



Final report

Independent review of RIDDOR reporting by Network Rail and its contractors

This report is submitted to

Rick Haythornthwaite, Chairman of Network Rail

Lawrie Haynes, Non Executive Director and Chair of Network Rail SHE Committee

by:

RSSB

Block 2, Angel Square

1 Torrens Street

London EC1V 1NY

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Executive summary

- 1 *This report details some unintended consequences and culture issues that have resulted from management initiatives intended to improve safety, and procurement strategies intended to reduce costs and improve efficiency. Through the course of this review we have focused on violations and errors relating to the reporting process, and particularly the cultural issues which underpin violation behaviours. However, the review has identified issues which are related to culture, but go beyond safety and reporting (eg the relationship between Network Rail and its contractors; competency management; and engagement with front line staff). We believe, with support from the project stakeholder group, that cultural issues should be considered in their widest context, rather than limited to the safety and reporting culture. There are many lessons for Network Rail and its contractors to learn.*
- 2 *We found no evidence of any actions or omissions by the Network Rail Executive or Functional Directors that could be construed as motivated to manipulate the statistics or to influence their, or senior managers', bonus payments. During interviews conducted as part of this review, Network Rail indicated their willingness to receive the review and learn from its findings and also shared with us the many initiatives they have launched since the RIDDOR reporting issue emerged in 2010. This represents a positive platform for Network Rail to work with its staff and contractors to address the underlying cause and achieve a just culture.*
- 3 In April 2010, the Office of Rail Regulation (ORR) highlighted some concerns to Network Rail regarding the number of RIDDOR¹ lost time injuries that were being reported by Network Rail and its contractors when compared to the total number of RIDDOR major injuries being reported.
- 4 Network Rail subsequently carried out a review of the data for 2009/10, concluding that some misclassification of lost time injuries had taken place, and thus under-reporting had occurred.
- 5 Following discussions at the Network Rail Annual General Meeting in June 2010 and correspondence and a meeting between the Unite union and the Chairman of Network Rail, the Chairman of Network Rail agreed that an independent review of RIDDOR reporting by Network Rail and its contractors should be undertaken. By agreement between the two, RSSB was requested to undertake this review to establish the facts and explore the reasons for the under-reporting.
- 6 The review has been carried out based on data analysis from Network Rail, RSSB's analysis of data from SMIS, interviews requested with Network Rail and contractor staff, contracting companies and their representative organisations, reports to a

¹ Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 [Ref 1]

confidential reporting line², and a document review. The review includes Network Rail and contractor reporting of workforce accidents and injuries from 2004, when maintenance was taken in house, to November 2010.

- 7 The interviews included the Network Rail acting Chief Executive, Executive Directors and Functional Directors subsequently referred to in this document as the 'Directors'.
- 8 As part of the review a stakeholder panel made up of representatives from Network Rail, ORR, trades unions, and contractor representative organisations, together with the review team, was established to consider and review interim findings (on 9 December 2010) and the draft final report (on 21 January 2011). This report represents the findings, views, conclusions and recommendations of the review team, taking account of the evidence produced and the comments from Network Rail and the other members of the Panel. At the second meeting on 21 January, all panel members confirmed their recognition of the findings of the review.
- 9 The review was conducted to deliver against a remit agreed with Network Rail and the trades unions. This report addresses Phase 1 of the remit, relating to the extent and causes of under-reporting. Phase 2 of the remit contemplated a research project to understand the effects of league tables and other management incentives on behaviour and attitudes to reporting. The recommendations from the review, all directed to Network Rail, include matters that overlap with the contemplated research project. In that context, we are recommending that Network Rail consider the best way to proceed with the review recommendations; as RSSB, we are ready to initiate research if it is considered appropriate. However, we consider that it may be more appropriate for Network Rail to pick up these recommendations directly with its own staff and contractors and work through the issues raised in this report with them.
- 10 The main conclusions of the review are:
 1. There has been a significant level of under-reporting of RIDDOR lost time injuries by Network Rail staff and its contractor companies over the last five years. We estimate that 500 to 600 RIDDOR lost time injuries³ may not have been reported by Network Rail Infrastructure Projects and Maintenance over the five years 2005/06 to 2009/10. This estimate represents a range of 37% to 42% under-

² Although a significant number of people were spoken to as part of the review, the extent of interviews and discussions was agreed with stakeholders and was never intended to represent a statistically significant sample on which numerically supported conclusions can be drawn. However, we have tested the findings from the interviews within the stakeholder panel meetings and other meetings and have had confirmation from all of these sources that the findings and conclusions are consistent with their experience.

³ From our review of reporting levels, including comparative industries, the level of reporting recorded prior to 2004/05 and the level of reporting since Period 4 2010/11 in both Network Rail Maintenance and Infrastructure Projects (2.7:1), we consider that a ratio of 3:1 RIDDOR lost time injuries to major injuries would be a reasonable estimate for the type of work Network Rail Maintenance and contractor staff are exposed to. The range of 500 to 600 lost time injuries not reported is derived from a ratio range of 2.7:1 to 3:1.

reporting of RIDDOR lost time injuries for these two Network Rail functions. The majority of the under-reporting has been within Infrastructure Projects with the under-reporting in Maintenance only being prevalent since the start of 2008/09. For all Network Rail functions combined the level of under-reporting over the five years is estimated, on the same basis, to have been 27% to 34%.

2. The under-reporting of RIDDOR lost time injuries has occurred because of the change in both the culture of Network Rail and its relationship with its contractors since 2005. These changes are a result of the real and perceived pressure and, in some cases, fear felt by Network Rail staff and contractors if they report accidents or incidents. From the evidence gathered in the review, we consider this real and perceived pressure and fear have arisen as unintended consequences of the Network Rail implementation of:
 - a. The overall strategy for safety (which was consciously designed to *improve* safety), based on the use of quantitative safety targets, safety performance measures, league tables and contractual requirements linked to the number of reported RIDDOR lost time injuries.
 - b. Other management actions, such as the frequent company re-organisations and the application of a 'managing for attendance' policy.
 - c. The procurement strategy used to drive down costs and improve efficiency leading, for example, to the primary contractor companies making much greater use of temporary ('zero-hours') type contract staff.
3. The use of different accident databases within each of the Network Rail functions and a lack of cross-checking/formal data auditing between them has led to significant inconsistencies in the data such that statistics relating to both major injuries and RIDDOR lost time injuries reported in the Network Rail Safety and Environment Assurance Report (SEAR) have been different from the records in SMIS that are used to report RIDDOR accidents to the ORR.⁴
4. Network Rail analysis has shown that there has also been some under-reporting of major injuries to the ORR. Network Rail have indicated that this is mostly due to incorrect classification of accidents generally around the less obvious RIDDOR major injury criteria such as "arc eye", dislocated joints and being detained in hospital for more than 24 hours.

⁴ The issues of the development of divergent solutions and inconsistency between databases were also highlighted as significant shortcomings within MOD Defence Logistics in the 2009 Haddon-Cave Nimrod Report [Ref 2].

- 11 The review has identified that, while the safety and procurement strategies outlined above were intended to improve safety and reduce costs, unintended changes in attitudes to reporting occurred. It is apparent that insufficient consideration was given to the potential for unintended consequences when these safety and procurement strategies were implemented and, as such, no safeguards against the consequences were put in place.
- 12 From the review of lost time injuries, we have identified some evidence of mistakes by Directors and managers at all levels, which are related to, for example, misunderstanding RIDDOR requirements and the differences in geographical scope between Network Rail company standards and the Railway Group standards. However, from the evidence presented to the review we found that the majority of the under-reporting has resulted from violations (deliberately not reporting RIDDOR lost time injuries). Examples of violations identified in the review are:
 - Front line staff deciding not to report events which they know should be reported;
 - Managers using incentives to discourage reporting by front line staff; and
 - Contractor companies having unwritten policies which discourage reporting.
- 13 Network Rail Directors and senior managers believed that the falling Accident Frequency Rate (AFR) in the period since maintenance was brought in house was explained by the actions they had been taking in the areas of new and improved protective equipment, work practices and the motivational aspects of the safety league tables and so on.
- 14 In the context of the review, we were asked to consider whether the presence of monetary bonuses was a driver to the under-reporting of injuries. From the review of the Network Rail bonus arrangements, we found that safety performance targets such as AFR and the Fatality and Weighted Injury (FWI) rate are not direct mechanistic measures in the assessment of the amount of bonus individuals across Network Rail are awarded. There is, however, an indirect linkage through the deliberations of the Remuneration Committee and the individual performance assessments for some managers. We do not believe that this indirect linkage has been a significant driver in the under-reporting or misclassification of RIDDOR reportable lost time injuries.
- 15 We found no evidence of instructions or directives being given by Directors or senior managers to staff regarding the non-reporting of RIDDOR lost time accidents or specific incorrect interpretations of the RIDDOR requirements with respect to the definitions normal/light duties or pre-existing conditions for the purposes of reducing the number of RIDDOR lost time accidents reported.
- 16 Throughout the interviews and discussions held as part of the review, Network Rail Directors, senior managers, local managers and frontline staff, and similarly staff from contractor companies, have demonstrated a real desire and intent to improve

safety. In many cases, a real passion for safety was evident. There was, however, some evidence that local managers are under such pressure to 'get the job done' that it may, in some cases, lead to safety and safety reporting being compromised.

- 17 The main conclusions of the review have been derived from an assessment of a range of individual factors that have emanated from the overall management action, behaviour and attitudes to staff and contractors taken by Network Rail. These are reported in more detail within the report.
- 18 Any quantitative target or key performance indicator can be effective if the culture in which it is used is mature enough to: use the target to motivate good behaviours; take failures to meet targets as opportunities for learning; and manage perverse incentives which may be associated with measures. It is therefore the combination of Network Rail's culture with quantitative targets, rather than quantitative targets in themselves which have created the under-reporting issue.
- 19 Given the conclusions of the review, we believe that, in addition to the actions already taken by Network Rail, Network Rail should consider further steps to improve the working relationship between the Directors/senior managers and all levels of their staff and between the company and its contractors with the view to working towards a more open and 'just'⁵ safety and reporting culture.
- 20 We have also identified a number of more detailed recommendations that could help to remove the disincentives to reporting that have been identified and to promote a more open safety and reporting culture by Network Rail staff and its contractors. These recommendations are presented in Section 11.
- 21 Network Rail has already initiated many actions in the areas covered by this review and its recommendations. These include the establishment of a Strategic Safety Training Group (to determine the specific training needs of managers), the development of a 'Close-call' reporting system and the Safety Leadership and Culture development programme, which includes working with the ORR on the application of the ORR Railway Management Maturity Model (RM3). These initiatives are described in more detail in Appendix C.
- 22 The RMT union has advised us that Network Rail and the trades unions have agreed to work together to improve the safety culture within Network Rail. Network Rail has committed to:
 - Promoting and supporting the work of trade union safety representatives and to resource the introduction of the revised Health, Safety and Welfare at Work procedure

⁵ a "just culture" is *defined* as an atmosphere of trust in which people are encouraged, even rewarded, for providing essential safety-related information – but in which they are also clear about where the line must be drawn between acceptable and unacceptable behaviour." [Ref 3]

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- Supporting the development of a blame free culture and recognise that workers invoking the Worksafe Procedure, reporting near misses or accidents shall do so free from the fear of sanctions
- Supporting trade union involvement in national safety consultation

The trades unions have committed to:

- Contributing to the development and implementation of the safety culture change programme within Network Rail

- 23 Once Network Rail has updated SMIS with the known under-reporting of major and lost time injuries, RSSB will consider the most appropriate way to update the safety performance reports, the baseline and progress monitoring reports of the industry workforce High Level Output Specification safety metric and the Strategic Safety Plan trajectories which have been published over recent years.

Acknowledgements

- 24 We have had full cooperation from Network Rail and all of the people we asked to interview and to provide us with information, and have considered all of the evidence that was presented to us in the various means that we received it.
- 25 All interviews and analysis have been conducted under conditions where confidentiality was guaranteed to those participating. This was backed up by a resolution of the RSSB Board to use all available devices to defend that confidentiality, should any body seek access to any material. The nature of the report is such that we have had to identify some of the actions of specific Network Rail Directors. In accordance with good practice for producing reports of this nature, Network Rail has been given an opportunity to comment on the report before finalising our conclusions and recommendations.
- 26 We would like to record our thanks for their cooperation and openness to all of the members of the railway workforce, the railway trades unions, contracting companies, contracting companies' representative organisations, the Office of Rail Regulation, Network Rail and the members of the Stakeholder Panel. In particular the contact point at Network Rail, Rod Reid, provided tireless and constructive support to the review team.

The Review Team



Anson Jack



Colin Dennis



Huw Gibson



Siona Pitman

RSSB, January 2011

1 Introduction

- 27 The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995 (RIDDOR) place requirements on railway companies to report to the Office of Rail Regulation (ORR) deaths, certain injuries resulting from accidents, instances of specified diseases and specified dangerous occurrences that arise out of or in connection with work.
- 28 For injuries arising from accidents, RIDDOR specifies two main categories that should be reported; major injuries (typically broken bones, amputations, dislocations or hospitalisation for more than 24 hours) and lost time injuries (incapacitated for work for more than three consecutive days).
- 29 In April 2010 the ORR highlighted some concerns to Network Rail regarding the number of RIDDOR lost time injuries that were being reported by Network Rail and its contractors when compared to the total number of RIDDOR major injuries reported. Following the principles of the Heinrich Pyramid⁶ it would be expected that for every reported major injury there would be increasing numbers of lost time injuries, injuries requiring first aid, near misses, and so on. For the data covering the reporting year 2009/10 the ratio of RIDDOR reportable lost time injuries to RIDDOR major injuries for Network Rail was around one to one, where the Heinrich pyramid would predict there to be more lost time injuries creating ratios such as two or more lost time injuries to each major injury.
- 30 Network Rail subsequently carried out a review of the data concluding that some misclassification of lost time injuries had taken place and thus under-reporting had occurred. Following discussions at the Network Rail Annual General Meeting in June 2010 and correspondence and a meeting between the Unite union and the Chairman of Network Rail, the Chairman of Network Rail agreed that an independent review of RIDDOR reporting by Network Rail and its contractors should be undertaken by RSSB to establish the reasons for the under-reporting.
- 31 This report presents the approach taken to the independent review carried out by RSSB, its findings, conclusions and recommendations.

⁶ In the 1930s, H.W. Heinrich first proposed that, for every major injury, there were 29 minor injuries and 300 non-injury accidents. This information was presented as a pyramid and is now commonly known as the Heinrich pyramid or 'accident pyramid'. As time passed, the idea developed. In 1969, for example, a study of 1,753,498 industrial accidents was undertaken by Frank E Bird. The data gathered revealed that, for every serious or disabling injury there were 9.8 minor injuries, 30.2 property damages and 600 no-loss incidents reported. In 1975, Tye/Pearson concluded that, for each fatal or serious injury, there would be three minor injuries with absence of up to three days, 50 injuries requiring first aid, 80 property damage and 400 non injury/damage accidents. Although these ratios (and definitions) vary from study to study, the basic principle remains the same; near misses and other underlying factors, if not addressed will ultimately lead to an accident.

2 Scope

32 The review includes:

1. Network Rail and Contractor reporting of workforce accidents and injuries from 2004, when maintenance was taken in house, to November 2010.
2. Consideration of the processes used for the reporting of all Network Rail and contractor workforce related injuries and the methods used to classify injuries as being RIDDOR reportable.
3. Any cultural issues that may need to be addressed as part of the Network Rail/Industry culture improvement programme.

33 The review excludes:

4. The reporting of diseases and dangerous occurrences that are also required to be reported by the RIDDOR regulations.
5. From Network Rail's initial analysis of the extent of the under-reporting of RIDDOR lost time injuries it was indicated that the under-reporting issue was confined to the Network Rail Maintenance and Infrastructure Projects functions. A detailed review of the reporting of accidents to staff in the Operations and Customer Services and National Delivery Service functions has therefore not been undertaken.

3 Objectives

34 Before the review began RSSB agreed with Network Rail and the Trades Unions the following objectives for the review to be considered in two phases:

35 Phase 1

- a) To determine the extent of under-reporting of Network Rail or contractor workforce related injuries.
- b) To determine the extent of misclassification of Network Rail or contractor workforce related minor injuries as being non-RIDDOR reportable.
- c) To identify the basis and structure of the league tables, contractual requirements and bonus arrangements linked to the Accident Frequency Rate (AFR).
- d) To determine if there is any confusion in understanding the various industry processes for reporting, created by Railway Group/Network Rail/Individual Company Standards and guidance.
- e) To review the level of safety training provided to Directors to determine its adequacy in enabling them to interpret safety related data.
- f) To determine if the league tables, contractual requirement, other management incentives or other management behaviours have influenced the reporting of injuries.
- g) To determine why the under-reporting of the RIDDOR data had not been identified and acted upon earlier.
- h) To review the process and outcomes from the internal review carried out by Network Rail in order to check the robustness and integrity of the process.
- i) To check the comprehensiveness of the resulting recommendations and actions arising from the Network Rail review and to make suggestions for further improvement where appropriate.

36 Potential Phase 2

- j) To understand the affects of league tables and other management incentives on attitudes and behaviours to reporting.
- k) To understand the effects of worker attitudes to reporting and where such attitudes may be influenced by the nature of contractual arrangements.
- l) To identify the systems and process that contractors have put in place/need to put in place to understand and counter any adverse affects (potential or real) brought about by contractual arrangements/pressure (perceived or otherwise).

- 37 Phase 2 items (j) to (l) were considered to require a significant additional input of resource and analysis and it was agreed at the start of the review that they may be better resolved through the establishment of a further research project with the relevant parties acting at the research client group. However, many of the findings and some of the recommendations cover the areas that were contemplated for Phase 2 and for that reason, our recommendation is going to be that Network Rail consider the most appropriate manner of following up these findings and recommendations – which may or may not involve requesting RSSB to conduct research. RSSB would willingly undertake research if Network Rail so requests.

4 Safety management and reporting philosophy within Network Rail

- 38 To understand how RIDDOR reporting is managed within Network Rail it is important to first understand the overall safety management and reporting philosophies within Network Rail and how they have changed since 2004.
- 39 In 2004, when maintenance was brought in-house, the number of staff in the organisation more than doubled. It currently employs around 35,000 staff made up as follows:
- Network Rail Maintenance – 16,450
 - Network Rail Infrastructure Projects – 6,500
 - Network Rail Operations and Customer Services – 8,600
 - Others – 3,500
- 40 The number of contractor staff working on Network Rail projects, based on the PTS count, is 65,500.
- 41 At this time, in 2004, safety in Network Rail was overseen by the central Safety and Compliance function consisting of around 350 staff. As part of the SAF5 safety improvement programme in 2006 the 'safety in the line' initiative resulted in a transfer of the safety support resources from the central Safety and Compliance function to the Network Rail Maintenance, Infrastructure Projects, Operations and Customer Services and National Delivery Service functions. The functions are also responsible for carrying out local accident and incident investigations which include the majority of the RIDDOR reportable injury type events.
- 42 This new 'safety in the line' arrangement was designed to ensure each function has ownership and accountability for the safety of their workforce rather than it being seen as a centrally owned responsibility.
- 43 The resultant Safety and Compliance function consisting of around 31 staff is largely head office based and is responsible for setting policy and standards on health and safety management, development of the Network Rail Health & Safety Management System and coordinating Formal Investigations for the more serious accidents such as fatalities and train accidents.
- 44 The responsibility for inputting all accidents and incidents to the Safety Management Information System (SMIS) and the reporting of RIDDOR reportable events to the ORR was transferred to Route based Safety Reporting Teams within the Operations and Customer Services function. It is the responsibility of the Safety Reporting Teams to determine whether an accident is RIDDOR reportable based on the information provided to them by the line managers from within the functions. In

October 2009 these were further rationalised into a single Safety Reporting Team within Operations and Customer Services based at Milton Keynes.

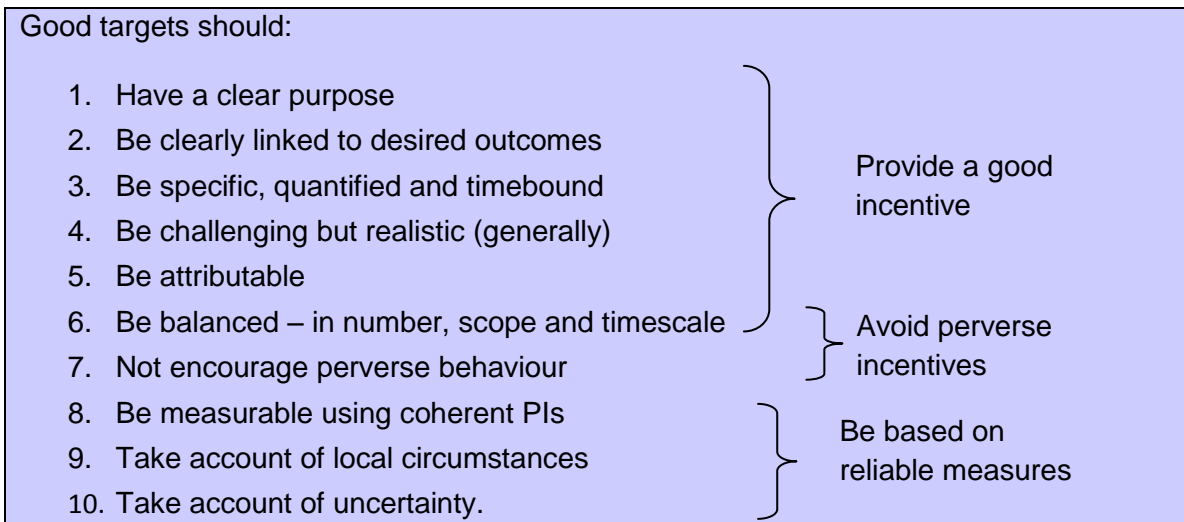
- 45 Each of the four delivery functions takes responsibility for production of their own functional safety reports. The functional safety teams also provide data to the Safety & Compliance function who are responsible for corporate safety reporting, including the corporate four weekly Safety and Environment Assurance Report (SEAR) and annual returns on safety.
- 46 A key element of the performance improvement initiatives, including safety, within Network Rail since maintenance was brought in-house has been the use of quantitative targets and, in the case of the Network Rail Maintenance function, league tables. These initiatives were introduced with the intention of driving change by motivating managers, frontline staff and contractor companies to improve performance in many areas, including safety and identifying those who could not meet the minimum requirements.

5 Targets and motivation theory

- 47 Given Network Rail's commitment to quantitative targets and league tables the review has examined some of the theory and issues behind the use of targets as means of motivating positive behaviour and the possibility that they can cause perverse behaviour or lead to unintended consequences.
- 48 The theory behind the use of targets, which is relevant to this review, was examined in the rail industry research project T611 [Ref 4]. The following paragraph from the research report is relevant to this review.

“Sir John Harvey-Jones, when Chief Executive of ICI, stated that “*The real purpose of management is motivation of the group to use its energy to achieve objectives.*” Management theory helps explain what motivates individuals and the ways in which such behaviour can ensure that this supports the organisation's objectives or, if badly designed, result in undesirable behaviours. Understanding this is essential if indicators and targets are to achieve the desired outcomes.”

- 49 The research also considered what makes good targets and good performance indicators (PI); this resulted in the identification of ten attributes that describe good targets.



- 50 The attributes of good targets have been considered by the Review Team when reviewing the evidence gathered during the course of the review.

6 Review methodology

- 51 The review has been carried out by a small team from RSSB as follows:
- Anson Jack – Director, Policy, Research and Risk (Review Director)
- Colin Dennis – Head of Safety Knowledge and Planning (Lead Reviewer)
- Huw Gibson – Senior Human Factors Specialist (Reviewer)
- Siona Pitman – Senior Safety Intelligence Analyst (Analysis and Project Administration)
- 52 Additional data analysis support has been provided by other staff within RSSB.
- 53 The review has been based on gathering facts, observations and opinions from a wide range of staff within Network Rail, ranging from the acting Chief Executive to frontline staff and Directors, senior managers and frontline staff from contractor companies.
- 54 Information has been gathered from formal interviews requested by the review team, staff voluntarily reporting to a confidential reporting line, Union representatives who offered to be interviewed, a workshop organised by the Railway Industry Contractors Association (RICA), data collection and analysis, document review and liaison with an industry stakeholder panel.
- 55 Although a significant number of people have been spoken to as part of the review, the extent of interviews and discussion does not represent a statistically significant sample on which numerically supported conclusions can be drawn. However, we have sought to obtain a wide range of views on which to base a representative summary of the situation that was present in Network Rail and its contractors over the period 2004/05 to the present day. In addition the findings of the review have been shared with the members of the stakeholder panel and have been broadly recognised as reflecting their own understanding of the issues. To obtain open and honest views, the interviews and reporting line discussions have all been carried out with an assurance of confidentiality for any information interviewees wished to remain confidential. No individual names are used in the report and specific examples have not been used which could be related back to an individual who has been assured of confidentiality. The information from the various parts of Network Rail's organisation and the contractors has been pooled where possible to avoid identification of the evidence from the individuals spoken to by the review team.

6.1 Interviews

- 56 At the start of the review, the team assessed the Network Rail organisation chart and identified an initial number of individuals from across the organisation who were likely

to have knowledge of the safety management philosophy and accident reporting within Network Rail. Network Rail cooperated fully in arranging the interviews.

- 57 A similar consideration was given to the contractor organisations and each of three formal contractor organisations offered a senior member to be interviewed its behalf (Rail Industry Contractors Association (RICA); National Rail Contractors group (NRCG); Infrastructure Safety Liaison Group (ISLG)).
- 58 As the interviews progressed further individuals were identified as part of the discussions that could provide a useful input to the review.
- 59 In total 81 interviews were undertaken each lasting between one to two hours based on a predetermined question set tailored to the requirements for each interview. An example question set is presented in Appendix A. All the interviews, with the exception of the Network Rail frontline staff, were carried out privately with individuals. The Network Rail frontline staff interviews were group discussions. Table 1 shows the breakdown of interviews by the category of the individual interviewed.
- 60 The majority of the interviews requested by the review team were carried out, which is testament to the cooperation of individuals concerned and their employing organisations. A small number of planned interviews were not possible due to the poor weather conditions seen during December but those we were unable to complete were similar categories of people to those we did see.

Interview category	Total
Total Interviews	81
Network Rail manager/director	19
Contractor manager	17
Network Rail Delivery Unit managers	16
Network Rail frontline staff	8
Contractor frontline staff	6
Union representatives	6
RSSB staff	3
Contractor representative	2
Network Rail O&CS manager	2
Consultant	1
Others	1

Table 1. Interview breakdown

- 61 In addition to the formal interviews several telephone discussions have been held with Network Rail and contractor staff to seek further clarification and opinions relating to issues raised during the formal interviews.

6.2 Confidential reporting line

62 To obtain the range of opinions necessary to inform the review, a confidential reporting line was set up with the aim of providing an opportunity for staff throughout the rail industry to provide their input. The confidential nature of this reporting channel was provided, with the aim of creating an environment in which staff could discuss under-reporting issues openly, without fear of negative outcomes.

63 Awareness of the confidential reporting channel was promoted by an information sheet, provided by RSSB to Network Rail, contractors in the rail industry, through Sentinel and the trade unions. These groups were requested to circulate the information to rail staff. An article promoting the confidential reporting line also appeared in the rail press. The key request in the information sheet was:

“To obtain the information necessary to undertake the review we are seeking information from **managers and frontline staff** relating to injuries to Network Rail employees or its contractors on Network Rail infrastructure, where:

1. You have suffered, or you know of cases where, an injury which resulted in you or a person not being able to carry out normal duties for more than three days but the accident was not formally reported.
2. You, or you know of cases where an injured person has, returned to work on light duties (unable to carry out normal range of duties) for more than three days and the event was reported but not classified as a RIDDOR reportable lost time injury.

We are also interested in talking to or hearing from anyone who feels that they have information which would benefit the review, or which they wish the review to take into account.”

64 Communication channels were set up via confidential web-based form, telephone line and text messaging facilities, the details of which were presented in the information sheet. Where possible, telephone interviews were undertaken by a member of the RSSB review team, based on a standard proforma. The interviews included discussions with staff as to how to ensure that the information they provided remained confidential.

65 The contacts to the incident reporting line are summarised in Table 2. The table also shows whether each contact progressed to telephone interview, remained as a written input, or did not provide an input.

Summary Status		Total
Total contacts through confidential reporting line		40
Telephone interview		28
Written input (no telephone interview)		8
No input	Erroneous call	1
	Repeat call	1
	No response when re-contacted	2

Table 2. Summary of contacts to the confidential reporting line

66 Table 3 summarises the originating industry area, for the 36 contacts which were progressed.

Industry Area	Total
Network Rail Maintenance	19
Contractor managers	5
Network Rail Ops & Customer Services	4
Network Rail Manager – other	3
Not Identified	2
Network Rail but role not identified	2
Ex-industry	1
Total	36

Table 3. Summary of contacts to the confidential reporting line by industry area

67 Perhaps unsurprisingly, given the nature of the request, the majority of contacts (31 of the 36 or 86%) believed that there was an under-reporting issue.

68 To ensure confidentiality, both for staff who have been interviewed and those who have used the confidential reporting line, the information obtained from the confidential reporting line and that collected from the interviews (see Section 6.1) have been combined. Many contacts discussed a variety of issues; these are used to underpin the main findings. However, the following table summarises the key issue raised by each contact.

Key Issue	Total	Percentage
Total	36	100%
Concern that an injury has not been reported as a RIDDOR injury.	15	42%
Examples of pressure not to report.	4	11%
Managing for attendance process impact on reporting.	3	8%
Positive views that reporting does	3	8%

Key Issue	Total	Percentage
occur.		
Contractor pressure from AFR.	2	6%
Pressure to return to work.	2	6%
Poor follow-up after incident.	2	6%
Staff not trained to report.	1	3%
Incident report form usability.	1	3%
League tables as a barrier to reporting.	1	3%
Failure by Network Rail to identify that accident ratios did not match the Heinrich triangle model.	1	3%
Under-reporting of dangerous occurrences may also be an issue.	1	3%

Table 4. Summary of contacts to the confidential reporting line by key issue

69 During the formal interviews and discussions with Network Rail and contractor staff, it was apparent that the 'request for information sheet' associated with the confidential reporting line had not been made available to everyone. In some cases, this was a result of deliberate action by individual line managers. It is likely, therefore, that many staff members have been unaware of the reporting line, and thus the number of contacts is lower than it may have been. By agreement with Network Rail and the unions the deadline for reporting was extended with the aim of increasing the opportunity for reporting. A small number of additional reports were received.

6.3 Data analysis

70 Incident data for the review has been provided by Network Rail, the contractor companies and the ORR. This includes data from:

- The Safety Management Information System (SMIS)
- The Network Rail Maintenance All Accidents Register (AAR)
- The Infrastructure Projects Infrastructure Group Control (IGC) tracker database
- The ORR reportable accidents database
- Spreadsheets detailing Network Rail's review of the accident data covering the period 2005/06 to 2009/10 to determine, where possible, the level of under-reporting that has occurred.
- Various other analysis spreadsheets provided by Network Rail
- Recent Network Rail SEAR reports

71 The review has undertaken separate analyses of the data provided and the results are presented in Section 9.1.

6.4 Documentation review

- 72 During the course of the interviews, a wide range of issues were discussed and where factual information could be provided in the form of documentary evidence this was requested and provided to the Review Team. The information included documents from Network Rail and the contractor companies.
- 73 The documents have been catalogued in a project document register and used extensively as part of the development of the findings of the review discussed below.

6.5 Stakeholder panel meetings

- 74 In the original remit for the review it was agreed that a stakeholder panel made up of representatives from across the industry would review the interim and final outputs of the review. The panel consisted of:

	Representing
Julian Lindfield	Network Rail
Bob Rixham and Rob Miguel	Unite
Mick Cash and Philip Dee	RMT
Elly Baker	TSSA
Allan Spence	ORR
Don Clarke	Rail Industry Contractors Association (RICA)
Paul Kirk	National Rail Contractors group (NRCG)
Andrew Livingston	Infrastructure Safety Liaison Group (ISLG)
Anson Jack	RSSB – meeting chairman
Colin Dennis	RSSB – Review team
Huw Gibson	RSSB – Review team
Siona Pitman	RSSB – Review team

- 75 The interim results were reviewed by the panel on Thursday 9 December 2010 and the strategy for completing the review was discussed and agreed.
- 76 The draft final report was distributed to the panel on 18 January and discussed at a meeting on 21 January 2011.

7 The RIDDOR reporting requirement

- 77 RIDDOR reporting is based on the classification of injuries and dangerous occurrences to identify if they are reportable to the ORR (in the case of the railway industry) and in which category they should be reported [Ref 1]. The aim of RIDDOR is to generate reports to the relevant authorities (eg the ORR), which in turn allows them to monitor and learn from the incidents. There is no requirement on companies to use these structures for their own learning, though the classification of severity as used in RIDDOR would be a necessary component in understanding safety data.
- 78 This review is particularly focused on accidents to: employees at work, and self-employed persons at work in premises under the control of someone else. These employees and self-employed persons may work for Network Rail, contractors to Network Rail or sub-contractors and labour suppliers. This therefore excludes, in the railway context, incidents which may be reportable because they occur to passengers or members of the public. For employees and the self-employed, the key applicable RIDDOR categories, summarised from the regulations are:
- **Death** The death of any person as a result of an accident. This includes the death of an employee if this occurs some time after a reportable injury which led to that employee's death.
 - **Major Injury** A major injury resulting from an accident. Major injuries are listed in the regulations (eg fracture other than to fingers, thumbs or toes; amputation; dislocation of the shoulder, hip, knee or spine; loss of sight (temporary or permanent)).
 - **Dangerous Occurrences** Dangerous occurrences are events which do not necessarily result in a reportable injury, but have the potential to cause significant harm. Dangerous occurrences are defined in the regulations and some dangerous occurrences are railway-specific (eg signals passed without authority).
 - **'Over-3-day' injury** Someone at work is unable to do the full range of their normal duties for more than three days as a result of an injury (an 'over-3-day' injury) caused by an accident at work;
 - **Reportable disease** A person at work suffers one of a number of specified diseases, as defined in the regulations.
- 79 The key focus for this review has been the investigation of the nature and causes of under-reporting of 'over-3-day' injuries. However, we conducted the review in the wider context of the RIDDOR reporting process and the other injury reporting processes.
- 80 For the classification of 'over-3-day' injuries, the following factors need to be taken in to account (taken from the RIDDOR Regulations):
- It is not a major injury.

- The injury results in the injured person being away from work or unable to do the full range of their normal duties for more than three consecutive days, excluding the day of the accident.
- The consecutive days to include any days the injured person would not normally have been expected to work, such as weekends, rest days or holidays.
- Further information on the meaning of 'full range of normal duties' is provided. It is work of a kind which a person might reasonably be expected to do, either under their contract of employment, or, if there is no such contract, in the normal course of their work. Determining whether they would have been unable to do their normal range of duties may involve a degree of judgement. It may be necessary to ask the injured person if they would have been able to carry out all of their duties if they had been at work.
- Only physical injuries resulting from acts of violence suffered by people at work are included in the definition of 'accident'. Cases where a worker suffered shock from witnessing an act of violence or abusive or threatening behaviour would not need to be reported in the context of an 'over-3-day' injury.

81 For any injury to be included in RIDDOR reporting, it must have arisen 'out of or in connection with work', This phrase has a very wide meaning and regulation 2(2)(c) does not give a complete definition. The key points to note are that the requirement to report is not dependant on apportioning blame to the injured person or company - an accident may still be reportable, even if there had been no breach of health and safety law and no one was clearly to blame; a pre-existing condition which is exacerbated by work would also be reportable if the other 'over-3-day' injury criteria were met.

82 Based on the regulations, and focusing specifically on 'over-3-day' injuries the process used by a company would, at the simplest level, need to include:

- Injury reported by injured party
- Injury recorded and reported as an injury within the company
- Injury monitored on days following incident, to identify if it is a 'over-3-day' injury
- Injury reported by the responsible person as soon as practicable and, in any event, within 10 days of the accident to the relevant enforcing authority on an approved form

83 While most of this process can be carried out as a basic procedure, a specialist in RIDDOR regulations may be required as part of the RIDDOR reporting process, to interpret and apply the more subjective or technical elements of the regulations (eg the meaning of 'arising out of or in connection with work', the definition of major injury types or an understanding of reportable disease requirements).

- 84 In January 2011 the HSE will issue a consultation on proposed changes to the RIDDOR regulations. The proposed amendment increases the RIDDOR lost time injury period from three to seven consecutive days. This change would align the incident reporting threshold with that for obtaining a 'fit note' from a GP for sickness absence, and would ensure that someone who has suffered a reportable injury has had a professional medical assessment.
- 85 While it is recognised that this would simplify the reporting process, potentially improving data quality and reducing the reporting burden on industries, it will lead to a significantly lower number of accidents being recorded.
- 86 For the rail industry the reduction in the size of the data set would exacerbate the problems with relying on RIDDOR data to measure performance other than for the largest companies. The number of reported accidents for the Network Rail functions and operational units and the contractors working for Network Rail would be likely to be too small to be meaningful. The data analysis and presentation focus would therefore shift further toward using data relating to all lost time injuries recorded within SMIS.
- 87 As we highlight in section 9.4, because SMIS generates data based on FWIs, it shows a more accurate picture of safety performance.

8 Network Rail accident reporting measures

- 88 Since maintenance was brought in-house the Accident Frequency Rate (AFR) has been used as a means of measuring safety performance by Network Rail and its contractors. The AFR was selected as a suitable measure because it is based on the mandatory reporting requirements in the RIDDOR regulations; therefore the level of data quality should be consistent across the different parts of the organisation and the contractors. It is also used widely in other industries such as construction thereby allowing the railway companies to benchmark themselves against other industries.
- 89 The AFR includes all the RIDDOR reportable lost time injuries, major injuries and fatalities that have occurred over the previous 12 months normalised per 100,000 worker hours.
- 90 One of the major drawbacks with the AFR as a measure is that it is only a count of the number of accidents, and therefore gives no indication as to the severity of the accidents that have occurred. A company recording ten RIDDOR-reportable lost time injuries would be measured as having the same AFR as a company of the same size recording ten fatalities.
- 91 This issue was recognised by Network Rail in 2008. As a result, the company adopted a further measure based on the recorded fatalities and weighted injuries (FWI) that have occurred over the previous 12 months normalised per 100,000 worker hours. The FWI measure takes account of the severity of each accident by weighting the lower severity injuries by a number that is considered statistically equivalent to a fatality, as follows:

Injury degree	Definition	Ratio
Fatality	Death occurs within one year of the accident.	1
Major injury	Injuries to passengers, staff or members of the public as defined in schedule 1 to RIDDOR 1995. This includes losing consciousness, most fractures, major dislocations and loss of sight (temporary or permanent) and other injuries that resulted in hospital attendance for more than 24 hours.	10
RIDDOR-reportable minor injury	A physical injury to a passenger, staff or member of the public that is neither a fatality nor a major injury. Minor injuries to the workforce are RIDDOR-reportable if the injured person is incapacitated for work for more than three consecutive days. Minor injuries to the passengers and public are RIDDOR-reportable if the injured person was taken from the accident site to hospital.	200
Non RIDDOR-reportable minor injury	All other physical injuries.	1000
Class 1 shock/trauma	Caused by witnessing a fatality or being involved in a collision, derailment or train fire.	200
Class 2 shock/trauma	Other causes, such as verbal abuse, and near misses	1000

Source: Research project T440 [Ref 5]

Table 5. Definition of the fatalities and weighted injuries measure

Accident reporting measures

- 92 The government also chose to use FWI (per million worker hours) a measure of the risk to the workforce when setting the High Level Output Specification for Control Period 4 (2009-14)
- 93 The Network Rail company SEAR reports include both the FWI rate and AFR as monitored measures. Network Rail has systematically assigned new reduced target levels for both measures at the start of each financial year.
- 94 The use of both measures in combination gives useful safety performance information in terms of both the number of accidents that have occurred (the AFR) and their severity (the FWI).
- 95 At the Network Rail company level both measures are statistically significant owing to the relatively high number of accidents that occur in a given 12 month period. However when the AFR and FWI rates are quoted at the individual Network Rail Delivery Unit or contractor company level, the number of recorded accidents can be as few as zero, one or two events per year and therefore the calculated AFR and FWI rates will not be statistically significant at these lower levels. This makes any targets set at these lower levels difficult to monitor, as one additional recorded RIDDOR lost time injury could cause a big change in the measured company performance against their target within a given year.

9 Review findings

96 The remit in Section 3 includes the requirement for the review to consider a number of issues relating to the reporting of RIDDOR lost time injuries. This section describes our findings in relation to each of these issues as follows:

- To determine the extent of under-reporting and misclassification of Network Rail or contractor workforce related injuries – Section 9.1
- To determine if there is any confusion in understanding the various industry processes for reporting, created by Railway Group/Network Rail/Individual Company Standards and guidance – Section 9.2
- To review the level of safety training provided to Directors to determine its adequacy in enabling them to interpret safety related data – Section 9.3.
- To determine why the under-reporting of the RIDDOR data had not been identified and acted upon earlier - Section 9.4
- To identify the basis and structure of the league tables, contractual requirements and bonus arrangements linked to the Accident Frequency Rate (AFR) – Section 9.5
- To determine if the league tables, contractual requirement, other management incentives or other management behaviours have influenced the reporting of injuries – Section 9.6
- To review the process and outcomes from the internal review carried out by Network Rail in order to check the robustness and integrity of the process and to check the comprehensiveness of the resulting recommendations and actions arising from the Network Rail review and to make suggestions for further improvement where appropriate – Section 9.8

97 A section commenting on the accident databases is also included as Section 9.7

9.1 The extent of under-reporting and misclassification of Network Rail or contractor RIDDOR reportable workforce-related injuries

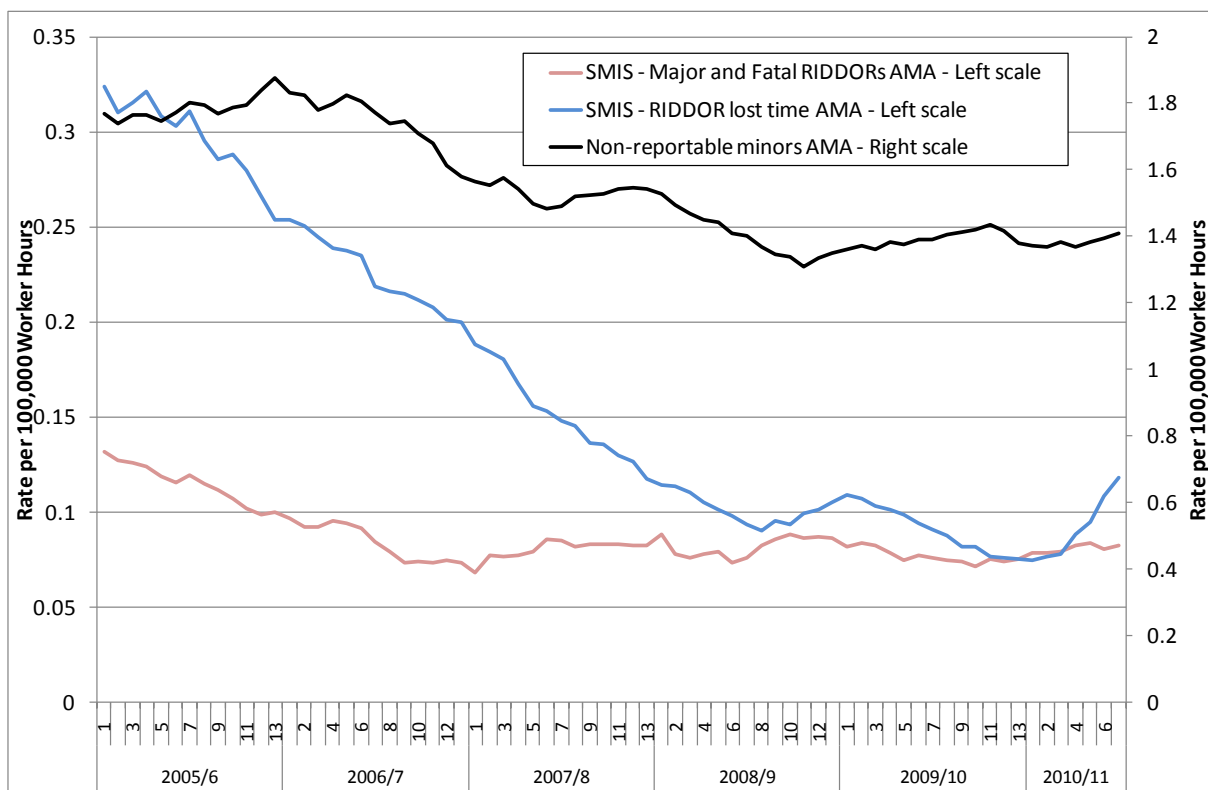
98 **Findings: We estimate that significant under-reporting and misclassification of RIDDOR reportable lost time injuries by Network Rail and its contractors has occurred since 2005/06. The level of under-reporting by the contractor companies through Network Rail infrastructure projects has been greater over a longer period of time than for Network Rail Maintenance. In addition to the under-reporting of RIDDOR lost time injuries, the Network Rail internal databases, on which the SEAR reports have been based, have significantly under-reported the number of major injuries over the last five years. Since Network Rail staff and contractor companies were re-briefed on the**

requirements of RIDDOR, the level of RIDDOR lost time injury reporting has returned to a level more normal for the type of work carried out by Network Rail staff and its contractors.

- 99 This section looks at the data behind the reporting of injuries by Network Rail and its contractors over the period from when maintenance was taken in house by Network Rail in 2004 to the present day. The analysis is in three sections; the first a general analysis carried out as part of the review, the second covering analysis by Network Rail of the potential misclassifications that have occurred over the last 5 years and third a summary of an analysis of contractor company reporting that was done for the Infrastructure Safety Liaison Group (ISLG) by RSSB [Ref 6] in 2009.

9.1.1 Review analysis

- 100 Chart 1 below shows the injury data that was recorded in SMIS over this period and has not been updated following Network Rail review of data back to 2005/06. Owing to the difference in the number of events recorded per year, the fatalities and major injuries (the red line) and the RIDDOR reportable lost time injuries (the blue line) are referenced to the left scale and the non-RIDDOR reportable minor injuries (the black line) is referenced to the right scale.



Source: SMIS (as reported - not updated following the Network Rail analysis)

Chart 1. Reported injuries 2005/06 to 2010/11

- 101 The chart shows that the rate of reduction of the RIDDOR-reportable lost time injuries has been much greater over the period than for the fatalities and major injuries and the non-RIDDOR reportable minor injuries. The ratio of RIDDOR reportable lost time

injuries to major injuries at the start of 2005/06 was around 3:1 whereas by period 13 2009/10 it had fallen significantly to around 1:1. Over the same period the ratio of non-RIDDOR reportable minor injuries to major injuries changed from around 14:1 to 18:1. The increase in reporting of RIDDOR-reportable lost time injuries began from period 4 2009/10 and appears to be a result of the re-brief Network Rail issued to staff on the requirements of RIDDOR in relation to reportable lost time injuries.

- 102 Table 6, which is based on the data from Network Rail's reassessment of the recorded accidents described in Section 9.1.2, shows the change in the ratio of RIDDOR-reportable lost time injuries and major injuries in more detail.

End of year	Network Rail Maintenance	Network Rail Infrastructure Projects	Other Network Rail functions	Network Rail All
2005/06	3.3	1.2	5.3	2.8
2006/07	3.6	1.3	2.9	2.5
2007/08	2.9	0.7	3.3	1.8
2008/09	2.3	0.8	2.4	1.5
2009/10	1.5	0.6	5.0	1.5
Periods 4 to 9 2010/11	2.9	2.5	n/a	2.7

Source: Network Rail (updated data following Network Rail analysis)

Table 6. Changes in ratios RIDDOR lost time injuries to major injuries

- 103 In Table 6 the data for Network Rail Maintenance and Infrastructure Projects includes RIDDOR reportable accidents occurring to both Network Rail staff and the contractors working for Network Rail. For Maintenance the accidents are predominantly to Network Rail staff; for Infrastructure Projects the accidents are predominantly to contractors staff. For the other Network Rail functions namely O&CS and NDS the number of incidents per year (typically 10 major injuries and 40 to 50 RIDDOR lost time injuries) is much lower than for Infrastructure Projects and Maintenance which both typically have between 40 and 60 major injuries per year.
- 104 For the three years prior to 2004/05, when maintenance was brought in-house, the data in SMIS (which has not been re-analysed as part of the Network Rail analysis) shows RIDDOR lost time to major injury ratios, for all Network Rail staff and contractors in the range 2.6:1 to 4.5:1.
- 105 Table 6 indicates that the reduction in the ratio of RIDDOR lost time injuries to majors started to occur earlier in Network Rail Infrastructure Projects (2005/06) than in Network Rail Maintenance (2008/09).
- 106 Track maintenance, renewals and upgrades are known to be hazardous because of the nature of the work involved. Therefore to get an understanding of the validity of the level of reporting within Network Rail, consideration has been given to how the

Review findings

Network Rail ratios compare with other similar industries. Data from comparative industries provided by the Health and Safety Executive⁷ [Ref 7] and London Underground is presented in Table 7.

Year	Network Rail Maintenance and Infrastructure projects	London Underground track + S&T	Construction (employee) ⁶	Extractive & Utilities ⁶
2005/06	2.6	n/a	2.0	3.5
2006/07	2.5	n/a	1.9	3.5
2007/08	1.6	31.0	2.0	3.3
2008/09	1.4	5.0	2.1	3.4
2009/10	1.1	6.0	n/a	n/a

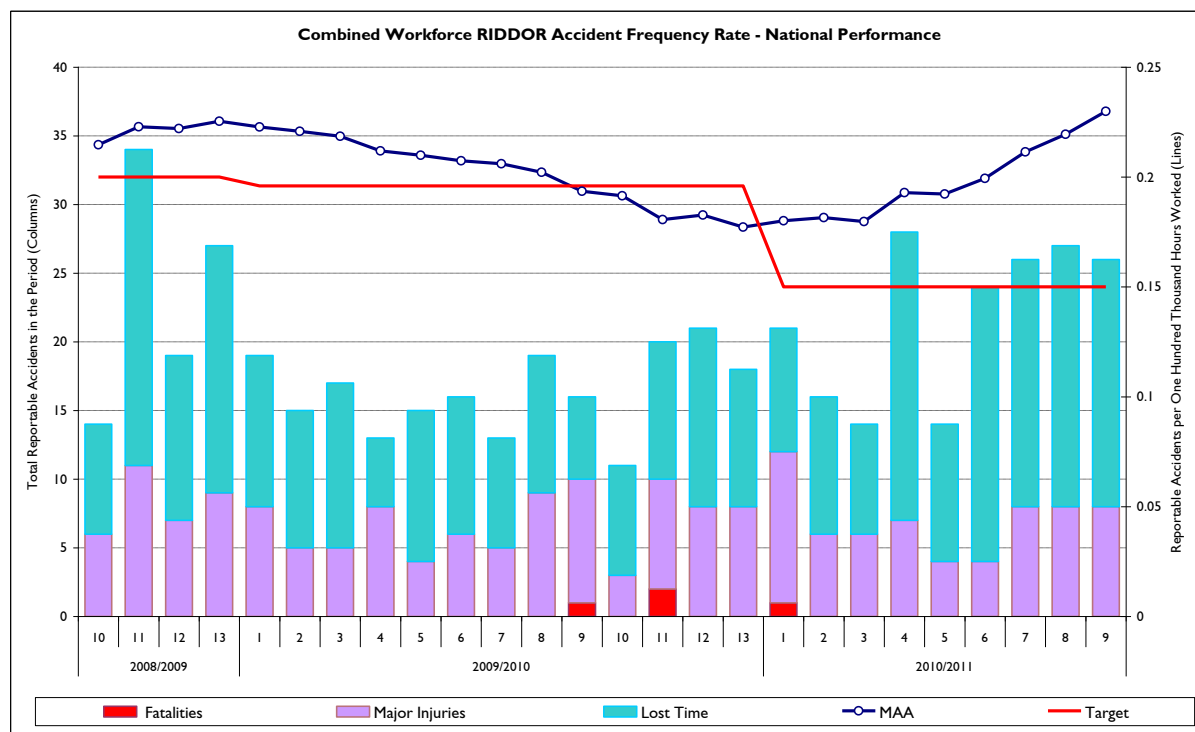
Source: London Underground and HSE

Table 7. Comparison of Network Rail with other similar industries

- 107 The data in Table 7 suggest that, in recent years (2007/08 to 2009/10), the number of RIDDOR-reportable lost time injuries has been low, in comparison to other, similar, industries. Table 6 also shows that since period 4 2010/11 (when Network Rail staff and contractors were re-briefed on the requirements of RIDDOR and further accident report checking), the ratio has increased to 2.9 for Network Rail Maintenance and 2.5 for Infrastructure Projects.
- 108 Given the level of reporting by Network Rail Maintenance in 2005/06, the comparison with similar industries (noting the likely under-reporting⁶), the level of reporting in the three years prior to 2004/05 and the level of reporting since Period 4 2010/11 in both Maintenance and Infrastructure Projects (which does not account for the culture improvements highlighted as being required by this review), we consider that a ratio of 3:1 would be a reasonable estimate for the type of work Network Rail Maintenance and contractor staff are exposed to.
- 109 Assuming an average ratio of not less than 3:1, it is estimated that for Network Rail Infrastructure Projects from period 1 2005/06 to period 13 2009/10 around 480 RIDDOR reportable lost time injuries have not been reported and for Network Rail Maintenance since period 1 2008/09 to period 13 2009/10 around 112 RIDDOR-reportable lost time injuries have not been reported. Had the level of RIDDOR lost time injuries been correctly reported the overall risk to the workforce, in terms of the FWI recorded for Network Rail in 2009/10, would have been around 5.5% higher than previously stated. It should be noted that this excludes the change in FWI resulting from errors in the reporting of major injuries identified by Network Rail and described in Section 9.1.2.

⁷ The HSE (2010) have identified that under-reporting of less serious injuries is likely in most industry sectors and therefore the ratios quoted for construction and extractive and utilities are likely to be under estimates of the true ratios.

- 110 To put the RIDDOR lost time under-reporting into context, over the period 2005/06 to 2009/10, 854 RIDDOR lost time injuries were recorded for Network Rail Maintenance and Infrastructure Projects and an estimated 590 that have not been reported. This therefore represents 42% under-reporting of RIDDOR lost time injuries. A ratio in the range 2.7:1 (as seen since Period 4 2010/11) to 3:1 produces an estimate of 500 to 600 RIDDOR lost time injuries not reported for these two Network Rail functions ie 37% to 42% under-reporting.
- 111 For Network Rail as a whole (all Network Rail functions combined) the level of under-reporting over the five years is estimated, on the same basis, to have been around 27% to 34%.
- 112 Analysing the reported injuries in more detail shows that from periods 4 to 9 2009/10 there were 835 minor injuries reported into SMIS of which 32 (3.8%) were RIDDOR-reportable.
- 113 Since Network Rail re-briefed its staff and contractors on the requirements of RIDDOR in period 4 2010/11 there were 801 reported minor injuries reported of which 82 (10.8%) were RIDDOR-reportable. This represents a factor of 2.7 increase in RIDDOR reporting. The change in reporting of RIDDOR lost time injuries and consequently the AFR is shown clearly in the overall Network Rail AFR chart (Chart 2 below) extracted from the period 9 SEAR.



Source: Network Rail Period 9 SEAR

Chart 2. Network Rail AFR up to period 9 2010/11

- 114 Table 8 compares periods 4-9 in 2009/10 with periods 4-9 in 2010/11, showing the percentage of all reported minor injuries that are RIDDOR-reportable for each

Network Rail Territory. It indicates an increase in reporting across all Territories and marked increases for London North West and Scotland.

Territory	% of reported minor injuries that are RIDDOR Reportable (*)		Factor increase
	Period 4-9 2009/10	Period 4-9 2010/11	
South East	2.5% (6)	6.6% (17)	2.6
London North Eastern	4.5% (10)	6.9% (14)	1.5
London North West	2.6% (4)	17.5% (29)	6.7
Scotland	3.8% (4)	13.3% (12)	3.5
Western	7.0% (8)	11.8% (10)	1.7
Total	3.8% (32)	10.2% (82)	2.7

Source: SMIS (*) indicates number of RIDDOR lost time injuries reported

Table 8. Change in reporting by Network Rail Territory - period 4 to 9 2009/10 compared to period 4 to 9 2010/11

- 115 In terms of the individual causes of accidents, slips, trips and falls account for the biggest statistically significant percentage increase rising from 3.7% (9 out of 243 recorded) to 13.8% (34 out of 247 recorded). There is a general increase across the other causal categories.
- 116 A focus of this study has been to assess the impacts of the use of quantitative targets and numerically derived league tables. The use of these targets and the interpretation of other numeric data (eg survey results) require an understanding of statistics, in order to fully appreciate the variability and reliability of the data. We have not identified evidence that statistical techniques, such as significance testing, are routinely considered when defining the significance of trends (eg AFR and FWI), interpreting numeric targets (eg how reliable AFR targets are when there is a limited number of man-hours to underpin the AFR value) and re-setting numeric target values (eg resetting AFR and FWI targets) within Network Rail. Greater focus in this area could have helped to improve the management of quantitative targets.

9.1.2 Network Rail analysis

- 117 When the potential for under-reporting was originally identified, Network Rail carried out an initial analysis for the period 2009/10. The draft findings indicated that some accidents had been classified incorrectly. To get a full picture of the level of under-reporting Network Rail requested a full review of the data for the last five years for Network Rail Maintenance and all of its contractor companies.
- 118 We note that the data used by Network Rail to create the SEAR report is taken directly from Network Rail Maintenance and Infrastructure Projects rather than using the data in SMIS, which is used to report RIDDOR accidents to the ORR. The focus

of the Network Rail analysis has been the review of the data that was previously reported in the SEAR.

- 119 The results of their analysis, for all Network Rail functions, are shown in Table 9 comparing the data originally reported in the SEAR with the data after the review.

	Originally reported in SEAR			Revised data after the review			Change	
	Major	Lost time	Ratio Lost Time to Major	Major	Lost time	Ratio Lost Time to Major	Major	Lost time
2005/06	98	301	3.1	101	278	2.8	3	-23
2006/07	68	216	3.2	91	230	2.5	23	14
2007/08	84	184	2.2	105	189	1.8	21	5
2008/09	114	161	1.4	130	198	1.5	16	37
2009/10	84	102	1.2	96	145	1.5	12	43
Total	448	964	2.2	523	1040	2.0	75	76

Source: Network Rail

Table 9. Network Rail RIDDOR major and lost time injury re-assessment

- 120 Table 9 shows that, in terms of the information published in the SEAR over the five years, there were 75 additional major injuries and 76 additional RIDDOR lost time injuries that should have been reported in the SEAR. While this is likely to be very significant in terms of what has been reported in the SEAR, particularly regarding major injuries, Network Rail has indicated that of the 49 major injuries that were relevant to Network Rail staff, 23 had been incorrectly reported to the ORR via SMIS as follows:
- 1 was not in SMIS and therefore not reported to ORR
 - 11 were in SMIS as “non-reportable” and therefore not reported to ORR
 - 11 were in SMIS as “Lost Time” and therefore reported to ORR but in the wrong classification
- 121 The under-reporting of 75 major injuries represents 14% under-reporting of total major injury RIDDOR accidents in the SEAR over the five year period.
- 122 For the RIDDOR lost time injuries, the analysis has identified 76 additional accidents which should have been RIDDOR reportable, which is considerably lower than the 500 to 600 additional cases estimated as being missing from the data set, as discussed in Section 9.1.1. Network Rail has indicated that more of the additional RIDDOR lost time injuries cannot be identified due to the lack of information in the

records and the inability to follow up with the people involved after the length of time that has passed since the accidents occurred.

- 123 Network Rail has provided the following description of the main factors causing the under-reporting:
- a) Updates to initial accident reports from line managers have sometimes been provided to either the Safety Reporting Team for input to SMIS, or to the functional safety reporting teams, but not to both. This has been exacerbated by failure to conduct sufficient cross-checks between the different data sets. This affected data on both Major and Lost Time accidents.
 - b) There have been discrepancies between what was reported by contractors into SMIS (either directly into SMIS, or via Network Rail control centres) and what was reported by contractors in the period returns to Network Rail Projects. This has been exacerbated by failure of Network Rail to conduct sufficient cross-checks between data submitted by contractors in period returns and data in SMIS and/or in control logs.
 - c) Incorrect classification of major injury accidents in SMIS and in functional reports – this was generally around the less obvious RIDDOR Major criteria such as “arc eye”, dislocated joints and being detained in hospital for more than 24 hours. In some cases classifications had been made in functional spreadsheets without checking the classification allocated in SMIS.
 - d) Incorrect classification of RIDDOR Lost Time accidents in SMIS and in functional reports – this was generally around the issues already identified in the first stage of the review; ie staff returning to work on light duties and misclassification of pre-existing condition injuries. In some cases classifications had been made in functional spreadsheets without checking the categorisation allocated in SMIS.
- 124 Table 9 shows that the level of under-reporting of the major injuries has been broadly consistent over the five years and is not thought by Network Rail to have been as a result of the same issues that have led to the under-reporting of RIDDOR lost time injuries.
- 125 What this analysis indicates is the significant level of inconsistency and lack of cross checking between the databases and spreadsheets used within Network Rail; furthermore, it highlights the weakness in not using a single database source for the information being reported in the SEAR and to the ORR. The reasons behind these differences are discussed in more detail in Section 9.7.
- 126 For the- RIDDOR lost time injuries, however, Table 9 shows there have been many more misclassifications in 2008/09 and 2009/10 than in the previous years. This suggests that an increase in errors or violations occurred during this period.

- 127 In its review of the data Network Rail identified two main factors leading to the misclassification of accidents as not being RIDDOR reportable:
- The consideration of staff returning to work on light duties
 - The incorrect use of the definition of pre-existing conditions
- 128 In addition, in some cases classifications had been made in functional spreadsheets without checking the categorisation allocated in SMIS.
- 129 A general finding from the review is that we have not been able to identify any Network Rail analysis of injury events at the error type level (eg violations versus errors-), the Network Rail 10 incident factors or the causal and contextual categories from within SMIS. This type of data can be reviewed regularly to look at the underlying issues across incidents. It is recognised that a significant effort is currently placed at learning from, and looking at, recommendations relating to individual incidents. However, a review of underlying factors across incidents (eg by cause type or time of day) can allow themes to be identified, to address injury issues in the industry.

9.1.2.1 Misclassification in respect of staff returning to work on light duties

- 130 Linked to improvements in the Network Rail absence management policy over the last few years, there has been an increase in staff returning to work on light duties, rather than remaining off work. This is considered by Network Rail to be a positive aspect of better absence management; it can be good for the staff, good for the company and is an approach promoted by Government.
- 131 Under RIDDOR a lost time accident is reportable where a person is off work, or returns to work but is unable to carry out the full range of his/her normal duties, for more than three consecutive days. The Network Rail review identified some misunderstanding of this resulting in cases of staff returning on light duties not being reported under RIDDOR.
- 132 It should be noted that the reporting requirement is determined not by what a person actually does on return to work, but on what they are capable or not capable of. In most cases the problems have arisen because the manager has not reached a clear understanding with the person as to what they were and were not capable of on return to work.

9.1.2.2 Misclassification in respect of staff off work due to pre-existing injuries

- 133 The Network Rail review also identified a number of cases where injuries were not reported because the absence from work was due to a 'pre-existing condition' (typically long-standing back or knee conditions). RIDDOR only requires an injury to be reported if it is as a result of 'an accident arising out of or in connection with work'.

Therefore if a person who suffers from a pre-existing back problem experiences that problem at work, but not as a result of an accident associated with a work activity (eg whilst standing up or sitting down), then it is not reportable as it is not caused by an accident arising out of or in connection with work. However, if the person experiences the problem as a result of an accident associated with a work activity (eg whilst engaged in a lifting activity) then it is reportable, irrespective of any pre-existing medical conditions.

9.1.3 Data analysis for ISLG

- 134 ISLG, in partnership with RSSB, commissioned a study [Ref 4] to provide ISLG and its members with a safety risk profile that will enable a more risk-based approach to safety management to be taken.
- 135 To generate the risk profile, eight members of the ISLG supplied incident and normalisation data from their internal databases. The eight selected companies were considered to be broadly representative of the full range of work activities undertaken by the ISLG members as they include both large and small contractors, as well as representatives of railway trade bodies such as the Rail Industry Contractors Association and the Rail Plant Association.
- 136 In carrying out this study, a number of incident reporting concerns were raised as follows:
- Some contractors have no visibility of the information that is fed into SMIS relating -to their incidents. They are not often contacted to check the accuracy of the incident details to be input into SMIS. In addition, they are often not asked to supply any findings from their internal investigations (which may result in the initial view of the cause being changed) or how long a worker was off work.
 - Some incidents supplied by the contractor to those responsible for inputting into SMIS were not actually entered into SMIS.
 - Some incidents from company databases do not appear in SMIS when they should be in scope. Of the 3,316 incidents (of all types including personal accidents) in the ISLG dataset used in the analysis, only 33% were in SMIS. While some of these were considered out of scope, most were in scope.
- 137 The report made a number of recommendations including the need for a 'minimal data' report form to be created for contractors to complete when involved in a Network Rail owned event. Network Rail has designed this form and is now in the process of trialling it.

9.2 Industry processes for reporting, created by Railway Group/Network Rail/Individual Company Standards and guidance

9.2.1 Introduction to Network Rail company standards

- 138 A suite of Network Rail company standards cover reporting, collectively referred to as the 'Reporting and investigation manual'. The higher Level 2 standard is 'Accident and Incident Reporting and Investigation' (L2/INV/002), which mainly focuses on definitions and the key principles of the process. Below this, the next key standard in the hierarchy is the 'Introduction to and contents of the Reporting and Investigation Manual' (L3/INV/0001). A key feature of this document is that it maps out all the reporting and investigation standards and who has responsibilities within them. There are currently 18 standards sitting beneath this standard, covering reporting (11), investigation (5) and Investigation tracking/recommendation management (2). The one most critical to this review is 'Reporting of personal accidents and assaults to employees and contractors' (L3/INV/0103).
- 139 In addition, there are two key reporting forms relevant to this review, initial and detailed report forms (NR2072A and NR2072B, respectively). However within the reporting process there are a number of other reporting forms (eg NR2072S related to assaults).
- 140 These standards include some elements of RIDDOR reporting. However the greatest level of detail on the RIDDOR regulations can be found in the 'SMIS event matrix' which is a document referenced from the standards. While the responsibilities for understanding or reviewing the SMIS event matrix are ambiguous in the standards they have been reported to the review as being solely the responsibility of the Safety Reporting Team responsible for the input to SMIS.
- 141 The suite of standards have always provided a process which covers the key steps in RIDDOR reporting described above, with the Safety Reporting Team being responsible for RIDDOR reporting of accidents to Network Rail employees. Contractors to Network Rail are responsible for their own RIDDOR reporting arrangements, however there is a requirement in the standards that they report the events to Network Rail. For self-employed persons (frequently encountered as sub-contract labour), the company responsible for the premises/site (Network Rail or a Contractor) is responsible for reporting the event. The general standard (L3/INV/0101) requires that contractors report events which do not occur on Network Rail Managed Infrastructure but which involve the activities of Network Rail.
- 142 Some of the standards have been revised in light of the RIDDOR reporting issues identified in 2010. For the purposes of the review earlier versions of the standards were reviewed to identify how they may have influenced the under-reporting of RIDDOR events, and key changes over time.

9.2.2 Findings related to Network Rail company standards and their implementation

143 **Finding: Accident reporting processes in place up to December 2010 did not adequately address the issue of RIDDOR lost time injuries and returning to work on 'light duties'.**

144 For 'over-3-day' injuries, the standards in place up to December 2010 will have influenced under-reporting because:

- The judgement as to whether an event, including 'over-3-day' injuries, is statutorily reportable (i.e. RIDDOR reportable) is described in the standards as an automated process which is based on the information input into SMIS: 'In the case of personal injuries, the completion of the relevant fields on the Person object will indicate whether, on the basis of the information input, the event is statutory reportable and this will be shown by the indication in the 'Reportable' field (Inv0113Dec09, Appendix A).
- The data input in to SMIS is based on the information in the accident reporting forms which asked the following questions relevant to 'over-3-day' injuries:
 - Time lost? (yes/no response)
 - If yes, total number of days lost?
- The total number of days lost would be transferred from the incident report form in to SMIS. If the number transferred was greater than three then a simple rule in the database would have triggered RIDDOR reportability. Otherwise, RIDDOR reportability would not be triggered.

145 We did not find any evidence that prior to identification of the issue in mid-2010, any further guidance was provided, or clearly defined, regarding the responsibility for monitoring for 'over-3-day' injuries in addition to what is required for the incident form. We therefore believe that this process would lead to a consistent failure to classify 'over-3-day' injuries for the following types of events:

- People returning to work but not able to carry out the full range of their normal duties.
- People who have rest or holidays in the three days following an incident.

146 Changes to standards which came into force in January 2011 will partly rectify this issue. Firstly, the standards will require that, if the injured person returns to work one, two or three days after the injury, both the line manager and injured person have to identify 'whether the injury sustained prevents them from carrying out any part of their normal duties'. This is then recorded on the accident report form and can be input in to SMIS. This will mean that the process should capture people who return to work, but are not able to carry out the full range of their normal duties. This revised process does not necessarily cover the following elements relevant to RIDDOR classification:

- Confirmation/discussion with staff who have rest days or annual leave following an accident to identify if they could have carried out their normal duties on the four days following the accident.
- How to identify when staff are not able to carry out the full range of their normal duties continuously for the four days following the accident.
- How to identify conditions which may get worse over time rather than better, following the accident.

147 Finding: There is no defined requirement in the standards for RIDDOR responsibility ‘in the line’

148 This review has highlighted that the interpretation of RIDDOR regulations, and understanding all their details, are not insignificant tasks. The onus, based on the standards and related documents for RIDDOR classification competence, appears to lie with the Safety Reporting Team. However, those working in that team can only deal with supplied data, which may become out of date as knowledge of an injury develops. There may also be errors in use of the reporting forms which could mean that a RIDDOR event is not easily identified during review of the form by the Safety Reporting Team. For example, the detailed accident form includes a tick box for ‘amputation’ or ‘fracture’, but a section manager choosing to tick or not tick that box, may be unaware of the RIDDOR definitions which underpin ‘amputation’ and ‘fracture’, as this is not included in guidance on completing the forms (NR/GN/INV/5101). The Safety Reporting Team would not be able to determine if such an error has occurred. However, those closer to the incident ‘in the line’ would be better able to identify such an error.

149 Failures to require RIDDOR competence in the line, and to train accordingly will have contributed to misunderstandings as to the ‘over-3-day’ reporting requirements when returning on light duties and also as to the classification of pre-existing conditions.

150 Complex issues over RIDDOR classification need dialogue at much closer proximity to the actual event/injured person to fully understand whether an incident should be RIDDOR reportable. Placing responsibility for RIDDOR classification confirmation in the line (potentially the Workforce Health & Safety Advisor role) would also support the Network Rail philosophy of safety being ‘in the line’. Confirming the RIDDOR classification and reporting to the ORR would remain the responsibility of the Safety Reporting Team via SMIS. Any requirements for RIDDOR competence would need to be based in the competence management system.

151 Finding: Although Network Rail has a large suite of standards relating to accident reporting, the training provided on the use of the standards for managers responsible for completing accidents forms and investigating the accidents is considered generally inadequate. Practices tend to be passed on by word of mouth.

152 Line managers and project managers have responsibilities under nine separate standards within the reporting and investigation manual. A consistent theme from the review is that line/project managers develop an understanding of their responsibilities as defined in the Network Rail standards through experience rather than through a competence management process, or through a review of the standards. Some are not aware that the standards exist and others would admit to not having read them or knowing their content. This can lead to:

- Misunderstanding of responsibilities for reporting (eg what the line manager, supervisor, HSEA professional or front line staff should do).
- Failure to identify changes to standards.
- Variations in how the process is implemented.
- Omissions from the process.
- No evaluation by staff as to the usability of the standards

153 **Finding: Front-line staff, supervisors and people in safety roles (eg COSS) are not consistently provided with training on their responsibilities as defined in the reporting standards**

154 Front line staff and contract staff have responsibilities defined in the standard 'Reporting of personal accidents and assaults to employees and contractors' (L3/INV/0103). However, based on the evidence supplied to us by staff and managers, these reporting requirements are not consistently briefed to staff as part of their induction, or at subsequent points.

155 It was put to us that, due to the rarity with which reporting requirements will be used, it is not necessary to ensure staff are competent in the process. However, failure to train staff can mean that:

- Low reporting rates may relate to the fact that people do not know how to report. We found some support for this view in the interviews.
- Key elements of the process as designed may not be used. For example, if staff are not empowered and educated to contact 'Fault control' directly themselves, then the supervisor or line manager can more easily control what is reported. This can lead to under-reporting.
- If staff are not trained on the philosophies and reasons for reporting (eg learning lessons to prevent re-occurrence, creating a 'just culture') then different perceptions, as evidenced, can develop (eg the reporting process is there to blame the person who had the incident).

156 The reporting process should form part of the competence management system for front line staff.

157 It should also be considered that there may be people who sit in safety (eg COSS) and supervisory roles who deal and interact with staff on a daily basis, but do not

have defined responsibilities under the standards. Consideration needs to be given to how these roles can support the reporting process through, for example, their role in briefing staff and creating an open reporting culture.

158 Finding: Staff perceptions that the reporting process has too much paperwork are a barrier to reporting

159 A frequent reason cited for not reporting incidents was that there was perceived to be too much paperwork involved in reporting, which (it was felt) adds burden to the already heavy workload for both front line staff and their line managers. By not reporting, this burden is avoided. Some managers also raised issues with the usability of the forms in their specific applications. Repetition of information required when moving from the initial to the detailed accident report form was also raised as an issue.

160 The amount of effort that is put into an accident report should be proportionate to the actual or potential risk associated with the accident. Doing the same level of investigation for all types of accident regardless of their risk level can lead to staff being overburdened with unnecessary paperwork.

161 Finding: Staff perceptions that the reporting and investigation process can provide negative outcomes for staff are a barrier to reporting

162 This review has not assessed the investigation process in detail. However, staff perceptions of what will happen during the investigation process, will influence how likely they will be to report. If they feel there will be negative outcomes as a result of reporting then this will act as a disincentive to reporting. Staff have raised issues in this context which include the following perceptions and examples:

- They will be unfairly blamed for the incident during the investigation
- They will not be involved in the investigation process or in identifying remedial measures
- They will not get feedback about their accident
- Measures will not be put in place to prevent re-occurrence, so there is little value in reporting
- They do not wish to receive the publicity (eg being videoed for a reconstruction or their incident details being presented in the SEAR) which can form part of the reporting and investigation process. This also raises the issue of the level of investigation into an accident being proportionate to the risk associated with that accident.
- Some managers were perceived as being driven by the need to close the report as soon as possible, rather than making the effort to find out if an accident was actually RIDDOR reportable.

- 163 We noted that many of the issues we have found with the reporting process were revealed in 2006 in the document 'We are Trackmen' [Ref 8] which was based on workshops with Network Rail staff. We are not sure what use and review Network Rail made of this report when it was received.

9.3 Safety training provided to Directors to determine its adequacy in enabling them to interpret safety related data.

- 164 **Finding: Directors do receive safety training, but this does not include consideration of accident ratios.**

- 165 Safety training is provided to the Directors and non-Executive Directors. It is based on a standard set of PowerPoint slides which are adapted to match the requirements and experiences of the directors. The slides have been reviewed and questions asked of directors in relation to their training. There are also bespoke briefings given by the respective function heads.
- 166 The training provided covers: the safety risk profile; safety targets and reporting; managing safety risks; accident investigation and assurance arrangements; overview of health and safety management systems; co-operation, regulations and interfaces. The training includes presentation of data related to quantitative safety targets (both FWI and AFR), the SEAR report, along with some information on safety culture and behaviour-based safety initiatives within Network Rail.
- 167 A stimulus for this review has been ORR concerns regarding the ratio of major injuries compared to the RIDDOR reportable lost time injuries. The training provided does not include information on the theories about the relationship between major and minor injury events and accidents triangles, such as those presented by Heinrich. While there is debate as to the validity of these models, they have been the key to identifying the under-reporting issue at Network Rail.
- 168 Accident triangles encourage quantitative benchmarking. However, HSE guidance on benchmarking states that:
- 'Accident statistics can be useful but remember that they only show the 'tip of the iceberg.' Process benchmarking allows real improvement to be made as you examine what goes on and how it could be done better.'⁸
- 169 This issue should be borne in mind when deciding on the prominence given to accident ratios within management systems.

⁸ 'Health and Safety Benchmarking: Improving Together' HSE INDG 301.

9.4 Reasons the under-reporting of RIDDOR data had not been identified and acted upon earlier

- 170 **Finding: Network Rail Directors and senior managers were of the view that the safety improvement actions they were taking were the reason for the reduction in the AFR. No monitoring of the ratio of RIDDOR lost time injuries to major injuries was undertaken.**
- 171 Over the period being considered for this review Network Rail had initiated several safety initiatives designed to improve safety. Included within these were policies relating to the provision and use of higher quality gloves and the banning of Stanley knives for use when stripping cables, etc. which would impact on the more minor lost time injuries rather than the more serious major injuries.
- 172 Our interviews with Network Rail Directors and senior managers suggested that they believed that it was these initiatives that were the cause of the reduction in AFR. No apparent thought had been given to the possibility that systematic under-reporting or misclassification of these accidents could have been behind the change. There were no formal safety data auditing processes in place to check the accuracy of the data on which they were relying upon.
- 173 It is also the case that, over this period, Network Rail recognised the shortcomings associated with reliance on the AFR as an indicator of safety performance and began placing more emphasis on the monitoring of the FWI rate. The FWI rate takes better account of the severity of accidents, rather than just the number of accidents considered within the AFR.
- 174 The ratio of major injuries to fatalities and RIDDOR lost time injuries to major injuries has not been one of the measures normally monitored across the rail industry and was not therefore in the mindset when Network Rail were reviewing accident statistics and charts. Notwithstanding that, one interviewee, now retired from the industry, commented that 'it is unbelievable that so many safety professionals could regularly review charts within the SEAR (such as Chart 2) and not realise there was a problem with the number of lost time injuries relative to the number of major injuries.'
- 175 The ORR informed us that they had raised the issue of the falling ratio of RIDDOR lost time injuries to major injuries in their 'Summary of outcomes' papers for 2007/08 and for 2008/09, both of which were sent to Network Rail, but the concern was not specifically highlighted and no specific actions were suggested/requested until their request for analysis in April 2010.
- 176 We have concluded that, given the safety initiatives they had initiated, the increasing focus on the FWI rate and the lack of awareness and monitoring of the issue relating to the ratio of the RIDDOR lost time injuries to major injuries, Network Rail senior personnel believed that the falling AFR was correct and due to their own actions.

- 177 At the two stakeholder panel meetings in December 2010 and January 2011 it was pointed out by some of the participants that Network Rail Directors and senior managers tended to be more receptive to good news and trends, and to emphasise them in the messages they gave to staff, the ORR, etc but more defensive and closed when it came to accepting or acting on bad news and trends.
- 178 It was suggested that this attitude/mindset will have contributed to the Directors not recognising that the falling AFR could have had an explanation other than being the result of the actions they had taken.

9.5 Basis and structure of the league tables, contractual requirements and bonus arrangements linked to the Accident Frequency Rate (AFR)

- 179 This section outlines how league tables, contractual arrangements and bonus arrangements are, or have been, linked to the AFR. Subsequent sections provide the findings on how this has influenced the RIDDOR reporting process.

9.5.1 AFR targets

- 180 At the time maintenance was brought in-house Network Rail managers had little experience of assessing the supplier contractors, as they were previously managed by the Infrastructure Maintenance Companies (IMCs). As part of its processes for assessing contractors both at the time of contract tender and for the contract duration Network Rail used the contractor company AFRs compared with the in-house Network Rail AFR.
- 181 AFR targets were first introduced across Network Rail in 2004. The AFR (and more recently the FWI rate) targets are set each year through agreement at the Network Rail Tactical Safety Group, based on proposals brought forward by each functional director. The targets are designed to challenge Network Rail managers and contracting companies to deliver year on year improvements and enable Network Rail to identify the poorer safety performers. However, there is no set formula for calculating the level of target reduction and no overall assessment as to whether the achievement of the new targets is likely to be realistic and achievable. Separate AFR (and FWI) targets are set for:
- Combined workforce – national
 - Maintenance
 - Investment Projects
 - Asset Management Projects
 - Operations and Customer Services
 - NDS (employee)
 - NDS (contractor)

182 An example of the target setting is shown in Chart 2 above. The 2009/10 workforce safety AFR target for the national combined workforce was 0.196 RIDDOR accidents per 100,000 worker hours. The performance at the end of period 13 2009/10 was assessed at the time as 0.159 RIDDOR accidents per 100,000 worker hours. Given the desire for continuous improvement the target for 2010/11 was set at 0.150 RIDDOR accidents per 100,000 worker hours which is 6% below the period 13 AFR level and 20% lower than the 2009/10 AFR target. Taking account of the currently known under-reporting of RIDDOR lost time injuries the AFR for the end of period 13 2009/10 is now shown in the SEAR as 0.18 RIDDOR accidents per 100,000 worker hours.

183 AFR (and FWI rate) targets are set for all of its main contractors who undertake more than one million worker hours work per year.

9.5.2 '365 accident-free days' certificates

184 To encourage contractor companies and Network Rail Delivery Units and teams to work safely the Safety 365 Challenge initiative was launched in 2006. This initiative was based on rewarding teams with certificates for achieving a number of RIDDOR-reportable accident-free days (typically 100, 200 and 300 days). If 365 days were achieved 365 branded fleeces and mugs were also awarded.

185 Progress against the accident-free day targets is published for contractor company depots, at the Network Rail Maintenance Delivery Unit level and down to the Network Rail Maintenance Section Manager level (relating to the performance of their team typically 10 to 50 workers).

9.5.3 Safety league tables

186 The safety league tables were launched within the Network Rail Maintenance function by the Network Rail Director of Infrastructure Maintenance in October 2007 following successful previous experience of the use of such league tables within the gas distribution industry.

187 The safety league tables are one of several types of league tables covering:

- Safety
- Finance
- Productivity
- Backlog
- Q12
- Maintenance unit cost
- Lineside visual environment
- Data quality
- Infrastructure
- Gauging

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- Reliability

- 188 These are used together to produce the overall table of league tables in which each Delivery Unit has a score, with higher scores indicating better performance.
- 189 The league tables initiative was designed to provide a vehicle for challenging and improving performance across the 40 Network Rail Maintenance Delivery Units and the National Programmes Team by motivating managers to be the best/highest scoring delivery unit and encourage others to learn from the good performers/highest scorers. Safety league table scores also forms part of the yearly performance assessment for the Infrastructure Maintenance Delivery Unit Managers (IMDMs) and Infrastructure Maintenance Engineers (IMEs).
- 190 The safety league table is based on scores being assigned to a number of different safety measures and actions for each delivery unit. The scores are cumulative over a financial year and are normalised per 100 staff within each delivery unit, to give an equitable basis for comparison across the different delivery units.
- 191 The safety league tables are quite complex, consisting of many elements. Table 10 shows the make up of the 2008/09 safety league table.

Measure		Points awarded
1.	Hazards removed	+1 point for each hazard removed
2.	Staff, or contractor, near miss with a train	- 50 points for each incident reported by a driver alone +100 points if the incident is reported by staff
3.	Staff, or contractor, accident near miss reported	+5 points for each accident near miss reported by staff and verified
4.	Accident reported in the Maintenance Delivery Unit to staff and contractors with no lost time	+5 points for each accident reported
5.	Any accident where the injured party is unavailable for work the next day due to their injuries or reportable under the RIDDOR regulations	-100 points for a RIDDOR major accident -50 points for a RIDDOR 3 day+ accident -25 points for a lost time accident (not RIDDOR)
6.	The number of road vehicle incident (excluding broken windscreens, vandalism and third party liability)	-10 points for each incident
7.	The number of RIDDOR free days as measured in the Safety 365 Challenge	+75 points for every 100 day certificate +200 points for every 200 day certificate +400 points for every 300 day certificate +600 points for every 365 day certificate
8.	A quality report for any accident or near miss incident.	+40 points for each quality report +20 points for each reconstruction +20 points for each incident review group held
9.	IMDM visits to trackside worksites	+10 points for each visit trackside documented An Additional +20 points if a Safety Tour is carried out and it is Midweek Days An Additional +50 points if a Safety Tour is carried out and it is Midweek Nights or Weekends
10.	Formal Safety Tours or Planned General Safety Inspections carried out in line with the Maintenance procedures	+5 Points for every Vehicle or Accommodation check carried out +20 Points for each SSOW or Possession Check

Measure		Points awarded
11.	Formal planned inspections carried out by Safety Representatives in the course of their duties	+20 points for each inspection documented appropriately in Managers / Supervisors notebook
12.	Number of Team Leader Safety Days in the Period and the number of sections within the Delivery Unit that have a Roll Call.	+50 points for every Team Leader Safety Day held – Minimum of 3 to 4 hours with a minimum of 6 attendees. +50 points for every Section holding a Daily Role Call
13.	Expired track safety competences when compared to the individuals competence profile recorded on Competence Management System (CMS)	-10 points for each expired competency
14.	The number of training days missed where notice of non-attendance is not advised, or a replacement delegate is not advised to the training contact within 24 hours of the course	-10 points for each training day missed per person

Table 10. 2008/09 safety league table

192 As an indication of what this means in practice, at the end of the year 2008/09, the delivery unit in 20th position (out of 40) in the league table finished with a score of 10,000 points per 100 staff (770 points per period on average).

193 In relation to the potential influence of the reporting of RIDDOR lost time injuries it can be seen that three of the 14 measures are relevant:

- Measure 5 – reporting a RIDDOR lost time injury, -50 points
- Measure 8 – producing a quality report after the accident, up to +80 points
- Measure 7 - The number of RIDDOR free days as measured in the Safety 365 Challenge, up to +600 points for a '365 day' certificate

194 From the above it can be seen that the loss of points for reporting a RIDDOR accident could be completely offset by ensuring that a quality report was produced after the accident was reported. However, if the reporting of a RIDDOR lost time injury meant that the Delivery Unit failed to achieve a Safety 365 Challenge certificate a more significant loss of points would occur.

195 For 2009/10 the safety league table structure was enhanced, based on the experience gained from the 2008/09 safety league table with more measures added, such as negative scores for the occurrence of Irregular Working Events recorded and positive points for improvements in the percentage of green zone working.

196 In relation to the measures which are affected by RIDDOR reporting the following changes were made:

- Measure 5 – the reporting of a RIDDOR lost time injury was retained as before, - 50 points

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- Measure 8 – producing a quality report after the accident was retained but the maximum number of points available was reduced from 80 to 60.
- Measure 7 - The number of RIDDOR free days as measured in the Safety 365 Challenge was retained but the scoring changed as follows; + 1 point for each member of staff in the Team for every 100 day certificate, + 3 points for each member of staff in the Team for every 200 day certificate, + 5 points for each member of staff in the Team for every 300 day certificate, + 10 points for each member of staff in the Team for every 365 day certificate and + 12 points for each member of staff in the Team for every 500 day certificate

- 197 As before, all points were totalled and normalised per 100 staff in the Delivery Unit (with the exception of the IMDM's, IME'S and National Programme Managers Safety Tours and the points scored for reaching 100, 200, 300 or 365 RIDDOR free days which were added as a whole number to give an overall score).
- 198 For the average Delivery Unit of 430 staff the reporting of a RIDDOR reportable lost time injury, which caused a 365 day certificate not to be awarded, would result in the loss of 4,300 points for the Delivery Unit and, a further 5,100 points loss if the Delivery Unit could have gone on to achieve 500 accident-free days.
- 199 For the 2009/10 safety league tables, Delivery Units were set the minimum target of reaching the level of the team that finished 20th in 2008/09 i.e. a minimum of 10,000 points per 100 staff. The lowest total score achieved for 2009/10 was 28,400.
- 200 A further change was made in September 2009 whereby to receive points for the Safety 365 Challenge certificates the number of accident free days had to relate to all lost time accidents instead of only RIDDOR reportable lost time injuries. The overall likelihood of a Delivery Unit scoring the higher points scores for 365 certificates was severely reduced by this change.
- 201 As part of their initial review, once the RIDDOR under-reporting issue had been raised Network Rail recalculated the 2009/10 safety league tables excluding the effects of Measures 5 and 7. While the first place and last place Delivery Units were unchanged, the maximum position change for a Delivery Unit was -9 places, falling from 29th place to 38th as a result, with measure 7 being by far the greatest influence.
- 202 It is therefore clear that reporting of RIDDOR lost time injuries and its effect on receiving accident-free day certificates could have had an impact on the position of a Delivery Unit within the safety league table.
- 203 The Delivery Unit safety league table positions are presented each period in the SEAR. The 'Maintenance Safety Cup' is awarded to the Delivery Unit with the highest score per 100 staff at the end of each year.

- 204 At the end of each period the Delivery Units in the bottom 10 have to explain to the Network Rail Director of Infrastructure Maintenance why they are in the bottom 10 and what they are going to do to improve.
- 205 The safety league table score for each Delivery Unit is set at zero at the start of the financial year and therefore in the initial periods of a year there can be a lot of volatility in the position each Delivery Unit has in the overall league table. For example, the loss of an award of a certificate for 365 accident free days due to an accident being reported could see a Delivery Unit being in the bottom ten when it would have otherwise been in the middle or upper part of the league table.
- 206 Our interviews with staff indicated that at the lower levels in the organisation the safety league tables are not well understood and the staff perceived that the number of reported accidents has the biggest effect on league table position. In the 2009/10 safety league table, by far the biggest contributor was in fact the number of safety tours carried out by the Infrastructure Maintenance Delivery Manager, Infrastructure Maintenance Engineers or National Programme Managers accounting for, on average, around 40% of the total score for each Delivery Unit.
- 207 Since the issue of the under-reporting of RIDDOR lost time injuries came to light, the 2010/11 safety league table structure has been simplified and revised to remove the negative points for RIDDOR accident reporting and the positive points for being awarded Safety 365 Challenge certificates for RIDDOR accident free days. It now contains only ten measures all of which relate to positive safety actions.

9.5.4 Contractual requirements

- 208 As noted in Section 9.5.1 the AFR is used both in the initial assessment and the ongoing assessment of the safety performance of contractor companies. This section describes the contractual requirements relating to AFR for both the tendering and ongoing assessment stages of contracts. The information has been obtained from interviews and conversations with Network Rail staff and reference to Network Rail company standards.

9.5.4.1 Supplier qualification and tendering

- 209 Before a contractor company can provide services to Network Rail it must first be registered on their 'Link-up' system.
- 210 The requirements relating to supplier qualification are stated in Network Rail company standard 'Supplier Qualification - Core Requirements' (NR/L3/CPR/302). Section 6.18 of the standard states the requirements in relation to accident reporting and investigation. While there are no set AFR targets a contractor must meet before being registered, as part of the assessment process they must provide:

- Statistics (covering the past 2 years) for all RIDDOR, environmental incidents and near misses involving employees under their control – the type of injury, what occurred and the outcome actions shall be described for all items;
- copies of RIDDOR F2508 report forms sent to HSE in the last 12 months;
- investigation reports produced in the last 12 months.

- 211 The assessor then reviews the evidence provided and confirms if the company has adequate processes in place to meet the requirements of Network Rail.
- 212 At the pre-qualification stage for a specific contract a company may again be asked for its recent AFR, as there may have been sometime since its last submission to 'Link-up', but again no specific AFR targets are used.
- 213 At the invitation to tender stage the safety related questions tend to be concerned with how the company proposes to manage safety for the project rather than a focus on AFR performance.
- 214 The description of the above process relates to what is currently done. However, as noted in Section 9.5.1, at the time maintenance was brought in-house Network Rail managers had little experience of assessing the supplier contractors as they were previously managed by the Infrastructure Maintenance Companies (IMCs). To aid contractor assessment both at the time of contract tender and for the contract duration, Network Rail used the contractor company AFRs compared with the in-house Network Rail AFR.
- 215 Contractor companies have been suspended from bidding for new work as a result of poor safety performance, most notably Carillion in 2006. From our interviews with Network Rail staff it is apparent that an organisation has recently been denied access to further contracts on the basis its safety performance.
- 216 Contractor companies are therefore very much aware that their AFR is part of the consideration by Network Rail when being assessed for new contracts.

9.5.4.2 Ongoing contractor monitoring

- 217 In the same way as for its own staff, Network Rail is committed to improving safety in relation to the work carried out by contractors. To do this Network Rail has established AFR (and FWI rate) targets for all of its main contractors who undertake more than one million hours work per year. The individual company performance against the targets is monitored on a period by period basis within the SEAR reports and the information pack provided for review for the Projects Safety Leadership Group (PSLG) meeting. The targets are set as per the process described in Section 9.5.1.

- 218 The performance of each contractor company relative to its AFR (and FWI) target is therefore widely known within Network Rail and by the contractor companies.
- 219 With the exception of the track renewals contracts there is no ongoing linkage between their AFR performance and a monetary payment. For the track renewals contractors there is a process known as the 'track asset balanced scorecard' where a sum of money⁹ can be shared between the four companies in the proportion of 40%, 30%, 20% and 10% depending on their overall score from their scorecards. The scorecard is made up of six elements:
- Engineering compliance - 12%
 - End to end process compliance – 20%
 - Cost – 25%
 - Volume – 20%
 - Safety – 15%
 - Worksite timeliness – 8%
- 220 The safety element is made up of:
- AFR – 6%
 - Weighted significant incident frequency rate – 7%
 - Environmental incident frequency rate – 2%
- 221 Clearly, the AFR element makes up a relatively small proportion of the overall consideration, but it is possible that this factor on its own could cause a position change for a contractor and therefore cost it some money, perhaps up to £100,000 in a year where the bonus is high. With the number of RIDDOR lost time injuries per company being relatively small, one additional RIDDOR lost time accident reported could have a significant effect on the AFR and cause the target to be exceeded, thereby a getting a 0% AFR score on the scorecard.

9.5.5 Bonus arrangements

Network Rail operates a bonus scheme for all its employees to help incentivise good performance. The scheme operates at the following different levels:

- Directors
 - Senior managers - Bands 1 and 2
 - Managers – Band 3
 - General employees
- 222 In all four cases there is no direct AFR target or other safety related target link between safety and the amount of bonus received.

⁹ The money available depends on the amount saved by the contractors in the execution of their contracts. In some years this can be zero and in others has been as high as £1 million.

9.5.5.1 Directors

- 223 The basis for the award of Directors' bonuses is explained at some length in the Network Rail annual reports. The structure consists of mechanistic targets relating to Public Performance, Cost Efficiency Index, Asset Stewardship Indicator and Passenger Satisfaction together with judgemental measures relating to customer satisfaction and the investment programme. In addition to these criteria the Remuneration Committee has the ability to apply a 'discretionary overlay' on the award taking into account a range of factors including safety performance.
- 224 For the 2009/10 award the mechanistic and judgemental measures reduced the maximum bonus by 29% to 71%. In relation to the discretionary overlay the Annual Report states that:

"...beyond those decisions reached against the mechanistic targets and judgemental measures the [Remuneration] Committee felt that it was appropriate to apply a downward discretion of 20 per cent on the award. The major part of this applies to the issue of safety. The Committee noted the real progress made on a number of key measures of safety outlined in this report [which included the reported, and now known from our review to be inaccurate, 30% drop in AFR] but felt that it is also needed to be recognised that there is still much to do and that there have been a number of very regrettable workforce incidents, including the fatality of one Network Rail employee and two contractors."

NOTE: Words in the text above are from the Network Rail Annual Report from 2009/10 apart from those within brackets which are inserted by the review team

- 225 As result of these discretionary overlay considerations, particularly in the area of the fatalities that occurred, the 71% bonus remaining was reduced by a further 20% to 56.8% of the maximum possible. The total annual award reduction for the Directors was therefore 43.2%.

9.5.5.2 Senior managers and managers in bands 1 to 3

- 226 In these cases the bonus schemes are based on mechanistic targets similar to those for the Directors. None of the schemes includes a direct AFR target or other safety related target and there is therefore no link between safety and the amount of bonus received.
- 227 The Remuneration Committee has the discretion to vary the results of the Incentive Plan process if they feel that the overall business performance of Network Rail is unsatisfactory.

- 228 The Remuneration Committee, in determining the amount payable under the Annual Incentive award, must take into account all factors that it believes are appropriate for assessing overall business performance including:
- Safety performance (passenger and workforce);
 - The extent to which the key objectives of the Delivery Plan over the performance period have been achieved;
 - Financial performance, including the level of Net Debt and other relevant ratios;
 - Reputational issues;
 - Compliance with the obligations set out within the network licence;
 - Compliance with the conditions as set out in the Access Agreements with our customers;
 - Any breaches of contract or other significant issues; and
 - Any other objectives that ORR may specify from time to time.
- 229 Within the bonus scheme it is the role of the Performance Pay Leader (typically within Network Rail Maintenance this would be the Route Infrastructure Maintenance Director) to determine overall pay and bonus awards, taking account of individual performance rating and the relevant internal pay comparators.
- 230 The outturn of the six corporate performance measures above determines the funding for an overall Bonus Pot. The Bonus Pot is in turn broken down by function. Each functional director can choose to split the overall Functional Bonus Pot. The Bonus Pot is then apportioned to each Performance Pay Leader, who then uses the bonus pot to allocate a bonus award taking account of individual Performance Rating.
- 231 As part of the review we have examined how the individual performance ratings are determined within the Delivery Units. The determination of the individual ratings is based on the consideration of many factors covering cost, performance, customers, standards and safety. In the individual performance schedule for the Route Infrastructure Maintenance Director the RIDDOR AFR, all lost time accident AFR and the FWI index are directly included. For the Infrastructure Delivery Unit Managers and Infrastructure Maintenance Engineers the RIDDOR AFR, all lost time accident AFR and FWI index are not included but safety league table score per 100 staff is explicitly included.

9.5.5.3 General bonus scheme

- 232 This is similar to the schemes described above consisting of mechanistic targets and discretion by the Remuneration Committee. Safety is just one of the considerations of the Committee.

9.5.5.4 Individual personal objectives

- 233 Some managerial staff did state that their personal objectives included AFR targets. These objectives do influence their performance ratings, which in turn could influence the size of the bonus allocation.

9.5.5.5 Contractors

- 234 Given the range of contractor organisations that work for Network Rail it was not practical for the review to get a full picture of the range of management bonus schemes that exist. In one case, however, it was stated the reporting of RIDDOR accidents led directly to a loss of company bonus with one RIDDOR accident occurring in the year resulting in the bonus dropping 10-15%. The individual considered that this linkage between RIDDOR and bonus was not a good idea.

9.5.5.6 Summary of bonus arrangements

- 235 In our review of the Network Rail bonus arrangements we found that safety performance targets such as AFR and FWI are not direct mechanistic measures in the assessment of the amount of bonus individuals across Network Rail are awarded. There is, however, an indirect linkage through the deliberations of the Remuneration Committee and the individual performance assessments for some managers.
- 236 We are aware that the full picture in relation to the under-reporting of RIDDOR emerged after the deliberations of the Network Rail Remuneration Committee over the bonuses to be paid to Network Rail Directors for 2009/10. Had the level of RIDDOR lost time injuries been correctly reported, the overall risk to the Network Rail workforce, in terms of the FWI recorded for 2009/10, would have been around 5.5% higher than previously stated.
- 237 From the considerations above, our assessment is therefore that the correct reporting of RIDDOR reportable accidents would have had little or no effect on the Remuneration Committee's deliberations because:
- The mechanistic and judgemental measures parts of the Directors' bonuses are not affected by AFR,
 - The correction of the AFR for 2009/10 would have implied a relatively small increase in workforce FWI risk, and
 - It was the more serious fatality related accidents that motivated the Remuneration Committees to make a 20% discretionary overlay reduction in relation to safety.

9.6 Potential influence of league tables, contractual requirements, other management incentives or other management behaviours on the reporting of injuries

238 In carrying out the interviews, telephone discussions and responses to the confidential reporting line during the review we explored with Network Rail and contractor staff the factors that may have led companies, teams and individuals to under-report or misclassify RIDDOR-reportable lost time injuries.

239 The reporting of RIDDOR lost time injuries by Network Rail staff and contractors are discussed in separate sections below.

9.6.1 Potential influences on reporting by Network Rail staff

240 The RIDDOR reportable accident data analysis (reported in Section 9.1) indicates that the issue of under-reporting and misclassification of RIDDOR lost time injuries was most prevalent within the Network Rail Infrastructure Projects function which is covered in Section 9.6.2. For the remaining Network Rail functions, under-reporting and misclassification was most prevalent in the Maintenance function. The following discussion relates in the most part to Network Rail Maintenance.

241 In addition to issues raised regarding the application of Network Rail company standards and RIDDOR definitions in Section 9.2, the interviews, telephone discussions and responses to the confidential reporting line highlighted the following potential influences on the reporting of RIDDOR lost time injuries:

- AFR targets
- The Safety 365 Challenge RIDDOR accident free day certificates
- The safety league tables
- The Network Rail Managing for Attendance procedure
- Network Rail company re-organisations, job security and overtime
- Accident follow-up and learning from accidents
- Other pressures affecting reporting

242 Each of these potential influences is discussed in the following sub-sections.

9.6.1.1 AFR targets

243 **Finding: AFR targets may have influenced RIDDOR lost time accident reporting behaviour within Network Rail maintenance, although not as much as other factors discussed below.**

244 Each Network Rail function has had AFR targets set as described in Section 9.5.1. In relation to the Network Rail Maintenance function the progress against the AFR target is monitored at the Route level on a period by period basis.

- 245 In Section 9.5.5 we identified that the individual performance schedule for the Route Infrastructure Maintenance Director includes: the RIDDOR AFR; all lost time accident AFR; and the FWI index. These targets do not apply to the Infrastructure Maintenance Delivery Managers or Infrastructure Maintenance Engineers.
- 246 Our interviews with the Infrastructure Maintenance Delivery Managers and Workforce Health and Safety Advisors within the Delivery Units suggested that not a great deal of attention is given to the AFR target within the Delivery Units as it is monitored only at the Route level, owing to the relatively small number of accidents per year occurring within each Delivery Unit.
- 247 Evidence from frontline staff suggests that the AFR target is not something they are particularly aware of and it would not provide them with sufficient incentive or pressure not to report an accident.
- 248 We therefore consider it unlikely that AFR targets have provided much of a disincentive to reporting RIDDOR lost time injuries within the Delivery Units. Any under-reporting of RIDDOR accidents derived from the pressure to meet AFR targets is only likely to be associated with misclassification of reported accidents, rather than the accidents not being reported by staff.
- 249 AFR targets are more of an issue for contractor companies as discussed in Section 9.6.2.

9.6.1.2 Safety 365 Challenge days since last RIDDOR accident certificates

- 250 **Finding: The issuing of certificates for RIDDOR accident free days has influenced behaviour in relation to RIDDOR reporting. It has been generally recognised as having the potential to lead to pressure on staff not to report or to misclassify RIDDOR lost time injuries.**
- 251 The background to the Safety 365 Challenge certificates is described in Section 9.5.2. The initiative, which is also used widely in other industries, has been used by Network Rail since 2006.
- 252 Network Rail Managers and frontline staff told us that initially the initiative had a high level of impact but it has, more recently, lost some of its momentum.
- 253 A number of people told us that they liked the certificates as a means of acknowledging good safety performance and that Safety 365 fleeces were worn with pride.
- 254 The number of RIDDOR accident-free days is generally quoted at the Section Manager level within the Delivery Units, with named lists being published on Delivery Unit notice boards and within the regular 'Pulse reports' that are issued to the Train and Freight operating companies who use the infrastructure covered by each

Delivery Unit. While this can be viewed as being a good thing for those with a high number of accident-free days, for those that have experienced accidents in their teams it is seen as 'naming and shaming'. This provides an incentive and pressure to not report the accidents or to misclassify the accidents as not being RIDDOR reportable.

- 255 Evidence from the confidential reporting line suggests that this applies considerable pressure on some Section Managers such that they in turn apply pressure to staff not to report accidents. People who contacted us through the confidential reporting line gave us examples of Section Managers not giving staff who report accidents overtime, giving them poor shift patterns or generally making them feel uncomfortable in their working environment.
- 256 From our interviews with Network Rail Directors and senior managers it is evident that at the time the Safety 365 Challenge was initiated, no consideration was given to the potential effects on the reporting of RIDDOR lost time accidents. As such no safeguards, in terms of independent checking of reporting levels or staff attitudes to reporting, were put in place.
- 257 The award of Safety 365 Challenge certificates also has a bearing on the safety league table scores for a Delivery Unit as described below.

9.6.1.3 Safety league tables

- 258 **Finding: Pressure to achieve improved safety league table position and lack of understanding of the safety league tables is likely to have influenced behaviour in relation to under-reporting and the misclassification of RIDDOR lost time injuries.**
- 259 The background to the safety league tables, which only apply to Network Rail Maintenance and the National Programmes team is described in Section 9.5.3. The safety league table initiative was designed as a positive safety initiative for challenging and improving safety performance across the 40 Network Rail Maintenance Delivery Units and the National Programmes Team by motivating managers to be the 'best delivery unit' and encourage others to learn from the good performers. Safety league table scores also form part of the yearly performance assessment for the Infrastructure Maintenance Delivery Managers and Infrastructure Maintenance Engineers.
- 260 In the most part the safety league table structure is designed to give positive scores for positive safety actions such as hazard removal, planned general inspections and quality accident investigations. A negative score was given for the occurrence of accidents.
- 261 It is apparent from our interviews that in several cases the safety league tables have resulted in positive safety improvement in areas such as the increased percentage of

green zone working and empowering Section Managers to give priority to doing their on-site inspections.

- 262 The structure of the safety league tables for the 2008/09 and 2009/10 monitoring years were complex, with 33 separate items scored in the latter. The latest table modified since the issue of RIDDOR under-reporting came to light has been reduced to ten items to be scored.
- 263 The Workforce Health and Safety Advisors are mainly responsible for pulling together the information necessary to populate the safety league table on a period by period basis. The safety league tables have placed a considerable administrative burden on the Delivery Units.
- 264 Our interviews with Network Rail Headquarters staff and staff within the Delivery Units indicated that the complexity of the safety league tables is such that they are not well understood at the lower levels in the organisation. The frontline staff we spoke to stated that they thought it was the reporting of RIDDOR accidents which had the biggest influence on the safety league table position for the Delivery Unit. Having said that, they also indicated that they did not pay particular attention to the safety league table and it would not be sufficient motivation for them not to report an accident.
- 265 From our discussions with the Delivery Unit managers it is clear that they feel under significant pressure from Network Rail Headquarters as a result of the league tables. They see accolades being given to those at the top of safety league table and reprimands being given to those in the bottom ten.
- 266 As noted in Section 9.5.3 it is not only the reporting of accidents that has a negative effect on the safety league table scores. In the event of a RIDDOR accident being reported that prevents the Delivery Unit being awarded a Safety 365 Challenge certificate this can result in a significant loss of points that would otherwise have been added to the yearly total. Taken together with the observation about Delivery Unit managers feeling under pressure, this provides an incentive and pressure to either not report an accident or to misclassify an accident as not being RIDDOR reportable.
- 267 Given the complexity of the safety league table and the desire by many of the Delivery Units to be at the top of the league table (or at least not in the bottom ten) our interviews found that managers believe other Delivery Units have deliberately manipulated the statistics to make their Delivery Unit look better than it should be. An example was cited of the removal of a number of hypodermic needles in an area being counted as individual hazards removed, ie each one scored separately, rather than counting the collection of needles as one hazard removed. This anomaly has been corrected in the latest 2010/11 version of the safety league table.

268 Our interview with the Network Rail Director of Infrastructure Maintenance and other managers highlighted that no review or human behaviour assessment was made of the potential for unintended or negative consequences from the introduction of the safety league tables within Network Rail. Comparison with the list of factors that should be considered when devising good targets in T611 [Ref 4] suggests that:

“Targets should not encourage perverse or undesirable behaviours. When developing targets, careful consideration should be given to how they might be met, and what behaviours might result. It is useful to try to identify all the ways in which the target might be achieved, and to assess any undesirable behaviours or adverse consequences that might result, or desirable behaviours that might be discouraged. If there are significant rewards or sanctions attached to meeting or failing to meet targets, it is particularly important to consider their potential effects.”

269 Discussions with the other Network Rail Directors indicated that the introduction of the safety league tables in the Maintenance function was not a general Network Rail policy decision about how to incentivise safety improvement across the company. A wider consideration as a company policy supported by consideration from a human factors perspective of how the league tables would impact on staff behaviours may have highlighted some of the unintended consequences/perverse incentives that have arisen in the application and use of the safety league tables.

270 A further factor which does not seem to have been considered in the formulation of the safety league tables, and which leads to a perception within the Delivery Units that they are ‘unfair’, is the relevance of local circumstances. An example of this is the ease by which work can be done under green zones in some of the more rural area Delivery Units when compared to the Delivery Units who work on the busy mainlines. When setting targets, contextual factors should be identified and taken into account in the form of, for example, weightings within the scoring.

9.6.1.4 Managing for Attendance

271 **Finding: The Managing for Attendance (MFA) policy has the potential to lead to under-reporting of lost time accidents because staff are worried they will be put on Stage 1 or progress to the next stage. There is a lack of appreciation that managers have discretion regarding the inclusion of accidents within the MFA considerations.**

272 When Network Rail brought maintenance in house the staff TUPE’d into Network Rail from the Infrastructure Maintenance Companies (IMC) came with slightly different versions of the Infrastructure Maintenance Companies’ MFA policies, such that many differences still exist. The equivalent Network Rail Policy is referred to as ‘Managing for Health’ (MFH). We noted however that all the MFA policies operate on broadly the same stage based principles, with staff progressing through three key ‘stages’, if

sequences of absence are not related to a single underlying medical conditions. There is no general requirement to consider the differences between absence related to illness and absence related to a work-related injury in the document. Staff can progress through the following stages:

Stage 1. Three periods of absence in 6 months. Likely outcome - interview required with line manager.

Stage 2. Three periods of absence in 6 months when on stage 1. Likely outcome - final warning could be issued.

Stage 3: Three periods of absence in 6 months when on stage 2. Likely outcome - dismissal.

- 273 We received a number of approaches through the confidential reporting line highlighting the potential influence of the MFA policy on the willingness of staff to report accidents. As a result, the policy was examined further as a part of the review.
- 274 The Network Rail policy is focused on the need for Network Rail to manage employee sickness rates to ensure the sickness is legitimate and, if it is, help those concerned to find ways of improving their health, their attendance record and thus their productivity.
- 275 The MFA is triggered via information from Human Resources records of absences from work which includes absences due to sickness and as a result of accidents.
- 276 The policy is then that the line managers have discretion as to whether Stage 1 or a subsequent stage is initiated. In describing the application of the policy the Section Managers we spoke to indicated that they would apply discretion when accidents were involved. If for example a person had been absent from work on two occasions within six months due to illness and then the person had further time off due to an accident at work, this would not normally cause Stage 1 to be initiated.
- 277 Information received from staff contacting our confidential reporting line and from interviews with frontline staff suggests that it is the general perception among the frontline staff that time off due to accidents is treated the same as time off due to illness. Therefore if staff who have been absent for any reason can find a way of not reporting an accident there is an incentive for them not to do so. In the case of a RIDDOR lost time injury this could be achieved by struggling on at work in an injured state (perhaps with the help of colleagues and/or their Section Manager) or, if they were already rostered off work for a few days after the accident, simply failing to report it.
- 278 For the most part this appears to be an issue of perception rather than fact; nevertheless it does appear to be influencing reporting behaviour. Our interviews highlighted that this issue has not been recognised by Network Rail managers;

indeed at the more senior manager and director levels we found little awareness of the MFH policy at all. This is another example of unintended consequences resulting from the application of a policy.

- 279 The Network Rail Head of Human Resources (Maintenance) has indicated the intention to review the range of MFA policies within Network Rail with the view to streamlining them into one policy. His intention is to have a proposed revised MFA policy available to the Trades Union's for consultation by mid 2011. It was acknowledged that this would provide an ideal opportunity to re-brief all staff about how the policy should work in relation to time off due to accidents.

9.6.1.5 Re-organisations, job security and overtime

- 280 **Finding: What are perceived as constant re-organisations within Network Rail over the past few years have led to concerns and fear by staff that if they report and 'rock the boat' they will be marked out for redundancy, get less overtime or be put on bad shifts**
- 281 Over the past few years Network Rail has undertaken several re-organisations of both the management and frontline staff with the view to making the business more efficient and cost-effective. The most recent re-organisation, known as 'Phase 2B/C' is due for completion in the next month and will see the number of frontline staff reduced.
- 282 A recurrent theme during the interviews and from the confidential reporting line discussions, was that staff perceive that if they report accidents or incidents they will be viewed negatively within the organisation. As a result, they feel they may be marked out for redundancy during the re-organisations, not given overtime, put on the shifts no one else wants or made to work in isolation. This can lead to a personal strategy of 'keeping your head down'.
- 283 Other examples have been identified during the review where staff do not feel able to report various types of safety event. This is a particular issue for the use of the 'worksafe' procedure, which is intended to enable staff to raise safety concerns about apparent unsafe situations and get them dealt with before being asked to undertake the work.
- 284 Views of both frontline staff and managers have been identified, where they consider that Network Rail is not a company where an open and active dialogue can be held about accidents, incidents or safety concerns without fear of reprisals. The reporting of RIDDOR reportable lost time injuries has therefore been compromised by a culture which does not support open reporting. As noted above, the non-reporting of RIDDOR lost time injuries could be done by frontline staff by struggling on at work in an injured state (perhaps with the help of colleagues and/or their Section Manager)

or, if they were already rostered off work for a few days after the accident, just not report it.

9.6.1.6 Other factor affecting reporting of accidents/accuracy of data

285 Finding: The willingness of managers and frontline to report RIDDOR lost time injuries has been influenced by a range of additional factors.

286 In addition to, and sometimes as a result of, the issues raised in Sections 9.2 and 9.6.1.1 to 9.6.1.5 several other factors have been identified that have influenced the reporting of RIDDOR lost time injuries, as follows.

Managing delayed reporting

287 The review has identified cases where staff have been told that where they do not report an accident immediately, but then report the accident more than 24 hours after it occurred, it will not be entered into the system. Genuine delayed reporting can arise for a work-related injury, for example, when a sprain, which initially does not prevent normal duties, develops into something more serious over time. There is clearly a difficulty here in separating genuine accidents at work and those which may have occurred outside work.

Incentive not to follow up accidents

288 Given the incentives that have arisen for accidents not to be classified as RIDDOR reportable, once an accident has been entered as not RIDDOR reportable, there has been little desire by managers to really look into the accidents further to see if they should have been RIDDOR reportable, for example, in the light of new information. The question being asked is 'why shouldn't an accident be RIDDOR reportable?' rather than 'why should an accident be RIDDOR reportable?'

289 It was also noted that for Network Rail, when sub-contractor organisation staff are involved in accidents it can be difficult to follow up the actual outcome of an accident in terms of the number of days a person was unable to carry out their normal duties. This is discussed in more detail in Section 9.6.2.

Need for Section Managers to be interviewed in London after an accident

290 During our interviews with Delivery Unit Managers we were told that whenever a RIDDOR reportable accident occurs, the Section Manager associated with the injured person's team has to travel on their own to Network Rail headquarters in London to see the Director of Infrastructure Maintenance. While it appears that in reality these interviews are group discussions with other Section Managers on general safety issues, the perception by the Section Managers is that they are required to attend for a direct reprimand and post-mortem about the specific accident within their team. This requirement is seen by the Section Managers as being a significant disincentive in relation to the reporting of accidents.

- 291 It was noted that in some cases just the need to travel to London was a sufficient enough disincentive for the Section Managers not to report, let alone the requirement to be interviewed by the Director of Infrastructure Maintenance.

Change in attitude

- 292 During our interviews with Delivery Unit staff it was pointed out that since the introduction of the safety league tables, etc there had been a noticeable change in attitude among some of the more senior managers following an accident. This relates to the change in their initial question after an accident from being 'How's the guy?' to 'How long is he likely to have off?' The significance of this being the greater importance placed on whether the event was RIDDOR reportable rather than for the welfare of the injured party.

Responsibility for accidents

- 293 In addition to perceptions surrounding the Managing for Attendance policies described in Section 9.6.1.4, it was also pointed out that a further disincentive to report occurs when the accident is the fault of the injured person. The perception that the person could lose their job or get a reprimand can be enough to prevent reporting. This may be concealed by struggling on at work in an injured state (perhaps with the help of their colleagues, who can be part of a close-knit team which has worked together for a long time) or, if they were already rostered off work for a few days after the accident, just not reporting it.

Pressures not to report with work teams

- 294 It has been identified by front line staff that there can be a macho culture, particularly related to maintenance teams, which means that reporting an injury is seen as an indication of weakness in the individual. This culture is mainly seen to impact on the reporting of minor injuries, but what seems initially to be a minor injury can develop into a RIDDOR lost time injury.
- 295 Managers have been identified as creating, in a number of cases, a culture in which it is difficult to report. In some cases this has been referred to as a 'bullying' culture. One feature in these situations is the use of indirect sanctions to punish staff outside of formal systems. These punishments can include: working in isolation; loss of overtime; being put on managing for attendance; being put on difficult shifts; carrying out more menial or unrequired tasks.
- 296 It was also reported to us that inexperienced or less confident staff may be less likely to report, due to a wish to 'not rock the boat' or get themselves noticed.

9.6.2 Potential influences on reporting by contractor companies/staff

- 297 Contractors to Network Rail include a diverse range of companies, including the principal contractors, sub-contractors, specialist contractors and labour suppliers.

The contractors also have relationships with different parts of Network Rail, though the biggest scale relationship lies between Network Rail Infrastructure Projects and the contracting community.

- 298 It should be noted that the information below focuses on the potential barriers to reporting. During our discussions with a number of different contracting companies we were also briefed on examples of positive safety cultures where reporting behaviours are discussed with staff from all levels of the organisations in a consistent fashion.
- 299 In the context of diversity in the contracting community, it has been particularly helpful that contractor representative groups have provided inputs to the process which provide some cross-company insights. These groups include the Rail Industry Contractors Association (RICA), National Rail Contractors Group (NRCG) and Infrastructure Safety Liaison Group (ISLG). A record of the discussion that occurred at a workshop held by RICA members is included as Appendix B.
- 300 The following sections aim to look at contractor and sub-contractor issues together, rather than dealing with them separately, due to the common themes and close interlinking between Network Rail, contractors and sub-contractors.
- 301 When considering the possible reasons for under-reporting by contractors and sub-contractors it is necessary to consider pressure Network Rail itself has been under from the government to operate more efficiently and reduce costs in terms of both its own staff and the contracts it procures.

9.6.2.1 AFR targets

- 302 **Finding: AFR targets (including renewals scorecards) have influenced RIDDOR lost time injury reporting by contractors working for Network Rail**
- 303 AFR targets, and therefore RIDDOR incidents, form a key component of the management of contractors by Network Rail. Details of the contractual requirements are summarised in Section 9.5.4. These considerations can be passed on by primary contractors to sub-contractors as well.
- 304 As with many features of this review it is the perceptions of AFR targets and perceptions of how AFR targets are used by Network Rail, as much as the precise mechanisms with which they are used in relation to contractors, which can create a pressure on RIDDOR reporting. Possibly the one exception is the track renewals scorecards where there is a defined (but small) link between financial gain and AFR targets.
- 305 Some key points raised from the confidential reporting line set-up from this review and interviews with both Network Rail and contractor-related personnel, highlight the

negative outcomes that can be perceived to arise out of poor AFR performance for contracting companies:

- Safety performance, including AFR, does influence Network Rail commercial decisions.
- A company is less likely to be selected for work if they have a poor AFR and inadequate consideration was given to how small numbers of events can have strong effects on AFR.
- Contractors have been suspended due to a poor AFR. This is a strongly held belief relating to, for example, the suspension of Carillion in 2006. There is also a view that Carillion were in part punished for having a good reporting culture, and therefore a high AFR.
- A Network Rail member of staff described an attitude that ‘if they have got a high AFR then get them off the job’ with decisions being based on AFR and not taking account of whether underlying issues relate to contractor or Network Rail safety management systems. A Network Rail individual stated, “that with hindsight, this was viewed within Network Rail to be a naïve approach”.
- Having a poor AFR means you have to put in a lower bid price.
- It is more difficult to win more work with a poor AFR.
- You will get a ‘kicking’ from Network Rail if you have a poor AFR.

306 In a competitive market between contractors, there will also naturally be pressures for good AFR performance, when AFR rates are published for comparison with other Network Rail contractors.

307 From the Network Rail perspective, Network Rail project managers of contractors can also feel pressure from AFR targets; in some cases these may be related to personal management objectives which include AFR targets.

308 As noted earlier, this pressure can be compounded, because individual company targets can be very sensitive to a very small number of RIDDOR reportable incidents. This was reported as having a further negative outcome because, in addition to creating pressure on AFR reporting, if the AFR target has been exceeded early in the year, further accidents will make no difference (as the target is already exceeded), leading to a potential loss of focus on preventing these types of incident.

309 This AFR pressure also needs to be put in a slightly wider context in that ‘RIDDOR’ events become a ‘big deal’ because they are RIDDOR events. As one interviewee said, RIDDOR events are ‘not good news’. It is clear that RIDDOR, a government-led, classification system has come to have a negative and more powerful meaning for Network Rail and its contractors, which can mean that the actual ‘bad news’ (an injury) and the positive opportunity for learning can be overshadowed or overlooked, due to an inappropriate focus on ‘RIDDOR’ classification.

- 310 The outcome of this can be that contractors are 'scared of reporting RIDDORs associated with their sites'.
- 311 It should be noted that these types of pressures have been consistently discussed within Network Rail and its contractors. What is more variable is how different companies deal with these pressures. From our interviews, it was found that some companies and projects may have an open reporting culture despite these pressures, where in other instances this is not the case.
- 312 In terms of the mechanisms by which under-reporting has occurred, some are related to misunderstandings of RIDDOR requirements and a failure to have robust processes in place to monitor for RIDDOR lost time injuries. Identified issues include:
- Misunderstanding of the requirement to report as 'over-3-day' injury if people cannot carry out the full range of their normal duties. This is then associated with inadequate monitoring of staff on the days following an incident, meaning that RIDDOR lost time injuries are not identified. This can be compounded by difficulties and failures in tracking contingent labour to identify if they could carry out the full range of their normal duties.
 - Misunderstanding of requirements for pre-existing conditions to be reported under RIDDOR.
 - Misunderstanding of the requirement to report events which involve the activities of Network Rail, but which do not occur on Network Rail Managed Infrastructure (NRMI). The general standard (L3/INV/0101) requires that contractors report events which do not occur on NRMI but which involve the activities of Network Rail. The Railway Group Standard 'Reporting of Safety Related Information' (GE/RT8047) is focused on reporting events occurring on NRMI, and this focus in a cross-industry document may have contributed to failures to identify in the Network Rail document that events which involve the activities of Network Rail also need to be reported.
 - Misunderstanding of who has the responsibility for RIDDOR reporting, particularly for contract labour staff (see for example the first comment in Appendix B). As they are generally self-employed it will be the responsibility of the company whose safety management system those individuals are working under, which may be Network Rail or a contractor.
- 313 Some of the above will have been rectified through better understanding and implementation of the regulations promoted recently by Network Rail. The errors noted above can be rectified through improved processes. However, violations of reporting processes have also been identified:
- An explicit, but unwritten, policy within some companies that RIDDOR events are not to be reported.

- Financial incentives for staff to return on light duties (provided by Network Rail or a contractor) so that an 'over-3-day' injury is not recorded.
- Deliberate failures to monitor for 'over-3-day' injuries.
- Pressure applied by Network Rail managers and contractors to not report an incident as RIDDOR reportable.
- Contract staff having to attend a hospital local to the worksite and potentially being left without transport home rather than travelling home with the rest of the team, discourages them from reporting.

314 In addition, manipulation of the production of AFR rates themselves have been identified through the re-allocation of man-hours to certain projects to reduce the AFR, by increasing the number of man-hours used in an AFR calculation.

9.6.2.2 Zero-hours contracts

315 **Finding: Zero-hours and temporary type contracts can exacerbate under-reporting issues**

316 Given the procurement strategies that have been pursued by Network Rail to reduce costs and improve efficiency, the primary contractor companies have made increasing use of staff on temporary, non-guaranteed hours contracts, known as 'zero-hours contracts'. These contracts reduce overheads and minimise any potential for excess manning when work is not available eg on weekdays or when possessions are cancelled. It is thought that as much of 80% of the work currently done by contract staff is via zero-hours type contracts.

317 One issue with zero-hours contract staff and other forms of temporary contract is that it makes it difficult to have an effective procedure for monitoring, in the context of RIDDOR lost time injuries, if a person can carry out the full range of their normal duties on the days following the injury. This is widely reported as an issue across contractors. The difficulty arises because, as temporary staff, they may well be employed by other parties, not working or not contactable on the days following an injury. Examples were provided where this issue is managed, but it is an inherent feature of the use of zero-hours and other temporary staff, that monitoring for 'over-3-day' injuries becomes more difficult.

318 Temporary or zero-hours staff are also more likely to experience or perceive financial disincentives for reporting. These financial penalties can arise because the staff do not have security of employment. The following disincentives have been identified from the review:

- Staff not being selected for further work if they report an incident, for example, because they are viewed to be trouble makers or 'error-prone'.
- Staff know that if they have time off sick they will not be paid, which can act as an incentive to work when not fully fit.

- Staff have been suspended after an incident whilst awaiting drugs and alcohol results. For temporary staff, this means they will not be paid.
- Staff have been suspended after an incident whilst awaiting the outcome of an investigation. For temporary staff, this means they will not be paid.

319 These findings are consistent with the ORR which has also identified that temporary type staff are unlikely to report safety concerns.

320 We understand that Network Rail contractors have placed increased reliance on the use of temporary or zero-hours staff. These barriers to reporting are in large part an inherent feature of use of these types of contract, and we have not found evidence that these reporting barriers have been explicitly assessed or managed by Network Rail.

9.6.2.3 Reporting culture

321 **Finding: There is no 'open culture' to support open reporting between Network Rail and its contractors**

322 The reporting culture for injury events at the interface between Network Rail and its contractors is heavily influenced by the wider culture which exists between these parties. This review has identified, through information from contractors and Network Rail, that this culture does not necessarily support open reporting. A number of interviewees have identified that there is in fact a 'culture of fear' within the contracting community, including the fear of losing contracts by companies and of employment by individuals. The meeting of the contractors association (RICA) recorded in Appendix B also described the 'culture of fear.' This in turn can inspire a culture of 'suppression' of information, of which not reporting incidents will form a part.

323 Another contextual issue is that the AFR is one of a number of quantitative measures. There is a perception that there is an excessive focus on quantitative results such as AFR, without looking at the underlying reasons for those results. In a safety context, there is also a focus on safety outcomes, such as AFR, rather than on more proactive or leading indicators. It was suggested that, if KPIs are important to Network Rail, at least as many that are 'good', such as inspections completed, competence assessments done should be set and that the negative ones such as accidents should not be used in isolation and to punish.

324 A feeling of the contractor community being devalued and not trusted has in part developed over time due to structural changes in the industry. For example, with maintenance being brought in-house and the reduction of principal contractors from 6 to 4 for track renewals. While these changes may be required, the culture and pressures which they create need to be managed.

- 325 It is clear from all the evidence that Network Rail dominate the railway contracting market and therefore set the tone and shape of the market. It is therefore Network Rail who lead and can change the shape of the market. To quote one participant in the RICA meeting reported in Appendix B; 'if they want to change it they can'.
- 326 A view from RICA was that the approach to procurement by Network Rail is a lot of what drives the behaviours – and that if a more modern and partnering approach were adopted, then it would be easier and more risk free to report things that go wrong or nearly go wrong. One person said that the procurement of contracting services was much more professional 8-10 years ago.

9.6.2.4 Range of safety initiatives

- 327 **Finding: There are a variety of similar but different safety initiatives and reporting processes which staff may be exposed to in the railway contracting community**
- 328 The principal contractors and Network Rail have separate safety initiatives or campaigns. These initiatives have different names (eg 'safety 365', 'zero harm'), but often similar messages and objectives. Sub-contract staff, who work for Network Rail and perhaps a number of contractors can get confused between these different approaches, each being briefed separately for different jobs.
- 329 We have not found specific evidence that these differences in safety initiative contribute directly to under-reporting. However, a key theme from this review has been the variety of ways in which safety messages can be interpreted and lead to unintended consequences. It is for consideration by Network Rail whether having more unified safety campaigns and processes between Network Rail and the contracting communities would help to ensure a more open and consistent approach, thus minimising unintended consequences.

9.7 Accident Databases

- 330 **Finding: There are too many accident databases within Network Rail and little or no cross-checking between them. The main industry database, SMIS, which is the primary means of reporting RIDDORs to the ORR has not been used as the reporting basis for the SEAR reports leading to significant under-reporting of major injuries in the SEAR.**
- 331 The review has identified several accident databases within Network Rail and the contracting companies that are currently in use, examples include;
- Safety Management Information System (Network Rail whole company)
 - All Accidents Register or AAR (Network Rail Maintenance)
 - IGC Tracker (Network Rail Infrastructure Projects)

- Contractor company databases
- Other analysis spreadsheets

- 332 SMIS is the source of the data used for reporting RIDDOR-reportable accidents to the ORR. However it has been identified during the review that owing to the perceived weaknesses and usability of the reporting facilities within SMIS the reporting of accidents for the SEAR has relied on the information obtained from the AAR and IGC Tracker. Consistency checks as part of the review and, more importantly, the detailed review from the data from the last five years carried out by Network Rail has identified significant inconsistencies between the different databases, particularly in relation to major injuries. This has led to big differences between the information reported in the SEAR when compared to what is reported to the ORR from SMIS, as described in Section 9.1
- 333 The main issue has been the lack of cross checking between the databases to ensure consistency in reporting. There are no formal safety data auditing processes in place to check the accuracy of the data used from different sources.
- 334 The issues of the development of divergent solutions and inconsistency between databases were also highlighted as significant shortcomings within MOD Defence Logistics in the 2009 Haddon-Cave independent report into the Nimrod accident of 2006 [Ref 2]. The following quotations from the Nimrod report seem relevant for comparison with the situation in Network Rail.

“21.67 IPTs [Integrated Project Teams] are mandated to collate and analyse data for continuing Airworthiness management purposes. The methodology, quality, and depth of data collection and analysis across the air domain is, however, variable and inconsistent and, in some cases, inadequate. A number of IPTs have chosen to outsource this work, or significant elements of it, to industry ‘partners’. Divergent solutions have resulted with significantly different levels of analysis undertaken.”

“21.76 Whilst the collection of data to maintain the continued Airworthiness of the platform is required by JSP553, there are no clear regulatory requirements for the format, content and compliance criteria for IPTs [Integrated Project Teams] in the management of maintenance data. Furthermore, IPTs are not required to demonstrate compliance to any Regulator. This ‘free for all’ has encouraged divergent solutions, including outsourcing, and standards across the IPTs (see above). Further, evidence suggests that several IPTs do not, in fact, undertake the required proactive analysis of maintenance data. Of those who have outsourced the task, several IPTs are still unable to provide evidence of detailed maintenance data analysis having been undertaken.”

335 We have been told by the Acting Chief Executive, that Network Rail recognise that there is some confusion between databases, and that instructions have been issued to resolve this. In this report (Section 11) we make recommendations regarding (a) the use of SMIS as the core database for the recording and reporting of safety related data and (b) data presentation in the SEAR.

336 It is noted that Network Rail is completing the work on developing and trialling a new electronic accident data report form being created for contractors to complete when involved in a Network Rail owned event.

9.8 Comments on Network Rail analysis of under-reporting

337 After the original concerns were raised by the ORR regarding the ratio of RIDDOR lost time injuries to RIDDOR major injuries, the ORR requested Network Rail to carry out an analysis of RIDDOR workforce accidents over the last five years, including changes to these ratios over time and differences in the ratios between functions.

338 In response a draft report was produced by Network Rail in August 2010. This report included the results of the company's initial analysis of the 2009/10 accident data, a comparison with the reporting ratios for other similar industries and the reasons a number of accidents had not been classified as being RIDDOR reportable.

339 The remit for the independent review included the requirement for the RSSB to review:

- a) The process and outcomes from the internal review carried out by Network Rail in order to check the robustness and integrity of the process, and
- b) The comprehensiveness of the resulting recommendations and actions arising from the Network Rail review and to make suggestions for further improvement where appropriate

9.8.1 The process and outcomes from the internal review carried out by Network Rail in order to check the robustness and integrity of the process.

340 While the report identified that some under-reporting had taken place during 2009/10, Network Rail did not have time to complete the review of the further four years or examine the underlying causes of the under-reporting before this independent review by RSSB was commissioned. These aspects were not therefore included in their draft report.

341 Network Rail did however continue with the more detailed analysis of the five years of data. The analysis, as described in Section 9.1.2, identified under-reporting of both major injuries and RDDOR lost time injuries.

342 From our review of the Network Rail draft report, it is considered that the initial analysis was sufficient to: (a) recognise that there was an issue with the under-

Review findings

reporting of RIDDOR lost time injuries, (b) establish what the typical ratios are for comparative industries, (c) identify the possible reasons for the under-reporting and (d) identify some initial actions to address the reasons for the under-reporting.

9.8.2 Comprehensiveness of the resulting recommendations and actions arising from the Network Rail review and to make suggestions for further improvement where appropriate

343 The Network Rail report included eight actions to address the initial issues of under-reporting as shown in Table 11.

Action	Timescale	Status
1. Network Rail will arrange for a cascade brief to all managers and contractors on the correct interpretation of RIDDOR injuries, in particular in respect of staff returning on light duties and “pre-existing condition”. Safety & Compliance will prepare the core brief. Functional safety heads will arrange for cascade briefing within their own function and for feedback to Tactical Safety Group (TSG) on 9 August.	9 August 2010	Completed
2. Safety & Compliance will review, and amend as appropriate, company standards on accident reporting to confirm there is no conflict with the HSE Guide to RIDDOR, which standards will reference as the definitive guide.	4 September 2010	Completed
3. Network Rail will amend its standards to introduce a specific requirement for line managers to confirm with any employee returning to work after an accident resulting in injury, whether or not the injury prevents the employee from carrying out any part of his normal duties. The line manager will be required to make a record of this. This is included in the briefing referred to in action 1 above; this action will formalise the requirement within the company standard.	4 December 2010	Completed
4. The Safety Reporting Manager will confirm that all “under-reported” events identified by this investigation are now properly categorised in SMIS and, where Network Rail is the “responsible person”, these have been reported to ORR.	Completed at time of report issue	Completed
5. Safety & Compliance will confirm that the revised data on RIDDOR reportable accidents has been included in the SEAR from Period 3.	Completed at time of report issue	Completed
6. Network Rail will introduce arrangements to monitor the ratio of RIDDOR lost time to RIDDOR major injuries for each of its fifteen largest principal contractors and require them to investigate any significant changes in these ratios. This information will be shared with ORR to allow ORR to cross-check with its own data.	27 August 2010	Completed
7. The Director Asset Management and Director Investment Projects will meet with directors of our main contractors to discuss the findings of this report, the contractors own ratios and how these compare to ratios in other parts of their business, and actions being taken by the contractors to address any under-reporting.	30 September 2010	Completed
8. Network Rail will conduct a further review of workforce accident reporting arrangements covering process,	24 December	Paper to be

Action	Timescale	Status
resources, how different teams communicate and data assurance arrangements. This will include arrangements for reporting in respect of self-employed persons and arrangements for reporting of diseases and dangerous occurrences. The results of this review and recommendations arising will be considered at TSG.	2010	presented to TSG on 24 January 2011

Table 11. Actions arising from the Network Rail draft analysis report

- 346 Given the findings of the Network Rail report, which did not include an assessment of the underlying causes of the under-reporting, these actions appear to have been an appropriate initial response. Evidence from the reports since Period 4 2010/11 suggests that levels of reporting of RIDDOR lost time injuries have now returned to levels that would be broadly expected for Network Rail and its contractors.
- 347 The RSSB review has investigated the underlying causes of the under-reporting and a number of additional recommendations are made in Section 11.

10 Conclusions

348 This report describes the background, methodology and findings of RSSB's
independent review of RIDDOR reporting by Network Rail and its contractors.

349 The main conclusions of the review are:

1. There has been a significant level of under-reporting of RIDDOR lost time injuries by Network Rail staff and its contractor companies over the last five years. From our review of reporting levels, including comparative industries, the levels of reporting prior to 2004/05 and the level of reporting since Period 4 2010/11 in both Network Rail Maintenance and Infrastructure Projects (2.7:1), we consider that a ratio of 3:1 RIDDOR lost time injuries to major injuries would be a reasonable estimate for the type of work Network Rail Maintenance and contractor staff are exposed to. Therefore assuming a ratio range of 2.7:1 to 3:1, we estimate that 500 to 600 RIDDOR lost time injuries may not have been reported by Network Rail Infrastructure Projects and Maintenance over the five years 2005/06 to 2009/10. This estimate represents between 37% and 42% under-reporting of RIDDOR lost time injuries for these two Network Rail functions. The majority of the under-reporting (80%) has been within Infrastructure Projects with the under-reporting in Maintenance only being prevalent since the start of 2008/09. For all Network Rail functions combined, the level of under-reporting over the five years is estimated, on the same basis, to have been between 27% and 34%.
2. The under-reporting of RIDDOR lost time injuries has occurred because of the change in both the culture of Network Rail and its relationship with its contractors since 2005. These changes are a result of the real and perceived pressure and, in some cases, fear felt by Network Rail staff and contractors if they report accidents or incidents. From the evidence gathered in the review, we consider this real and perceived pressure and fear have arisen as unintended consequences of the Network Rail implementation of:
 - a. The overall strategy for safety (which was consciously designed to *improve safety*), based on the use of quantitative safety targets, safety performance measures, league tables and contractual requirements linked to the number of reported RIDDOR lost time injuries.
 - b. Other management actions, such as the frequent company re-organisations and the application of a 'managing for attendance' policy.
 - c. The procurement strategy used to drive down costs and improve efficiency leading, for example, to the primary contractor companies making much greater use of temporary ('zero-hours') type contract staff.
3. The use of different accident databases within each of the Network Rail functions and a lack of cross-checking/formal data auditing between them has led to

significant inconsistencies in the data such that statistics relating to both major injuries and RIDDOR lost time injuries reported in the Network Rail Safety and Environment Assurance Report (SEAR) have been different from the records in SMIS that are used to report RIDDOR accidents to the ORR.¹⁰

4. Network Rail analysis has shown that there has also been some under-reporting of major injuries to the ORR. Network Rail have indicated that this is mostly due to incorrect classification of accidents generally around the less obvious RIDDOR major injury criteria such as “arc eye”, dislocated joints and being detained in hospital for more than 24 hours.

350 The more detailed conclusions of the review are described in Sections 10.1 to 10.10 below.

351 Network Rail has already initiated many actions in the areas covered by this review and its recommendations. These include the establishment of a Strategic Safety Training Group (to determine the specific training needs of managers), the development of a ‘Close-call’ reporting system and the Safety Leadership and Culture development programme, which includes working with the ORR on the application of the ORR Railway Management Maturity Model (RM3). These initiatives are described in more detail in Appendix C.

352 The RMT union has advised us that Network Rail and the trades unions have agreed to work together to improve the safety culture within Network Rail.

Network Rail has committed to:

- Promoting and supporting the work of trade union safety representatives and to resource the introduction of the revised Health, Safety and Welfare at Work procedure
- Supporting the development of a blame free culture and recognise that workers invoking the Worksafe Procedure, reporting near misses or accidents shall do so free from the fear of sanctions
- Supporting trade union involvement in national safety consultation

The trades unions have committed to:

- Contributing to the development and implementation of the safety culture change programme within Network Rail

¹⁰ The issues of the development of divergent solutions and inconsistency between databases were also highlighted as significant shortcomings within MOD Defence Logistics in the 2009 Haddon-Cave Nimrod Report [Ref 2].

353 Once Network Rail has updated SMIS with the known under-reporting of major and
lost time injuries RSSB will consider the most appropriate way to update the safety
performance reports, the baseline and progress monitoring reports of the industry
workforce High Level Output Specification safety metric and the Strategic Safety Plan
trajectories which have been published over recent years.

10.1 Management intention

354 Throughout the interviews and discussions held as part of the review Network Rail
Directors, senior managers, local managers and frontline staff, and similarly staff
from contractor companies, have demonstrated a real desire and good intention to
improve.

355 In many cases, a real passion for safety was evident. The statement that ‘we just
want to make sure everyone who works on the railway gets to the end of their shift
safely’ was made on several occasions.

356 There was, however, some evidence that local managers are under pressure to get
the job done which may, in some cases, lead to safety and safety reporting being
compromised.

357 We have found no evidence of instructions or directives being given by Directors or
senior managers to staff regarding the non-reporting of RIDDOR lost time accidents
or specific incorrect interpretations of the RIDDOR requirements with respect to the
definitions normal/light duties or pre-existing conditions for the purposes of reducing
the number of RIDDOR lost accidents reported.

10.2 Under-reporting linked to bonuses?

358 Our review of the Network Rail bonus arrangements has shown that safety
performance targets such as AFR and FWI are not direct mechanistic measures in
the assessment of the amount of bonus individuals across Network Rail are awarded.
There is, however, an indirect linkage through the deliberations of the Remuneration
Committee and the individual performance assessments for some managers.

359 From the review, we do not believe that this indirect linkage has been a significant
driver in the under-reporting or misclassification of RIDDOR reportable lost time
injuries.

10.3 The falling AFR

360 Network Rail Directors and managers believed that the falling AFR was explained by
the actions they had been taking in the areas of new and improved protective
equipment, work practices and the motivational aspects of the safety league tables,
etc.

- 361 It would appear that, although the ORR had previously mentioned the issue of the change in the ratio of RIDDOR lost time injuries to major injuries to Network Rail in 2008 and 2009, the significance of the change was not appreciated or further questioned as Directors and managers were convinced it was a product of their actions.
- 362 The ratio of RIDDOR lost time injuries to major injuries was not used as a key safety performance indicator.
- 363 At the two stakeholder panel meetings in December 2010 and January 2011 it was pointed out by some of the participants that Network Rail Directors and senior managers tended to be more receptive to good news and trends, and to emphasise them in the messages they gave to staff, the ORR, etc but more defensive and closed when it came to accepting or acting on bad news and trends.
- 364 It was suggested that this attitude/mindset will have contributed to the Directors not recognising that the falling AFR could have an explanation other than being the result of the actions they had taken.

10.4 Implementation of quantitative safety targets, performance measures, safety league tables and procurement strategies

- 365 The review has identified that, while the safety and procurement strategies were implemented with the intention of driving safety improvement and reducing costs, unintended and detrimental culture changes and attitudes to reporting occurred leading to the level of under-reporting we have found.
- 366 We found no evidence that Network Rail Directors and senior managers gave any thought to, consulted with staff, or commissioned any behavioural or human factors studies into the potential for unintended, negative or perverse behaviour consequences that could arise from such initiatives.
- 367 There were no formal safety data auditing processes in place to check the accuracy of the data on which they were relying upon and, as such, insufficient safeguards against potential unintended consequences, in terms of independent checking of reporting levels or staff attitudes to reporting, were established.

10.5 The RIDDOR-reporting process and standards

- 368 The Network Rail review of RIDDOR events identified that some basic misunderstandings of RIDDOR definitions contributed to the under-reporting of RIDDOR. These included the misclassification of staff returning to work on 'light duties' and staff being off work due to pre-existing injuries
- 369 In addition, Network Rail processes and their implementation have in part contributed to the under-reporting of RIDDOR events. The elements of the process which have contributed are:

- Accident reporting processes in place up to December 2010 did not adequately address the issue of RIDDOR lost time injuries and returning to work on 'light duties'.
- There is not a defined requirement in standards for RIDDOR reporting competence 'in the line'
- Although Network Rail has a large suite of standards relating to accident reporting, the training provided on the use of the standards for the managers responsible for completing accident forms and investigating the accidents is generally inadequate. Practices tend to be passed on by word of mouth.
- Front line staff are not consistently provided with training on their responsibilities, as defined in the reporting standards
- Staff perceptions that the reporting process has too much paperwork are a barrier to reporting
- Staff perceptions that the reporting and investigation process can provide negative outcomes for staff are a barrier to reporting

10.6 Real and perceived disincentives to reporting RIDDOR lost time injuries

370 The culture within Network Rail and the relationship between the contractors and Network Rail, which has developed as a consequence of the use of the quantitative safety targets, performance measures and league tables, has led to real and perceived disincentives for Network Rail staff and contractor companies to report RIDDOR lost time injuries. These disincentives can be summarised as follows:

- Pressure to meet AFR targets – affecting mostly the reporting by contractors with little influence on under-reporting by Network Rail Maintenance staff.
- Pressure for the Maintenance Delivery Units not to be in the 'bottom ten' of the league tables
- Fear generated from the need for Section Managers, who have recorded a RIDDOR-reportable accident within their team, having to travel to London for a discussion with the Director of Infrastructure Maintenance
- Staff being 'named and shamed' through widely distributed lists of days since last RIDDOR accident
- Pressure from the potential to miss out on a 'Safety 365 Challenge' certificate for the number of RIDDOR accident-free days recorded by the Delivery Units and project teams
- Some managers creating an environment where issues cannot be reported due to targets, the unwillingness to do the paperwork associated with reporting the more serious accidents, affect on performance, etc
- The many staff re-organisations within Network Rail in recent years leading to staff being fearful of reporting accidents and incidents in case they are marked

out as trouble makers and lose their jobs, get no overtime or be put on the less desirable shifts.

- The general belief that time off due to accidents is taken into account in the same way as time off due to illness within the 'Management for Attendance' policies
- Contract staff on zero hours contracts believing that they will not be re-employed if they report accidents or incidents
- Contractor companies real concern that they will not be given further work if they exceed their AFR target
- AFR inclusion within the track renewal contractors balanced scorecard which can influence monetary payments
- Contract staff having to attend a hospital local to the worksite and potentially being left without transport home rather than travelling home with the rest of the team

10.7 Accident databases

- 371 We found several different accident databases in existence with a considerable level of inconsistency and errors between them in relation to the number of accidents recorded and how the accidents are categorised. There has been little or no cross checking between the data sources. The SEAR reports are generated from different sources of data from SMIS, which is used to report RIDDOR accident to the ORR. The need for a single database for storage, analysis and reporting has been highlighted.
- 372 There were no formal safety data auditing processes in place to check the accuracy of the data between the various databases.
- 373 The issues of the development of divergent solutions and inconsistency between databases were also highlighted as significant shortcomings within MOD Defence Logistics in the 2009 Haddon-Cave report into the Nimrod accident of 2006 [Ref 2].

10.8 The timeline

374 Over the period 2004 to the present, the following notable changes have occurred, which we consider have impacted on the reporting of RIDDOR lost time injuries.

- 2004 – AFR targets introduced within Network Rail
- 2004/05 – Network Rail begin actively monitoring the AFR as part of contractor assessment (affecting contractor companies used by Infrastructure Projects)
- 2006 – Contractor company Carillion suspended from bidding for new work as a result of safety concerns including AFR (affecting contractor companies used by Infrastructure Projects)
- 2006 – Launch of the 365 initiative relating to the issue of certificates for RIDDOR-reportable accident-free days (affecting Infrastructure Projects and Maintenance)
- 2007 – Launch of the Safety League tables for use within Network Rail Maintenance (affecting Maintenance only)
- Period 4 2010/11 – Network Rail re-briefed staff on the definition and use of the RIDDOR reporting requirements.

10.9 Looking at the review data from the perspective of human error types

375 In a review of this kind it is important to consider the types of errors and violations which underpin the under-reporting issue. By understanding the types of error, the key means for mitigating them can be identified. The key error forms which are used to shape the discussion below, which can apply to managers as well as front line staff, are defined in Table 12. The table also identifies how, in broad terms, the errors can be mitigated.

Term	Definition	How to mitigate these errors
Slip/lapses	The plan is adequate, but the actions fail to go as planned.	People cannot easily be trained to not commit slips/lapses. Pressing the incorrect button or mishearing a word are errors which largely arise through inherent human variability and limitations. To prevent slips/lapses it is necessary to redesign interfaces to minimise the likelihood of these errors, provide interlocks or simply prevent the errors leading to more serious accidents.
Mistakes	The actions may conform exactly to the plan, but the plan is inadequate to achieve its intended outcome.	These are potentially the easiest form of error to deal with, because human decision making processes, 'the plans', are flexible and can be changed. With improved training for decision making, better procedures or better decision aids, many of these errors can be prevented.
Violations	Deliberate	Violations are deliberate choices by the individual to

Term	Definition	How to mitigate these errors
	deviations from safe operating procedures, standards or rules.	deviate from required procedures. As such, they can be prevented by providing personnel with the correct culture and the necessary incentives to accept/follow required procedures. Violations may also be an opportunity to identify why individuals do not accept the procedures and possibly how they could be changed to promote wider user acceptance. Simply 'retraining' in the rules will have no benefit because the individual has already decided that the rule is not appropriate.

Table 12. Slips/lapses, mistakes and violations (definitions based on Reason (1997))

- 376 We have found no evidence that slips/lapses contribute to the under-reporting issue, though simple errors in data entry in to SMIS are conceivable.
- 377 We do have evidence of mistakes, particularly by managers, which are related to, for example, misunderstanding RIDDOR requirements. Many of these issues are resolved by better briefings on RIDDOR reporting and proposed changes to reporting processes. We therefore provide a limited number of recommendations in this area.
- 378 However, we find that violations are by far the most significant part of the under-reporting issue. Examples of violations identified in the review are: front line staff deciding not to report events which they know should be reported, managers using disincentives to discourage reporting by front line staff, and contractor companies having unwritten policies which discourage reporting. It should be noted that these violations are not 'sabotage', staff and managers do not wish to harm each other. Also, due to variations between parts of Network Rail and differences between contractors, these violating behaviours are not consistent across Network Rail and contractors.
- 379 Network Rail and some of its contractors have created incentives and cultures which can lead to violating behaviours. Violating behaviours on the scale identified in the review need to be addressed by looking at the underlying safety and reporting cultures across the organisations, to develop a consistent culture in which reporting and learning can occur across railway organisations. The key elements which need to be addressed are:
- Safety Culture, in particular focusing on:
 - Definition, implementation and monitoring of management behaviours which promote a good safety and reporting culture.
 - Increased consultation with users, who may be managers or front line staff. For example to ensure that barriers to reporting are removed, and that an open dialogue is perceived as a reality by all parties. As an example from another industry, human factors/ergonomics training is provided to all staff

working in aviation maintenance and is a regulatory requirement. This is something which can empower staff to understand cultural and reporting issues.

- Changes in the attitudes to quantitative measures, particularly related to safety. The pressure created by the AFR targets needs to be removed. Management attention should focus more on understanding the underlying reasons why targets are missed and also supporting quantitative targets with a balanced set of qualitative and proactive measures.
- The culture created between Network Rail and its contractors
- A consistent approach to safety across Network Rail functions and Network Rail contractors

380 The body of the report has identified elements in a range of systems (eg league tables, AFR targets, managing for attendance) which influence under-reporting. However, fixing these individual systems may not lead to success, if underlying cultural issues are not addressed. This is because unintended consequences are still likely to arise if underlying cultural issues are not attended to.

381 It should also be noted that any quantitative target or KPI could be effective, if the culture in which it is used is mature enough to use the target to motivate good behaviours, see failures to meet targets as opportunities for learning and manage perverse incentives which may be associated with measures. It is therefore the combination of Network Rail's culture and quantitative targets, rather than the targets themselves which have created the under-reporting issue.

10.10 HSE consultation on changing the requirement for RIDDOR reporting

382 The HSE will be consulting on a proposed change to the RIDDOR Regulations to extend the current requirement for a person to be off work following an incident or injury at work for more than three days before it is RIDDOR reportable to seven consecutive days.

383 While it is recognised that this would simplify the reporting process, potentially improving data quality and reducing the reporting burden on industries, it will lead to a significantly lower number of accidents being reported under RIDDOR.

384 For the rail industry the reduction in the size of the data set would exacerbate the problems we have documented, if it relies on RIDDOR data to measure safety performance. The number of reported accidents for the Network Rail functions individually and operational units and the contractors working for Network Rail would be likely to be too small to be meaningful.

- 385 The data analysis and presentation focus would therefore shift further toward using
data relating to all lost time injuries recorded within SMIS.
- 386 As we highlighted in section 9.4, because SMIS generates data based on FWIs, it
shows a more accurate picture of safety performance.

11 Recommendations

387 Network Rail has initiated many actions in the areas covered by this review and its recommendations. These include the establishment of a Strategic Safety Training Group (to determine the specific training needs of managers), the development of a 'Close-call' reporting system, working closely with the trades unions on culture issues and the Safety Leadership and Culture development programme, which includes working with the ORR on the application of the ORR Railway Management Maturity Model (RM3). These initiatives are summarised in Table 11 and Appendix C.

388 We are making high level strategic recommendations and more detailed tactical recommendations. A number of specific tactical suggestions have been identified which could be considered alongside the actions already initiated by Network Rail. However, the review has identified underlying culture issues related to creating a more open and 'just'¹¹ culture that leads to effective industry learning and action, which need to be considered first. There is a risk that focusing on specific and tactical recommendations will lead to more unintended consequences if the underlying cultural issues are not addressed.

389 The key strategic recommendation is therefore:

1. That Network Rail develop and implement a strategy to improve and develop the maturity of the culture for Network Rail and its contractors. Key elements for consideration which may form part of this development are:

- Definition, implementation and monitoring of management behaviours which promote a good culture
- Increased consultation with front line staff and managers
- Ensure the reporting of accidents and incidents is seen as process which leads to effective industry learning and action
- Develop the procurement strategies and relationships between Network Rail and its contractors, with the aim of creating an interface which promotes: a mature safety culture, open dialogue, and, where appropriate, a partnering approach, minimising the impact of zero-hours type contracts
- Development of a consistent safety message and supporting policies across the Network Rail functions and between contractors and Network Rail
- Introduction of audits of data, compliance and systems by parties (internal or external) that are independent of the management activity involved

There are three further key recommendations which we make for immediate consideration and, where appropriate, action:

¹¹ "a *"just culture"*, is an atmosphere of trust in which people are encouraged, even rewarded, for providing essential safety-related information – but in which they are also clear about where the line must be drawn between acceptable and unacceptable behaviour." [Ref 3]

2. Remove AFR and FWI as targets.

These measures should not currently be used as targets. However, AFR and FWI are important measures which should continue to be used as follows:

- Continue to measure and monitor safety performance, and therefore a basket of measures including the all lost time injury AFR, the RIDDOR accidents AFR and FWI. These can continue to be monitored and trended to understand what is happening in each functional area, route or contractor company.
- For the purposes of establishing a minimum acceptable level of safety performance for working on Network Rail infrastructure, industry standard threshold levels for the all lost time AFR, RIDDOR accident AFR and FWI rate could be established and applied to all Network Rail and contractors – taking due account of the statistical significance of the data for smaller companies.
- In the event of a statistically significant adverse trend being identified or threshold being broken, an open and honest dialogue with the relevant managers and Health and Safety representatives from the affected organisation should be held to determine the underlying causes and develop actions to reverse the trend.
- Consider the development and use of more proactive leading type indicators as measures of safety performance. A number of such measures are already incorporated into the safety league table structure¹².

3. Remove any links between AFR targets/the reporting of accidents and company wide or individual bonus schemes and personal objectives.

This should include the removal of the AFR and the weighted significant incident frequency rate from the track renewals contractor's balanced scorecard arrangements.

4. Develop and implement procedures and processes that would enable a single source for data capture and reporting. This should include formal safety data auditing and cross-checking between data sources.

5. The following suggestions should be considered in the wider context of the strategic recommendation above and the actions that Network Rail has already initiated. They have been grouped in to topic areas and are not intended to be seen as individual recommendations, but the sorts of actions which, together with those arising from a new strategic approach may benefit the reporting culture:

¹² RSSB is currently supporting the industry by carrying out research project T852 [Ref 9] into the potential use of leading and lagging indicators

Management systems

- a) Review KPIs and targets for potential unintended consequences and perverse incentives. The guidance and checks provided in research report T611 [Ref 4] could assist with this review.
- b) Stop listing the number of lost-time accident free days by Section Manager on notice boards and within the Pulse reports.
- c) Consider the costs and benefits of continuing with the use of certificates and rewards for achieving sequences of days without a lost time injury. This is particularly relevant, given the more recent loss of momentum with the Safety 365 challenge certificates initiative.
- d) Consider the costs and benefits of continuing with the league table approach. This is recommended, given the unintended consequences that have arisen from the use of the league tables approach. If league tables are assessed to be an overall benefit, consider the following:
 - Consistent use of safety league tables across Network Rail.
 - Ensuring that staff understand the purpose and basis of the safety league tables, emphasising that the reporting of accidents is positive and that points are no longer awarded for achievement of 365 certificates.
 - Engage with staff at all levels when changing the safety league table structure.
 - Take account of local conditions in the safety league tables.
 - Do not reinstate the links between safety league tables and RIDDOR accidents (eg negative scores for RIDDOR accidents or positive points for achieving Safety 365 Certificates).
- e) In the forthcoming review of the MFA policies, work to achieve a single coherent policy across the company and where relevant with contractors. Consider how work-related accidents and ill-health should be accounted for in the procedures to ensure that staff are not generally penalised for having work-related accidents. The MFA policy should ideally form part of a competence management system for all who are expected to use it and the content and intention should also be communicated to those who could be affected by it.
- f) Identify the best way of meeting and sharing information between the maintenance director and local staff about safety events, and ensure that all personnel understand the aims and intentions of the process.
- g) Develop policies and procedures to manage the risk associated with reliance on 'zero-hours' contracts and temporary staff, particularly how this method of

employment can impact on safety and reporting cultures. This could include consideration of establishing more guaranteed hours structures or reducing reliance on zero hours type contracts.

- h) If significant restructuring or redundancy initiatives occur, ensure that measures are put in place so that staff do not perceive that reporting incidents or safety concerns will adversely affect their future prospects.

Incident data

- i) Establish routine checking of RIDDOR events between SMIS and the ORR database to ensure consistency.
- j) Change the safety performance reporting for all lost time injuries, RIDDOR accidents and FWI in the SEAR to be one period in arrears to enable time for the data quality to be improved before the data is published. Notable events such as fatalities and major injuries occurring in the more recent period can still be listed.
- k) Adopt statistical significance testing when assessing safety performance data and apply suitable uncertainty bounds when presenting data in the form of charts and tables.
- l) Classify underlying causes, error types and incident factors for key injury events and review these to identify trends and themes across the data.
- m) While a single database for safety reporting is not established, carry out regular cross checking and auditing of the information in the various databases to ensure consistency in the data being recorded.
- n) Monitor the ratio of RIDDOR lost time injuries to major injuries as a generalised indicator of potential data quality. It should be noted however that this is only a broad indicator and our estimated ratio of 3:1 should not be relied on as a rigid safety performance indicator, as circumstances and risk exposure are different in the different Network Rail functions and contractor companies.

Reporting and investigation processes and procedures

- o) Ensure that the monitoring process for RIDDOR lost time injuries covers: staff having rest days or annual leave; monitoring staff throughout the four days following an accident; monitoring for conditions which may get worse over time.
- p) Make RIDDOR classification an 'in the line' responsibility.
- q) Ensure that there is a competence management system for line/project managers and front line staff, to support them in their responsibilities for reporting and investigation. This should consider competence not only in the process, but also the philosophies which underpin the process including the identification of underlying causes. The roles of supervisors and safety roles

Recommendations

(eg COSS) in supporting the reporting process and culture should also be considered.

- r) Make the reporting process as easy to use as possible and proportionate to the actual or potential risk associated with the type of accident, using inputs from front line staff.
- s) Implement a 'just culture' approach to all investigations. Ensure that staff understand that this is the approach being used.
- t) Provide an opportunity for affected staff to be involved in the investigation and recommendation development process.
- u) Feedback the outcomes of investigations to affected staff.
- v) Network Rail and RSSB to consider with the wider industry whether the relevant Railway Group Standards and Company standards prescribe consistent requirements for reporting, and if appropriate, change the standards.

12 References

1. Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995
2. Haddon-Cave QC, Charles The Nimrod Report – an independent review into the broader issues surrounding the loss of the RAF Nimrod MR2 Aircraft XV230 in Afghanistan in 2006 (HMSO, 2009), pp.515-520
3. From EUROCONTROL (2006) “Establishment of ‘Just Culture’ Principles in ATM Safety Data Reporting & Assessment” Ref EAM2/GUI 6
4. Managing the effects of applying targets to the GB rail industry, RSSB Research Project T611, February 2008
5. Proposals for the weighting of Major and Minor injuries, RSSB Research Project T440, February 2008
6. ISLG-8 Risk Profile version 2, RSSB, November 2009
7. HSE (2010) ‘An investigation of reporting of workplace accidents under RIDDOR using the Merseyside Accident Information Model’ (Ref. RR528)
8. Clegg, C. “We are trackmen” A report to Network Rail, 2006
9. Research Brief T852 The application of leading and lagging indicators to the rail industry http://www.rssb.co.uk/RESEARCH/Lists/DispForm_Custom.aspx?ID=698

Appendix A: Example questions used in interviews

Interview start checklist

1. Present Interview Protocol
2. Introductions
3. Purpose of meeting
 - a. To understand how the injury reporting process works in practice
 - b. To discuss the potential influences on the reporting and classifications of accidents and injuries within Network Rail, particularly for RIDDOR
 - c. Looking at policy/strategy developments from what existed in 2004 through any changes to 2010

Questions

4. Describe your current role?
5. Describe your safety responsibilities?
6. Could you briefly outline the structure of your part of the organisation?
7. How does the injury reporting process work in your area? Further prompts:
 - a. Is this different for RIDDOR incidents?
 - b. What are your responsibilities in the process?
 - c. Who is responsible for defining an incident as RIDDOR reportable?
 - d. Are there any Network Rail standards relevant to your responsibilities?
 - e. What are your views on Network Rail standards?
 - f. What forms are used?
 - g. Are the forms easy to use?
 - h. Have you received any training or briefing to support you in that role?
8. What are your views on the RIDDOR under-reporting issues highlighted to Network Rail by UNITE and ORR?
9. What is your view on why, prior to April 2010, the over 3 day lost time injury rate was reducing?

10. How could a RIDDOR-reportable event go un-reported?
11. Questions below to be asked for the following: safety league tables; safety 365 - days since last lost time incident; other safety 365 initiatives; SEAR reports; other safety targets which include injury rates.
 - a. Can you briefly describe what they are?
 - b. Are you involved in them, if so, how?
 - c. What are your views on them?
 - d. Do they include consideration of lost-time incidents
 - e. What are the attitudes of staff below you?
 - f. What are the attitudes of staff above you?
 - g. Do front line staff see this measure, and what are their views?
 - h. How have they changed over time?
12. Do you have a bonus or personal objectives related to the AFR or lost time incidents?
13. What are your views on the managing for attendance process?
 - a. Does it include days off for work-related injuries?
14. What training/briefing is provided to front line staff on how to report accidents, particularly injuries?
15. What feedback is provided to staff if they are involved in an incident?
16. Are there safeguards in place to ensure that under-reporting or deliberate misclassifications do not take place?
17. How is your performance monitored?
18. What changes have occurred in your organisation since the issue was identified?
 - a. What information/briefing have you received, related to the reporting and classification of RIDDOR events?
 - b. Have front line staff received any information in relation to the reporting and classification of RIDDOR events?

- c. Have you seen the request for information for the confidential reporting line? Has the request for information been provided to staff?
- 19. Is safety led by Senior Maintenance Managers or Network Rail Safety and Compliance?
- 20. Why do you think contractors to Network Rail would be under-reporting?
- 21. Are there any further areas for improvement or change you would particularly like to feed in to the review?
- 22. Can you provide reference documents?
- 23. Are there other people we should contact for interview or information?
- 24. Sum-up
 - a. Key points raised
 - b. Agreed actions
 - c. Provide RSSB contact details for any follow-up or queries
 - d. Next steps for review

Appendix B: Record of discussions at a Railway Industry Contractors Association meeting on 7th December

This record was produced by the Director of the Review team immediately after the event, and was sent to the Board of RICA for comment. It is reproduced below in the form that the RICA Board approved it.

“Anson Jack was invited to attend a regular meeting of the RICA on 7 December to discuss the review. During the session, the following comments were made by RICA members:

One delegate asked who is responsible for RIDDOR reporting, as the employer concerned (of a for hire labour force) was not sure whether when his men are on hire to Network Rail or their contractors, the responsibility passes to the person responsible for the work. I said I did not want to enter into any detail, but that what is clear from our work, is that it should be made entirely clear within contracts, what the respective responsibilities of the parties is – to sort out a clear understanding with Network Rail or the prime contractor – but that he should also look at the law to consider whether he has a direct responsibility.

Delegates were asked about the impact of the Carillion issue on getting contracts – whether people believe they have missed out on contracts because of their AFR. Two people immediately said ‘yes’ although the detail they gave related to safety issues generally rather than specifically AFR ratios. They both described what was understood to be the reason that they did not get work.

One delegate said of the track renewals companies ‘they are all scared of having any RIDDORs on their sites’.

Several commented that because of the low number of RIDDORs in aggregate, any individual employers would face a cliff edge in terms of AFR ratios if they have a single event and therefore that no one is exactly encouraged to report that event.

Many said that there is a **culture of fear** within the subcontracting community, including the fear of losing contracts by companies and of employment by individuals

One delegate said that the whole process came across as more interested in clearing up the reporting than learning from the event and exploring underlying causes so they are not repeated.

One referred to the norm on a Monday morning is of a route director ringing up the contractor’s MD and yelling at them if they have had a RIDDOR over the weekend

Others said that if a report is made of an accident it is not uncommon to do 'for cause drugs and alcohol testing' of all staff in the vicinity – and that if they are on Zero hours contracts they then get stood down for up to 10 days while the results are awaited and receive no pay – leading to a very strong disincentive to report anything.

One told a story of a tamper driver who reported that he encountered a gang on the track in a location that he had not been briefed about – They were all in a position of safety and it was not even a close call, but something he thought there was a small lesson to learn. Having reported it Network Rail decided it was a near miss and declared a full investigation involving time off work and travelling to give evidence. He is reported as reflecting that if he had known the effect it would have he would not have reported it in the first place.

General consensus that the approach to procurement by Network Rail is a lot of what drives the behaviours – and that if it were a more modern and partnering approach, then it would be easier and more risk free to report things that go wrong or nearly go wrong. One person said that the procurement of contracting services was much more professional 8-10 years ago.

Delegates discussed the shape of the market and business models for contracting/sub contracting and everyone agreed that Network Rail dominate the market and set the tone and shape of the market, with one delegate commenting that 'if they want to change it they can'.

One other delegate said that it would be appropriate for Network Rail to compile and maintain its own AFR ratios and to require all contractors and sub contractors to report against the Network Rail ratio – not to have a single one for each contractor.

It was suggested that if KPIs are important to Network Rail they should set at least as many that are 'good' KPIs, such as inspections completed, competence assessments done etc and that the negative ones such as accidents should not be used in isolation and to punish.

Delegates said they would like to see recommendations:

- about modernising the way that the market is procured – and more mature relationships not bounded by fear but by partnership
- About encouraging positive reporting culture to learn rather than punish"

Appendix C. Current Network Rail initiatives on culture and reporting

Network Rail have advised us that they are already planning and undertaking several initiatives that will address many of the points and recommendations raised as a result of the review. These initiatives are listed below in text provided to us by Network Rail. We have not assessed these initiatives as part of the review.

Programmes/actions/initiatives:

Section 9.2 (various findings) places heavy emphasis on lack of training provided to Network Rail Managers in understanding the requirements of RIDDOR and in developing a specific competency in this particular aspect of the law.

We [Network Rail] have already recognised that the training that we give to our various levels of management in understanding the requirements of Health and Safety Legislation (including reporting) and the behaviours necessary to promote a sound Health and Safety culture needs attention.

With this in mind we established the Strategic Safety Training Group (Senior Managers from across functions and under the chairmanship of the Network Rail Director, Safety and Compliance) to determine the Safety specific training needs of our management cadre.

The group have established the Health and Safety principles that need to be enshrined in our training to promote a better understanding of legal compliance and the effects of behaviour. It is proposed that these principles will:

1. Form the basis of safety specific training programmes for our managers at three levels:

Level 1: 'Strategic (Leading) Safety' for Executive and Senior Leaders;

Level 2: 'Managing Safety' for middle managers;

Level 3: 'Operational Health and Safety' for those with a direct responsibility for managing front-line staff and/or site safety.

2. Feature strongly in the Corporate Induction Programme.
3. Feature in all training programmes (e.g. technical/skills training).
4. Feature in our general management 'stepping stones' programme.
5. Be constantly reinforced as a key part of our corporate communications programme.

Functional representatives on the Strategic Safety Training Group have conducted a detailed Training Needs Analysis for Managers at each of the three levels above and work groups have been established to develop content at each level.

We have taken counsel from other companies (recognised as exemplars in providing such training) in the structure and will continue to look for innovative ways to promote the necessary messages (compliance and behaviour) through a variety of media.

An investment paper seeking an initial funding of £1.8 million to complete the development of these programmes has been developed and will be submitted following discussion at the Tactical Safety Group on Monday 24 January 2011 this is a significant investment and does not include time away from the workplace.

This is designed to impact on understanding and behaviour across all areas of compliance/health and safety management rather than merely providing a competence in reporting covering more of the deeper rooted cultural issues identified in the report.

Para 153 References key site personnel such as the COSS. There are a number of issues here ranging from the number of COSS's and their level of competency (recognizing that knowledge, understanding responsibilities, attitudes and behaviours all feature as components of competency). There is a detailed programme in place (shared with ORR) that address all of these specific areas. This programme has taken over a year in the making and has included Human Factors workshops with front-line target populations.

Para 158 Staff perception that reporting involves too much paperwork – we are working with in promoting and encouraging the reporting of 'close calls' and how we are trying to adopt innovative ways of reporting using platforms such as the CIRAS team (protocols and technology) to do so.

Para 161 Staff perceptions that the reporting and investigation process can provide negative outcomes for staff are a barrier to reporting – we have gone to painstaking efforts (through Director/Senior Manager Safety Tours and other media such as Front Line Focus) to promote reporting and to put this misconception down. The need for reporting and to 'stop the job' if necessary was reinforced in the former CEOs Policy Statement that was developed in DVD format (with Iain Coucher – former CEO - presenting) and communicated to all staff – an innovative approach (as opposed to just sticking a policy poster on the wall as so often is the case elsewhere) designed to reinforce what we want in terms of encouraging reporting and to remove any fears in doing so. Clearly, this is not a solution in its own right but

an example of how we have been trying to address the concerns that others have raised.

Section 9.6.2.2. Zero Hours Contracts – The Director, Asset Management is working with the suppliers of labour to understand the effects of zero hours contracts from both a safety and economic perspective.

Section 9.6.2.3. Reporting culture – this section majors on the fear of reporting within the contractor community. The Director, Investment Projects is doing to promote ‘close-call’ reporting, the work that he does to promote a Health and Safety culture through the contractor/supplier Industry forum PSLG (Projects Safety Leadership Group) and indeed how he uses AFR data to develop joint action plans with contractors (including Carillion) to improve their safety performance. He is already working with the contracting community to address the under-reporting that has come from the overall RIDDOR review and this featured as a key element in his annual Supplier Safety Forum held during December 2011.

Recommendation 1 focuses on implementing a strategy to improve and develop the safety and reporting culture for Network Rail and its contractors. In this context we have been working with the ORR to develop a programme to improve safety maturity and to improve safety culture through the application of their Railway Management Maturity Model (RM3). The key elements of the programme have been discussed by both Boards (ORR and Network Rail) and have met with support and encouragement:

Leadership – including skills, behaviours and attitudinal development and where to focus efforts in developing the right Health and Safety Culture.

Front Line Management and Supervision – taking its lead from the Leadership element above and including a specific element on the ‘need to define competence standards of supervision – in respect of the attitudes, behaviours and leadership skills of a good supervisor’. Also of note is the action to ‘systematically use data from monitoring to inform supervisory interventions (need to measure the right things)’ and supported by the implementation of a behavioural based programme to help facilitate a positive step change in the culture of the company.

Data Analysis and Learning - this will include the review of ‘leading’ as well as ‘lagging’ indicators (referenced in this report) and a review of RIDDOR reporting arrangements.

Competence - greater focus on attitudes and behaviours.

Internal Communications – underpinning the work of the Strategic Safety Training Group in developing a common language for safety within the company and wider Industry.

Risk Management – bringing everything that we have developed (in terms of frameworks/tools/techniques) into a living process for our people and part of the way that we ‘do business around here’ – moving progressively away from ‘generic’ to ‘specific’ to the job and something that our Managers and Supervisors do naturally.

Workforce Involvement and Cooperation – we have now agreed the revised Health and Safety Rep/Manager procedure designed to encourage worker participation. We have promoted the full time release of Trades Unions Health and Safety Representatives (based on constituencies/membership numbers within the Trades Unions - for an unspecified time) to work with the Director, Safety and Compliance in supporting implementation of the new Health and Safety Representative/Manager policy and in the development of the right Health and Safety culture for Network Rail. This is a massive step forward, is innovative and will address a number of the areas in the report with a direct line to the workforce in understanding issues and developing the right culture.

Developing Safety into the Asset – ‘engineering out risk’.

Control of Contractors – including ‘creation of positive safety Indicators’.

A time-lined trajectory has been developed against these key elements and detailed plans are being developed in support of each.

It is also worth noting that this work on safety culture started with the application of the RSSB Safety Culture Tool Kit and questionnaire and despite the positive responses received from a ‘diagonal slice’ of the Network Rail business we decided that more work was required in understanding and developing the right safety culture.

Appendix D. Glossary

Acronym	Expansion
AAR	All accidents register
AFR	Accident frequency rate
CIRAS	Confidential Incident Reporting and Analysis System
CMS	Competence management system
COSS	Controller of site safety
FWI	Fatalities and weighted injuries
HLOS	High Level Output Specification
HSE	Health and Safety Executive
HSEA	Health, Safety and Environment Advisor
IGC	Infrastructure Group Control
KPI	Key performance indicator
IMC	Infrastructure maintenance company
IMDM	Infrastructure delivery unit manager
IME	Infrastructure maintenance engineer
ISLG	Infrastructure safety liaison group
MFA	Managing for attendance
MFH	Managing for health
MOD	Ministry of Defence
MOM	Mobile operations manager
NDS	National Delivery Service (Network Rail function)
NR	Network Rail
NRCG	National Rail Contractors Group
NRMI	Network Rail Managed Infrastructure
O&CS	Operations and Customer Services (Network Rail function)
ORR	Office of Rail Regulation
PSLG	Projects Safety Leadership Group
PTS	Personal Track Safety
RAIB	Rail Accident Investigation Branch
RGS	Railway Group Standard
RICA	Railway Industry Contractors Association
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 1995
ROGS	Railway and Other Guided Transport Systems (Safety) Regulations 2006
RSSB	Rail Safety and Standards Board
SEAR	Safety Environment Assurance Report
SHE	Safety, Health and Environment (committee)
SMIS	Safety Management Information System
SSP	Strategic Safety Plan
TSG	Tactical Safety Group
TUPE	Transfer of Undertakings (Protection of employment) Regulations 2006