refurbishment of old buildings (asbestos), risk assessments will identify potential exposures, and staff will be directed to use sensible precautions, such as the use of face dust masks, “cover all” overalls and other PPE. Health assessments are almost always reactive – when a member of staff reports symptoms or sickness, and usually following a GP referral. In general, similar arrangements apply in respect of other occupational illnesses or diseases.

In regard to RIDDOR reporting of such occurrences, NR is currently reliant on information on sick notes from health practitioners. These often require a degree of interpretation to enable proper coding and categorisation. Managers in the payroll section of HRSS described the work currently being undertaken to provide a comprehensive coding regime for sickness absence in the Oracle payroll database.

Unfortunately, NR’s other payroll system, PSE, is not as flexible as Oracle and doesn’t provide comprehensive coverage. NR are currently rolling out updates to PSE to include the use of standard coding to match the Oracle system. PSE covers the great majority of maintenance staff in the organisation, and therefore the highest risk groups with the greatest exposure to occupational health issues are

currently the least adequately or reliably reported for sickness absence and possible occupational health factors. The long term plan is to replace PSE but this is not likely to happen in the very near future.

NR does not record data on either lead or asbestos in the periodic return. The only reference is a single line within the Annual Return. The 2011/12 Annual Return recorded no instances of referrals to BUPA.

5.2.5 Musculoskeletal & Stress Related Referrals

It should be noted that whilst the mandate requested a check on stress related *absences*, NR actually record *referrals* both in the SHEP and in the Annual Return.

There is a limited amount of data collected in both these areas of occupational health. NR reports only the number of referrals to BUPA, against one of the following categories:

- Occupational condition;
- Condition with occupational element(s); and
- Non-occupational condition.

This is usually a judgement based on a GP's assessment and sick note. Neither of these referral situations is reportable in RIDDOR. As noted above, NR does not keep separate data for stress related *absence*, only for *referrals*, and this is the data recorded in the Health section of the SHEP each period.

5.2.6 Consistency between reported Data (Annual Return) and RIDDOR Data (from SMIS)

Data checks for RIDDOR reporting of HAVS for periods 5, 6 and 7 were undertaken. The checks revealed that the numbers of reported instances from the BUPA data matched with the data recorded in SHEP and reported to ORR as RIDDOR events. The checks therefore show that the number of new cases reported to ORR match with the records. In terms of the last Annual Return the figures reported were inaccurate due to NR reporting only at Stage 2 not at stage 1. Guidance has since changed the reporting requirements.

Noise is not reported through the SHEP and we therefore have not been able to fully check the reported numbers.

Stress related and musculoskeletal referrals data appears to come directly from BUPA data. This data is not checked by HRSS and appeared to go straight to the Occupational Health Specialist. However, the Reporter Team understand she has now left NR. There is no evidence of any checking of this data and currently there is no specified requirement to do so.

Lead and asbestos are not reported periodically within SHEP. The Annual Return showed both as being zero during 2011/12 and no recorded instances are shown within NR's systems.

5.3 Conclusions

Occupational health data is a new area for investigation in the annual Reporter safety review. It was evident from the review that the methods employed in collection of relevant data are unreliable (despite the best efforts of management to improve this position), and provide a low level of confidence in overall accuracy and reliability of the data. In particular, data assurance is weak in the following areas;

- HAVS
 - Identification of the total employee population involved
 - Actual exposure of employees
- Noise
 - Identification of the total employee population involved
 - Actual exposure of employees

The various initiatives underway within NR to improve reporting, recording and accuracy of data, will go some way to addressing some of the current shortcomings within the systems and management processes, but it appears unlikely that the quantum of these initiatives, even if implemented wholly successfully, will raise confidence gradings in all of these areas, other than for musculoskeletal and stress related referrals, above the 'D' level awarded at this review.

NR need to put in place a comprehensive suite of Occupational Health processes. These should set out clearly what monitoring is required and who is responsible for each step of the process. At present it is not possible to see a holistic view of the full arrangements and the role of key managers in each step. Reliance on staff reporting their own symptoms against a fear of loss of livelihood will inevitably lead to under reporting.

The procedures should cover all identified conditions within Schedule 3 of RIDDOR such as leptospirosis as well as the areas covered by this report. The processes should seek to streamline where possible the current processes to simplify what is at present a complex set of arrangements.

5.4 Confidence grading

HAVS

The HAVS KPI is rated as D6, as a consequence of the unreliability and inaccuracies associated with data collection for the employee population, current management of exposure, and weaknesses in reporting of RIDDOR reportable cases. This is below the ORR target rating of B2. To achieve a rating of B2 NR will need to put in place a far more robust set of procedures and checks than are currently planned.

Noise

Noise exposure is not currently a measured indicator in NR, and is not reported in the SHEP. Noise exposure data is rated as D6. The rationale is similar to the

HAVS KPI but is not RIDDOR reportable. The ORR target rating of B3 is not currently achieved. To achieve a rating of B3 NR will need to put in place a far more robust set of procedures and checks than are currently planned.

Exposure to Lead

Exposure to lead is not currently a measured indicator in NR (apart from in the annual return) nor do procedures exist to ensure the data is captured. Lead exposure data is therefore not rated. The ORR target rating is B3 but until a set of data capture processes is in place this cannot be achieved.

Exposure to Asbestos

Exposure to asbestos is not currently a measured indicator in NR (apart from in the Annual Return) nor do procedures exist to ensure the data is captured. Asbestos exposure data is therefore not rated. The ORR target rating is B3 but until a set of data capture processes is in place this cannot be achieved.

Musculoskeletal Referrals

This KPI is rated at B2, and relates only to reactive referrals to the NR health service provider, BUPA. The ORR target grade is achieved.

Stress Related Referrals

This KPI is rated at B2, and relates only to reactive referrals to the NR health service provider, BUPA. The ORR target grade is achieved.

6 Other Safety KPI Review

6.1 Introduction

The KPIs in this section are published in NR's periodic safety report. At the time of the last audit this was called the Safety and Environment Assurance Report (SEAR). However, since then, the format has been changed and some of the measures have changed. The measures covered by this review remain unchanged though. The definitions and data requirements are set out in a document called Safety Key Performance Indicators – Guide to Compilation dated 1st April 2011. It has not been updated to take account of the new SHEP report format although this does not affect any of the KPIs in this section fundamentally. It should, however, be updated to take account of all the relevant changes. As a result all of the definitions within this section remain unchanged.

6.2 Fatalities and Weighted Injuries Rates (FWIR) and Accident Frequency Rate (AFR)

6.2.1 Definitions

FWIR

The weighted number of personal injuries to members of the workforce reported in SMIS. Comprising of those defined as reportable under RIDDOR 95, as well as those which are not reportable, normalised per 1,000,000 hours worked.

AFR

The number of personal accidents to members of the workforce reported in SMIS. Comprising of those defined as reportable under RIDDOR 95, normalised per 100,000 hours worked.

6.2.2 Reliability - Process and Procedures

The procedures for the compilation of FWIR and AFR remain unchanged from the last review. The base information is supplied directly from SMIS for both measures and they both basically use the same data to calculate the measures. The major difference to AFR is that FWIR is a weighted index which scores accidents by the severity of the outcome.

NR has put considerable effort into the reporting of accidents following the issues with under reporting two years ago. NR now monitors the ratios of RIDDOR major accidents to lost time accidents for its own in-house maintenance teams and with Infrastructure Projects and Asset Management contractors. Both are monitored against industry standard ratios to look for trends that suggest either under reporting or an adverse trend in accident levels.

The procedures for the reporting of accidents are well established and documented internally within NR and, as discussed in the earlier section, each of the contractors seen had sound accident reporting processes for reporting accidents whilst working on NR contracts.

However, it is acknowledged that there will always be some level of under reporting of accidents. This will generally apply to the less serious accidents. NR is working hard to encourage staff to report all accidents and the current roll out of Close Call reporting (see section 6.5) will continue this effort.

6.2.3 Data Accuracy

The data for the National Workforce FWIR contained within the National SHEP Period 9 report was checked against both the SMIS database and the KPI graphs spreadsheet provided by Network Rail. The SMIS data was provided for period 07 2012/13 to period 10 2012/13, whilst the KPI graph data covered from period 12 2008/09 to period 10 2012/13. The raw data allowed the SHEP graph to be checked and accurately reproduced from the SMIS data.

The data for the AFR was also checked against the raw data provided and the graph in the SHEP report was accurately reproduced. The data provided was the same as for the FWIR.

6.2.4 General Observations

The process remains stable. Any accident reporting process is unlikely to ever be capable of capturing all accidents and given the size and complexity of NRs requirement to capture accidents involving its staff and contractors, this is especially true. In these circumstances, the NR arrangements are sound.

The data provided from the SMIS database accurately reflected what was produced in the SHEP report.

6.2.5 Conclusions

Following the improvements noted at the last audit, the processes remain sound. The detailed checks carried out with contractors found that the data capture within SMIS was robust and that there were no significant concerns highlighted regarding contractor accidents not being captured.

6.2.6 Confidence Ratings

Fatalities and Weighted Injuries Rate

This was rated B2 at the previous audit following improvements introduced. The KPI rating for this year remains at B2. This matches the ORR benchmark grade of B2. The highest Confidence Rating reasonably possible for this measure is considered to be A2 which will rely on a higher degree of automation within the data collation process between SMIS and the KPI suite.

Accident Frequency Rate

This was rated B2 at the previous audit following improvements introduced. The KPI rating for this year remains at B2. This matches the ORR benchmark grade of B2. The highest Confidence Rating reasonably possible for this measure is considered to be A2 which will rely on a higher degree of automation within the data collation process between SMIS and the KPI suite.

6.3 Passenger Safety Indicator

6.3.1 Definition

Train accident risk as measured by the Precursor Indicator Model (PIM) added to the Fatality and Weighted Injuries for all accidents to passengers at Station Level Crossings and Network Rail Managed Stations normalised by 1,000,000 passenger kilometres.

6.3.2 Reliability - Process and Procedures

The data processes remain unchanged from the last audit. The measure consists of two distinct elements. The Precursor Indicator Model (PIM) is a risk management indicator assessing risk to passengers whilst travelling on trains and is maintained by RSSB. The second element is based on actual accident data on Network Rail managed stations. The Reporter Team have not undertaken an audit of the PIM.

The station accident data is compiled in SMIS and is based on accidents occurring at NR managed stations only.

There is always a likelihood that accidents to passengers will go unreported and it is inevitable that this measure will never be fully reliable. Passengers involved in falls often will not report their accident and there have been cases of quite serious injuries only coming to light much later, often when making a compensation claim.

The way the KPI is compiled means that a fatality on a station would have a disproportionate impact on the measure compared to a fatality to a passenger on board a train caused by a NR incident, e.g. a signalling system issue. NR should consider whether this is the best KPI to measure passenger safety; logic suggests that events should be measured identically between on train events and those at NR major stations.

However, the processes remain well-structured for capturing the data relating to accidents that are reported and there are sensible in-built checks. The move of all the reporting to Milton Keynes appears to have progressed smoothly and had no detrimental impact on the reporting arrangements. The in built data checks were seen during the Reporter Team visit and gave no cause for concern.

6.3.3 Data Accuracy

The raw data for the Passenger Safety Indicator (PSI) was checked against the data provided by both the Network Rail safety team and the SHEP report. The SMIS data covered incidents from period 07 2012/13 to period 10 2012/13 whilst the data provided by the NR safety team covered from period 11 2010/11 to period 10 2012/13. The data from SMIS was found to accurately reflect the data provided by the NR Safety Team and the graph in the SHEP report was accurately reproduced.

6.3.4 General Observations

The overall process for data collation remains stable. As in previous audits the Reporter Team have not carried out any detailed assessment of the PIM which is maintained by RSSB.

6.3.5 Conclusions

PSI as a measure remains unchanged from previous audits. The KPI continues to mix actual safety accident data alongside predicted risk profiles based on the use of PIM data. NR should consider whether PSI is the best overall KPI for measuring Passenger Safety in the future.

6.3.6 Confidence Ratings

This measure was rated B3 at the previous review. The KPI relies on a complex mix of model outputs and actual data and is therefore unlikely to ever be capable of delivering the highest levels of accuracy, but it is a well-documented process that remains stable. B3 therefore remains the rating. The ORR benchmark grading is B3. The highest Confidence Rating possible for this measure is considered to be B3.

6.4 Category A SPADs ranked 20+

6.4.1 Definition

The number of Category A Signals Passed at Danger (SPADs) when risk ranked 20+

“Category ‘A’: when:

- i) A stop aspect or indication
- ii) End of in-cab signalled movement authority or indication (and any associated preceding cautionary indications)
- iii) Verbal and/or visual permission given by a hand-signaller

was, according to immediately available evidence, displayed or given correctly and in sufficient time for the train to be stopped safely at the signal, board or end of in-cab movement authority.”

6.4.2 Reliability - Process and Procedures

Since the last safety audit the safety team has been centralised at Milton Keynes and some of the roles previously undertaken by the London based team have been merged into the Safety Reporting team. However, the processes used to manage Category A SPADs remain unchanged.

All SPADs are reported to the relevant Route Control and subject to a full investigation with the relevant TOC. The SPAD is placed into an investigation tracker and a designated competent person (DCP) is appointed. The Route Operations Risk Advisors (ORAs) carry out the initial risk ranking but this is updated following the full investigation.

The process is managed very closely by the Safety Data Processor who managed the process previously and ensures each SPAD is fully investigated and followed up correctly. The data is crosschecked with RSSB and the TOCs to maintain industry data integrity.

Given the small number of these events the data is managed very tightly, albeit with a large degree of manual record keeping.

6.4.3 Data Accuracy

The SPADs source data was provided in the SMIS download for period 07 2012/13 to period 10 2012/13. This was checked against the data provided for the SHEP and both sets of data were found to be identical. The graph in the SHEP report was accurately reproduced.

6.4.4 General Observations

The process remains sound and to date the move to Milton Keynes has not raised any issues.

6.4.5 Conclusions

The SPAD reporting arrangements continue to ensure accurate reporting of 20+ ranked SPADs.

6.4.6 Confidence Ratings

The measure was rated A1* at the last review. The process remains robust and therefore the measure remains unchanged at A1* which matches the ORR benchmark score.

6.5 Irregular Working

6.5.1 Definition

The number of Potentially Severe and Potentially Significant Incidents of Irregular Working. Namely:

“An act by a person that has a direct potential for safety loss; such an act may occur when a rule, process or procedure is not followed or is not correctly followed.”

6.5.2 Reliability - Process and Procedures

Irregular working continues to be a key focus within NR to improve the on-going reporting of events that in other circumstances may have led to serious consequences. As has been highlighted in previous audits the reporting of irregular working is unlikely to be 100% accurate given the need in many cases for staff to report events themselves.

Irregular working events are initially recorded in either the Route Control log or the NDS 24/7 control log. Each event is subject to a risk assessment with an

initial assessment required within 72 hours of the event. Those recorded as potentially severe or potentially significant are reviewed by the Safety Data Processor to ensure they are followed through correctly. The events get sent to the relevant Route Safety Improvement Manager (RSIM) to review the events and follow up if necessary. Dependent on the RSIM involved these reports are either dealt with personally or are delegated to the Route Operations Risk Advisors.

The S & SD Reporting Manager in Milton Keynes holds a meeting each period with representatives from operations, maintenance, IP and NDS to review the potentially severe and significant events and to review the risk ranking. It remains the case that operations personnel find the concept of irregular working straightforward to understand, given that fact that it grew out of rules violations. The interviews with both the RSIMs and contractors visited did highlight this as an area of concern in managing safety within the industry. Often the events reported through this process involve errors made when there is little additional protection available to protect staff or equipment. Several of the contractors made reference to irregular working events where signallers had failed to protect in accordance with the relevant rules and cleared signals in error toward staff working on the track. A general criticism was made that in these circumstances the contractor would be unable to participate in any investigation and not informed of the outcome even though a serious risk may have been posed to contractor employees. This contrasted sharply with the situation if the error was made by the contractor's own staff.

In practice, contractors generally capture what NR describes as Irregular Working events through their own 'close call' reporting mechanisms. These were all found to be straightforward, easy to understand and user friendly, with good levels of uptake by employees, and a strong managerial drive to put right the things that could be put right. All the contractors have 'internalised' NR's more complicated definitions around irregular working, close call and near miss, to provide high level filtering of their own close call data into the relevant NR categories.

NR continues to roll out processes for close call reporting and was in the process of going live with reporting at the time of the audit. Close calls are events or unsafe conditions which could have led to an accident or loss occurring. This is a much wider definition than irregular working and designed to capture the lowest level precursor safety events.

The industry has now introduced the Close Call 2 reporting system replacing an earlier version. Every contractor spoken to was having difficulty with the revised system which appeared unable to handle bulk uploads. All the contractors visited had better developed close call reporting arrangements than NR, which in some Routes has not yet gone fully live. There continues to be concern with the terminology of close calls, near misses and irregular working but the desire to encourage open reporting of all events is good and should deliver long term benefits. The RSIM for Wessex described their efforts to encourage open reporting without fear of the disciplinary process stifling any learning, to drive long term improvement.

Events reported through the close call processes which constitute Irregular Working are required to be reported to the relevant control by the Close Call team to ensure they are dealt with appropriately.

The Reporter Team understand that NR has set high level targets for the reporting of close calls with an additional executive bonus available if targets are delivered. Care should be taken that this does not encourage quantity over the need to collect relevant data that can improve safety. Care also needs to be taken that the reporting of close calls does not simply become a medium for gathering huge volumes of alleged unsafe condition data that does not lead to any action by management, or get used to provide trend information.

6.5.3 Data Accuracy

The source data for Irregular Working was checked against the SHEP report and was accurately reproduced. A discussion with Network Rail indicated that the SMIS data is categorised based on a set of rules which then produces the different categories which are contained within the SHEP report. This detailed process has not been checked but has been discussed with NR.

6.5.4 General Observations

It is clear from talking to both NR and Contractor safety managers this is seen as an area of on-going concern, particularly in driving improvements in staff safety. Any data management processes in this area start with the requirement to manually collect information on events which inevitably give the opportunity for under reporting.

The drive towards a culture of open reporting will clearly help this process but is likely to take several years to bear fruit.

The reports that are made are generally well managed but the overview processes are unsurprisingly time consuming and resource hungry.

6.5.5 Conclusions

The overall quality of the irregular working data remains the same as the last audit with the on-going potential for under reporting and confusion within some areas of exactly what constitutes irregular working as opposed to a near miss or a close call.

6.5.6 Confidence Ratings

This measure was rated B3 at the last review. NR continues to put a lot of management focus in the area but the rating remains at B3. This matches the ORR Benchmark and is likely to be the highest reasonably achievable score against the current industry culture. In the longer term following a sustained improvement in safety culture both within NR and its contractors then a score of B2 may be achievable.

6.6 Infrastructure Wrongside Failures (IWSF)

6.6.1 Definition

The KPI captures all infrastructure failures which have a hazard index of 50 or above. The definition of this KPI is not included in 'Safety Key Performance Indicators – Instructions for Compilation', the process for collation is instead covered by a document produced by the Asset Reporting Team, called 'Infrastructure WSFs with Hazard Index \geq 50 by Period'. A series of standards by engineering discipline define the ranking process for infrastructure failures. Failures ranked 20-49 are reviewed by each discipline but all those ranked at 50 or above are reported to the Network Rail Board and captured by this KPI.

6.6.2 Reliability - Process and Procedures

Since the previous audit NR has undergone significant changes within the engineering teams driven by the devolution initiative. This has led to fundamental changes in the reporting organisations within the central NR teams now based in Milton Keynes. Previously all IWSF data was compiled by an Asset Reporting Specialist before being published in the SEAR report. Data was provided to the central reporting team for publication and the Asset Reporting Specialist was responsible for not only collating data but also ensuring commentaries were provided to support all 50+ rated failures.

Within the new structure NR has created a new central team called Asset Management Services. This covers all central engineering activities and provides a central focus for all engineering and technical services to support the devolved route teams. At the time of this audit the final structure of this team was still evolving and the changes have impacted on how data is published within the SHEP.

Initially data was provided to the S&SD Reporting Manager for publication by the Corporate Asset Reporting Team who form part of the Asset Information Team. This is a central team responsible for publication of key data. The advantage of this was that the team contained the manager responsible for IWSF data, before the restructuring and move to Milton Keynes. This ensured continuity of production of the KPI data.

However, the IWSF data is now collated by a new team within the Technical Services arm of Asset Management Services. The data collation is undertaken by the Asset Management Analysis Team which forms part of the Management Information and Reporting Authority (MIRA) within Technical Services.

There is a technical specialist across each of the disciplines (the exception is that the Signalling specialist currently reports to the Professional Head of Signalling) who is responsible for the management of data in each individual area.

Within each discipline there is now an individual spreadsheet maintained of the IWSFs ranked at 20+ and 50+. These extract data from the discipline specific records input at Route level. These processes remain unchanged from the previous audit. For example, signalling still uses the well-developed SINC's process.

All risk rankings are initially undertaken by the Route teams and are then reviewed by the Central team. The relevant Professional Head will challenge the rankings in conjunction with the relevant RAM if they were felt to be too high or too low.

The Central team will produce the commentaries for all the 50+ incidents with the relevant RAM. The commentaries have been expanded and now typically involve photographs to help explain the event and focus on lessons learnt and actions taken.

The data is now sent directly from the MIRA team to the S&SD Reporting Manager for input into the SHEP. It is no longer processed through the Corporate Asset Reporting Team. This change from Period 12 means that the data is now supplied directly from the organisation responsible for overall data quality.

One consequence of this change is that there is no formal procedure now covering the collation and publication of the data. The previous process covered the work within the Corporate Asset Reporting Team so a new procedure is required.

A very specific request from ORR at the initial meeting was to look at the reporting of RIDDOR related signalling failures. The requirements of the regulations are very unclear and open to wide interpretation. Signalling Failures are the only RIDDOR events that are not reported by the S&SD Reporting team. However, there does not appear to be absolute clarity on who does report them to ORR. It is not undertaken by the central signalling team but appears to be devolved to the local Route teams. NR should confirm in its procedures exactly who is responsible for reporting to ORR and ensure there is a central record of what has been reported. It would seem sensible that reporting is linked to the current ranking processes as the current guidance in RIDDOR is too vague. This does not impact on the IWSF KPI confidence rating.

6.6.3 Data Accuracy

The source data for Infrastructure Wrongside Failures was provided for periods 7, 8 and 9. The source data and tables in the following period 9 spreadsheets (which produce the graphs for the SHEP) were checked and found to be correct:

- P09__Track Data__Charts_SHEP.xls;
- P09__Buildings and Civils WSFs 20+_Updated v2.xls;
- P09__Telecoms WSFs 20+_v2.xls;
- P09__Signalling_WSFs 20+ v2.xls; and
- P09__Electrical Power Failures_v5.xls.

The graphs produced in the spreadsheets above are fairly automated with the source data driving a number of output tabs which produce the graphs. The graphs from these spreadsheets were checked against the graphs produced in the SHEP and were found to be an accurate reflection. The data from periods 7 and 8 were also checked in the period 9 spreadsheets and were found to be correct, with the previous periods' data updated in the latest period if required.

6.6.4 General Observations

The basic data capture processes remain unchanged from the last detailed audit. However the data collation processes within the central team were still evolving at the time of the review and indeed changes took place during the review.

The fact that the previous manager responsible for reporting was involved in the interim period protected continuity of reporting and was a sensible safeguard. The subsequent elimination of an additional data handling point is sound and has shortened the lines of communication.

To support the change a new data management procedure is required as the previous one is no longer valid.

6.6.5 Conclusions

The process remains sound and the changes in structure at national level have left the basic data capture processes unaffected. IWSFs continue to have a high profile and the reporting processes continue to capture all serious incidents ranked 50+.

6.6.6 Confidence Ratings

This measure was rated A1 at the last review. Despite the changes, the base process remains unchanged and the measure remains at A1. This exceeds the ORR Benchmark of A2.

6.7 Route Crime

6.7.1 Definition

Number of Malicious Acts on Network Rail Managed Infrastructure and at Network Rail Managed Stations per 100 Route Miles.

6.7.2 Reliability - Process and Procedures

The process remains unchanged from last year. Route crime data is sourced initially from Route Control logs, TOC logs where incidents may have missed the NR logs, and from BTP sources. The latter source does flag up incidents not reported elsewhere but the data held by BTP is not openly available for NR to check. All the incidents are logged in SMIS and a summary report is produced by the S&SD Reporting Manager every period, breaking the events down into five key categories. This report is used to create the KPI data in the SHEP.

It is likely that incidents will go unrecorded within the KPI since not every incident will be logged but those that are recorded in Control Logs are reported correctly within the KPI.

6.7.3 Data Accuracy

The SMIS data for Route Crime was compared against the period 07 – period 10 2012/13 data provided by the NR safety team and was found to be accurate. The

graph in the SHEP report was accurately reproduced from the data provided by the NR safety team.

6.7.4 General Observations

The process is dependent on manual reporting and is unlikely to ever pick up all events. This will vary across the various sub categories, however, with key areas such as cable theft much more likely to be accurate (given the impact on the network) than lower level vandalism incidents.

6.7.5 Conclusions

The measure is basically unchanged from the previous audit with no significant change in the reporting arrangements.

6.7.6 Confidence Ratings

This KPI was rated B3 at the last review. The procedures remain unchanged from the last audit. The processes for capturing the data are well defined but rely on various sources. Crime data will never capture every event given its nature and B3 remains the appropriate rating. This matches the ORR benchmark of B3 which, given the issues around identifying and capturing incidents, is considered to be the highest reasonably achievable rating.

6.8 Level Crossing Misuse

6.8.1 Definition

Incidents where a motorised vehicle is struck by, or strikes a train, any incident where a non-motorised vehicles or pedestrian is struck or any near misses with motorised, non-motorised vehicles or pedestrians.

In respect of level crossing incidents, a 'near miss' is an event involving a train which nearly strikes a person or road vehicle, and which either necessitated emergency braking to be initiated by the train driver or occurred too late for such action to be taken.

Where a train strikes a pedestrian and the pedestrian is fatally injured the incident is classed as a 'train striking a pedestrian'.

Where the fatally injured pedestrian is a child (i.e. person under the age of 16 years) or any of the fatally injured occupants of a road vehicle are children, this is captured on the indicator.

Where a train strikes a pedestrian and the pedestrian is not fatally injured the incident is classed as a 'near miss with non-vehicle users'.

6.8.2 Reliability - Process and Procedures

Level crossing misuse is reported initially through the Route Control logs and recorded in SMIS. The incidents are investigated usually by the Route ORAs and followed through to conclusion. The categories of incident type are unchanged.

The main area of unreliability within the measure is the reporting of near misses. These rely on train drivers reporting incidents at level crossings. This does lead to a high degree of subjectivity and it is accepted that the process will not capture all incidents without the universal application of recording technology which is unlikely to be feasible given the sheer scale of NR's level crossing portfolio.

6.8.3 Data Accuracy

Again, the SMIS data for Level Crossing Misuse was compared against the period 07 – period 10 2012/13 data provided by the NR safety team and was found to be accurate. The graph in the SHEP report was accurately reproduced from the data provided by the NR safety team.

6.8.4 General Observations

Given the inherent difficulties in getting accurate data of level crossing misuse, the measure provides a good overview of incidents. Any changes to improve the reporting of near miss data are likely to prove prohibitively expensive to implement.

6.8.5 Conclusions

The overall reporting arrangements remain stable.

6.8.6 Confidence Ratings

This measure was rated A3 at the last review. The process for the overall KPI is well defined. There remains a degree of unreliability with near miss reporting which is unlikely to improve much beyond its current level. The measure remains at A3. This matches the ORR Benchmark of A3. Any effort to raise this measure higher will require an intensive focus on the reporting of near misses by drivers or increased use of systems such as forward facing CCTV on trains.

6.9 Red Zone/Green Zone Working

6.9.1 Definition

There is not a clear definition for the measurement of red zone/green zone working. The current KPI definitions do not include any description of the red zone/green zone measure.

6.9.2 Reliability - Process and Procedures

During last year's audit the Independent Reporter Team carried out a detailed review of the use of red zone/green zone working data. At the time it was pointed out that the use of the data was poorly defined. The Reporter Team met with the Head of Safety in the Maintenance team to discuss the current use of the data.

He informed the team that maintenance has now ceased the use of league tables and that they now make little or no use of red zone/green zone data. The local Workforce Health Safety and Environment Advisors are expected to see that

trends are kept under review but there is no comparison of data between Routes and depots.

There is a single chart for red zone/green zone working published in the SHEP. This is collated directly from Ellipse data compiled by the Depot Planners from the job information provided by site supervisors after the completion of work. This includes the hours worked on site and the method of protection used. There is a target line shown on the graph of 50% green zone level but no explanation of the rationale for the target is given.

Neither the Head of Maintenance Safety nor his team carry out any validation of the data nor do they undertake any specific reviews of the measure. It is now left to each depot to monitor the red zone/green zone split.

6.9.3 Data Accuracy

Data is produced directly from Ellipse data. Within this audit it has not been possible to carry out any verification of the base data as this will require a large sample audit of individual works order completions at depot level.

6.9.4 General Observations

The purpose of collating this data is less clear than at the time of the previous audit. It was recommended at the last review that NR should:

“Clearly define the red zone/green zone indicator definitions and set out clearly the data capture requirements for red zone/green zone including requisite checks.”

This has clearly not happened and the purpose of the data as published in the SHEP is unclear. NR and ORR should agree if this data has value as a national KPI. If there is no value then it should be removed from the KPI list both within the SHEP and as part of future safety audits. If the conclusion is that it is an important indicator then the recommendation from last year’s review should be implemented.

The amount of assurance the measure truly provides on the level of protection to staff is questionable. The definitions of red zone and green zone do not necessarily describe reliably the levels of protection offered to staff. There have been several instances of staff under green zone protection involved in incidents where trains have been signalled into sections in which a green zone possession had been granted to the COSS. The RSIM on LNE described concerns that taking a green zone (or, to be precise, signal protection without additional safeguards) merely relies on the actions of a signaller rather than trackside systems, many of which have high degrees of integrity (e.g. TOWS).

The purpose of the red zone/green zone measure was to evidence the extent to which acceptable levels of protection were provided to maintenance staff working on or about the line. It is doubtful if the measure, with its limited scope and application, fulfilled this objective, but the fact there is now **no** useful measure for this important activity is a cause for concern. From the interviews conducted with both the RSIMs and with major Contractors, it is clear there are significant concerns regarding staff protection, especially following a number of serious possession irregularities.

6.9.5 Conclusions

The value and purpose of this measure is unclear. The use of the planning hierarchy for determining the safest means of protection for the required work is clearly an important control mechanism in ensuring staff are afforded the highest practical levels of protection. However, this measure does not currently reflect the levels of risk involved. The need to measure exposure levels of staff to risk from trains is clearly important and a more effective KPI should be developed between ORR and NR.

6.9.6 Confidence grading

Because there is no formal KPI requirement there are no clear guidelines on how the data should be recorded and no in-built checks. Accordingly the measure is ranked as C4. ORR has set a benchmark of B3 for the measure. In the view of the Reporter Team, the highest reasonable possible ranking is B2 based on a clear definition of the data to be captured and the process being clearly set out and followed.

In response, NR note our ranking and point out that the data is captured in Ellipse; whilst they accept there are some issues with this data, they consider that they have a reasonable handle on totals hours worked in each form of protection down to Section level.

7 Confidence Ratings

7.1 Fatalities and Weighted Injuries Rate

This was rated B2 at the previous audit following improvements introduced. The KPI rating for this year remains at B2. This matches the ORR benchmark grade of B2. The highest Confidence Rating reasonably possible for this measure is considered to be A2 which will rely on a higher degree of automation within the data collation process between SMIS and the KPI suite.

7.2 Accident Frequency Rate

This was rated B2 at the previous audit following improvements introduced. The KPI rating for this year remains at B2. This matches the ORR benchmark grade of B2. The highest Confidence Rating reasonably possible for this measure is considered to be A2 which will rely on a higher degree of automation within the data collation process between SMIS and the KPI suite.

7.3 Passenger Safety Indicator

This measure was rated B3 at the previous review. The KPI relies on a complex mix of model outputs and actual data and is therefore unlikely to ever be capable of delivering the highest levels of accuracy, but it is a well-documented process that remains stable. B3 therefore remains the rating. The ORR benchmark grading is B3. The highest Confidence Rating possible for this measure is considered to be B3.

7.4 Category A SPADs Risk Ranked 20+

The measure was rated A1* at the last review. The process remains robust and therefore the measure remains unchanged at A1* which matches the ORR benchmark score.

7.5 Irregular Working

This measure was rated B3 at the last review. NR continues to put a lot of management focus in the area but the rating remains at B3. This matches the ORR Benchmark and is likely to be the highest reasonably achievable score against the current industry culture. In the longer term, following a sustained improvement in safety culture both within NR and its contractors, a score of B2 may be achievable.

7.6 Infrastructure Wrongside Failures

This measure was rated A1 at the last review. Despite the organisational changes which have occurred, and the changes to the way in which data is collated and reported, the base process remains unchanged and the measure remains at A1. This exceeds the ORR Benchmark of A2.

7.7 Route Crime

This KPI was rated B3 at the last review. The procedures remain unchanged from the last audit. The processes for capturing the data are well defined but rely on various sources. Crime data will never capture every event given its nature and B3 remains the appropriate rating. This matches the ORR benchmark of B3 which given the issues around identifying and capturing incidents is considered to be the highest reasonably achievable rating.

7.8 Level Crossing Misuse

This measure was rated A3 at the last review. The process for the overall KPI is well defined. There remains a degree of unreliability with near miss reporting which is unlikely to improve much beyond its current level. The measure remains at A3. This matches the ORR Benchmark of A3. Any effort to raise this measure higher will require an intensive focus on the reporting of near misses by drivers or increased use of systems such as forward facing CCTV on trains.

7.9 Red Zone/Green Zone Working

Because there is no formal KPI requirement there are no clear guidelines on how the data should be recorded and no in-built checks. Accordingly the measure is ranked as C4. ORR has set a benchmark of B3 for the measure. In the view of the Reporter Team, the highest reasonably possible ranking is B2 based on a clear definition of the data to be captured and the process being clearly set out and followed.

7.10 Occupational Health KPIs

HAWS

The HAVS KPI is rated as D6, as a consequence of the unreliability and inaccuracies associated with data collection for the employee population, current management of exposure, and weaknesses in reporting of RIDDOR reportable cases. This is below the ORR target rating of B2. To achieve a rating of B2 NR will need to put in place a far more robust set of procedures and checks than are currently planned.

Noise

Noise exposure is not currently a measured indicator in NR, and is not reported in the SHEP. Noise exposure data is rated as D6. The rationale is similar to the HAVS KPI but is not RIDDOR reportable. The ORR target rating of B3 is not currently achieved. To achieve a rating of B3 NR will need to put in place a far more robust set of procedures and checks than are currently planned.

Exposure to Lead

Exposure to lead is not currently a measured indicator in NR (apart from in the Annual Return) nor do procedures exist to ensure the data is captured. Lead exposure data is therefore not rated. The ORR target rating is B3 but until a set of data capture processes is in place this cannot be achieved.

Exposure to Asbestos

Exposure to asbestos is not currently a measured indicator in NR (apart from in the Annual Return) nor do procedures exist to ensure the data is captured. Asbestos exposure data is therefore not rated. The ORR target rating is B3 but until a set of data capture processes is in place this cannot be achieved.

Musculoskeletal Referrals

This KPI is rated at B2, and relates only to reactive referrals to the NR health service provider, BUPA. The ORR target grade is achieved.

Stress Related Referrals

This KPI is rated at B2, and relates only to reactive referrals to the NR health service provider, BUPA. The ORR target grade is achieved.

8 Recommendations

No	Recommendation to NR	Benefits	Evidence of implementation	Section	NR Champion	Date
2013SAF01	Consider the production of a standard periodic extract from SMIS to all principal contractors	It will encourage contractors to check their records against SMIS to ensure consistency of reporting	6 months of reports to an agreed list of principal contractors	4	S&SD Reporting Manager	End of June 2013
2013SAF02	The HRSS Periodic report for inclusion in SMIS and the SHEP report should be amended to highlight all new cases of HAVS to ensure accurate onward reporting of RIDDOR reportable events to ORR.	Accurate reporting of RIDDOR events to the enforcing authority	Revised procedure within HRSS	5	Team Leader Medicals, HRSS	End of June 2013
2013SAF03	Develop an appropriate proactive indicator for measuring exposure of staff to trains. Key milestones to include: <ol style="list-style-type: none"> 1. Joint ORR/NR consultation on what is to be measured 2. NR to produce a proposed indicator 3. Final agreement between ORR and NR on the measures for: a) operations staff and contractors; b) maintenance staff and contractors; c) asset management staff and contractors; and d) 	Produce an agreed metric which is relatively easy to capture and allow focus of effort on reducing exposure to the lowest practical levels	Milestone evidence_ <ol style="list-style-type: none"> 1. Notes of joint meetings and options considered 2. NR paper setting out the proposal and any alternatives – should cover data collation process 3. Notes of agreement between ORR and NR 4. Published figures within the SHEP and clear data 	6.9	Head of Workforce Safety, S&SD	By Milestone: <ol style="list-style-type: none"> 1. September 2013 2. November 2013 3. March 2014 4. April 2014

No	Recommendation to NR	Benefits	Evidence of implementation	Section	NR Champion	Date
	infrastructure projects staff and contractors. 4. Publication in the SHEP		management process			
2013SAF04	Update the KPI compilation guide to reflect the new SHEP and recent changes in structure.	Ensure that the procedures for compilation of the KPIs is current.	New KPI Guidelines	6.1	S&SD Reporting Manager	End of June 2013
2013SAF05	Put in place a comprehensive suite of Occupational Health Procedures. These should cover all Occupational Health reporting which can be developed over time. HAVS/Noise/Lead/asbestos to be prioritised but the procedures should cover all other identified health risks. These should cover defined responsibilities for each stage of the process including data management and verification.	Set out clear responsibilities and ensure a fully auditable trail. Ensure full legal compliance.	New procedures including clear statements on line and specialist responsibilities. Evidence of briefing to key managers. Evidence of data verification processes	5	Head of Health and Wellness Strategy	First procedures to be in place by September 2013. Complete process by December 2013
2013SAF06	Review the long term validity of PSI as a measure of passenger safety.	The current measure does not value passenger accidents equally between on train and stations.	Document recording the outcome of a review	6.3	Head of S&SD Support	October 2013
2013SAF07	Put in place a new data capture procedure for IWSF data to reflect the new reporting team.	Ensure the new team structure is properly reflected in a procure.	Publication of new procedure	6.6	Principal Asset Performance Specialist	June 2013

9 Glossary of Terms and Abbreviations

AFR	Accident Frequency Rate
BUPA	British United Provident Association
COSS	Controller of Site Safety
DCP	Designated Competent person
FWIR	Fatalities & Weighted Injuries Rate
HAVS	Hand Arm Vibration Syndrome
HRSS	Human Resources Shared Services
HSE	Health & Safety Executive
HSEA	Health, Safety and Environment Advisor
IMDM	Infrastructure Maintenance Delivery Manager
IMDU	Infrastructure Maintenance Delivery Unit
IP	Infrastructure Projects
IWSF	Infrastructure Wrong Side Failure
LNE	London North Eastern (Route)
MIRA	Management Information & Reporting Authority
NDS	National Delivery Service
ORA	Operations Risk Advisor
ORR	Office of Rail Regulation
PIM	Precursor Indicator Model
PPE	Personal Protective Equipment
PSE	Network Rail Payroll System
PSI	Passenger Safety Indicator
RIDDOR Regulations	Reporting of Injuries, Diseases and Dangerous Occurrences
RSIM	Route Safety Improvement Manager
RSSB	Rail Safety & Standards Bureau
S&SD	Safety & Standards Data
SEAR	Safety & Environment Assurance Report
SHEP	Safety, Health & Environment Performance Report
SMIS	Safety Management Information System

SPAD	Signal Passed at Danger
TEF	Track Engineering Form
TOC	Train Operating Company
TOWS	Train Operated Warning System

Appendix A

Mandate of Review

Mandate for Independent Reporter Part A – Review of safety data, 2012-2013

Audit Title:	Review of safety data, 2012-2013
Mandate Ref:	AO/038
Document version:	Draft
Date:	19 November 2012
Draft prepared by:	Chris Fieldsend
Remit prepared by:	Chris Fieldsend
Network Rail reviewer:	Angelique Tjen

Authorisation to proceed

ORR	Chris Fieldsend	
Network Rail	Angelique Tjen	

1 Purpose

This mandate sets out the scope of work for the Part A Independent Reporter (Arup) to review Network Rail's (NR) safety data. As regulated targets, it is critical that ORR has assurance of the quality of this data.

The period six Safety, Health and Environment Performance Report states that *"The year to date average ratio of 3+ day lost time injuries to RIDDOR major injuries is 3.65 to 1 in line with the benchmark ratio (as recommended by RSSB) of 3 to 1. The year to date ratio for Infrastructure Projects and Asset Management contractors is 1.75 to 1 just below the construction industry average of 2 to 1."* ORR needs assurance that RIDDOR reporting is being accurately recorded for Infrastructure Projects and Asset Management contractors to properly assess NR's full performance against set targets for CP4.

ORR needs continued assurance that Infrastructure Wrong Side Failures (IWSF), Irregular Working (IW) reporting and Green Zone (GZ) v Red Zone (RZ) working is appropriately and consistently reported by different functions and across the industry to effectively assess NR's safety performance, determine the key risks to the railway and set suitable priorities for inspection and investigation.

ORR's vision is of a rail industry that consistently achieves best practice in occupational health. We have recently starting receiving occupational health reports from NR but do not know the quality of the data. We need assurance that the data is accurate and reliable, to confidently assess the extent to which NR is achieving best practice.

2 Background

Arup last reviewed NR's safety data in November 2011 – January 2012. The review found that the quality of the Fatalities and Weighted Injuries Rate (FWIR) and Accident Frequency Rate (AFR) had improved, largely due to new processes established for reporting of staff accidents. The review looked at GZ v RZ working data for the first time and found there were no clear guidelines on how the data should be recorded and no built-in checks. The quality of all other data remained stable and in-line with ORR benchmark grades.

3 Scope

This review should assess the accuracy and reliability of the following KPI's:

- FWIR
- AFR
- Passenger Safety Indicator
- Category 'A' SPADs (signals passed at danger) ranked 20+
- IW
- IWSF
- Route Crimes

- Level Crossing Misuse
- GZ v RZ working
- Occupational health
 - Noise
 - Hand Arm Vibration Syndrome (HAVS)
 - Exposure to lead
 - Exposure to asbestos
 - Musculoskeletal referrals
 - Stress related absence

The reporter should briefly review all KPIs in terms of:

- comment on the reliability, quality, consistency, completeness and accuracy of the reported data
- present a confidence grade for each KPI and comment upon the direction of travel since last reviewed in 2011-2012
- report on progress against recommendations made in 2011-2012 and make appropriate recommendations where necessary

In addition to briefly reviewing all KPI's, the review should consider in detail:

- RIDDOR reporting.
 - Quality of data from Infrastructure Projects and Asset Management contractors
- Occupational health data:
 - Systems and processes for recording and reporting of occupational health data
 - Consistency between reported figures (i.e. Annual Return) and RIDDOR data (from SMIS)

4 Methodology

The Reporter should meet with relevant Network Rail employees to understand any procedural changes [to the processes used to report the above KPIs] since the 2011-2012 report. The Reporter should also review all relevant documentation and systems, and comment upon their quality and fitness for purpose.

The Reporter should outline their proposed methodology to undertake the detailed reviews of Infrastructure Projects and Asset Management contractor RIDDOR reporting and occupational health data.

5 Deliverables

The Reporter should provide a publishable report, including findings, conclusions and recommendations. The report should be prepared in draft form and sent electronically to Network Rail and ORR, at the same time. The Reporter should facilitate feedback (via a tripartite feedback session if appropriate) and provide a revised report with track changes. This should be followed by a final report for publication on ORR's website.

6 Timescales

A fully costed proposal for this work is required by 27 November 2012. Work is expected to commence shortly after following approval by NR and ORR. A draft report is required by 22 February 2013 and a final report is required by 22 March 2013.

7 Independent Reporter remit proposal

The Independent Reporter shall prepare a fully costed proposal for review and approval by NR and ORR on the basis of this mandate. The approved remit will form part of the mandate and shall be attached to this document.

The proposal will detail methodology, tasks, programme, deliverables, resources and costs.

The Reporter should explicitly highlight any conflicts of interest.

8 Confidence grades

The Independent Reporter shall provide a confidence grade for each of the KPIs listed in section three. The confidence grading system in Annex A should be used. For each measure, the Independent Reporter should include the:

- confidence grade for this review;
- commentary on the grade against ORR's benchmark; and
- an indication of the highest achievable grade.

Annex A: Confidence grading system

System reliability grading system

System Reliability Band	Description
A	<p>Appropriate, auditable, properly documented, well-defined and written records, reporting arrangements, procedures, investigations and analysis shall be maintained, and consistently applied across Network Rail. Where appropriate the systems used to collect and analyse the data will be automated. The system is regularly reviewed and updated by Network Rail's senior management so that it remains fit for purpose. This includes identifying potential risks that could materially affect the reliability of the system or the accuracy of the data and identifying ways that these risks can be mitigated.</p> <p>The system that is used is recognised as representing best practice and is an effective method of data collation and analysis. If necessary, it also uses appropriate algorithms.</p> <p>The system is resourced by appropriate numbers of effective people who have been appropriately trained. Appropriate contingency plans will also be in place to ensure that if the system fails there is an alternative way of sourcing and processing data to produce appropriate outputs.</p> <p>Appropriate internal verification of the data and the data processing system is carried out and appropriate control systems and governance arrangements are in place.</p> <p>The outputs and any analysis produced by the system are subject to management analysis and challenge. This includes being able to adequately explain variances between expected and actual results, time-series data, targets etc.</p> <p>There may be some negligible shortcomings in the system that would only have a negligible affect on the reliability of the system.</p>
B	<p>As A, but with minor shortcomings in the system.</p> <p>The minor shortcomings would only have a minor effect on the reliability of the system.</p>
C	<p>As A, but with some significant shortcomings in the system.</p> <p>The significant shortcomings would have a significant effect on the reliability of the system.</p>
D	<p>As A, but with some highly significant shortcomings in the system.</p> <p>The highly significant shortcomings would have a highly significant effect on the reliability of the system.</p>

Notes:

1. System reliability is a measure of the overall reliability, quality, robustness and integrity of the system that produces the data.
2. Some examples of the potential shortcomings include old assessment, missing documentation, insufficient internal verification and undocumented reliance on third-party data.

Accuracy grading system

Accuracy Band	Description
1*	Data used to calculate the measure is accurate to within 0.1%
1	Data used to calculate the measure is accurate to within 1%
2	Data used to calculate the measure is accurate to within 5%
3	Data used to calculate the measure is accurate to within 10%
4	Data used to calculate the measure is accurate to within 25%
5	Data used to calculate the measure is accurate to within 50%
6	Data used to calculate the measure is inaccurate by more than 50%
X	Data accuracy cannot be measured

Notes:

1. Accuracy is a measure of the closeness of the data used in the system to the true values.
2. Accuracy is defined at the 95% confidence level - i.e. the true value of 95% of the data points will be in the accuracy bands defined above.

Benchmark grades

As agreed with Network Rail, from Q3 2011-2012 data assurance reviews have been using this new confidence grading system. A characteristic of the new system is the introduction of a benchmark grade; the grade at which ORR believes the measure should be, given what we know about the processes and level of subjectivity in deriving it. It should be noted that the derivation and application of benchmark grades has recently been introduced, and all parties should decide how useful this element is throughout the review. The table below provides ORR's benchmark grades for the 2012-2013 data assurance review of safety data.

Measure	Benchmark grade
Fatalities and Weighted Injuries Rate	B2
Accident Frequency Rate	B2
Passenger Safety Indicator	B3
Category 'A' SPADs 20+	A1*
Irregular Working	B3
Infrastructure Wrong Side Failures	A2
Route Crime	B3
Level Crossing Misuse	A3
Green Zone V Red Zone working	B3
Occupational health – Noise	B3
Occupational health – HAVs	B2
Occupational health – Exposure to lead	B3
Occupational health – Exposure to asbestos	B3
Occupational health – Musculoskeletal referrals	B2
Occupational health – Stress related absence	B2