

## Recommendation(s) Status: Derailment of a freight train near Stewarton, Ayrshire

This report is based on information provided to the RAIB by the relevant safety authority or public body.

The status of implementation of the recommendations, as reported to us, has been divided into six categories:

### Key to Recommendation Status

<b>Implemented:</b>	All actions to deliver the recommendation have been completed.
<b>Implemented by alternative means:</b>	The intent of the recommendation has been satisfied in a way that was not identified by the RAIB during the investigation.
<b>Implementation ongoing:</b>	Work to deliver the intent of the recommendation has been agreed and is in the process of being delivered.
<b>In-progress:</b>	The relevant safety authority has yet to be satisfied that an appropriate plan, with timescales, is in place to implement the recommendation; and work is in progress to provide this.
<b>Non-implementation:</b>	Regulation 12(2)(b)(iii) = recommendation considered and no implementation action to be taken.
<b>Awaiting response:</b>	Awaiting initial report from the relevant safety authority or public body on the status of the recommendation.

RAIB concerns on actions taken by organisations in response to recommendations are reflected in this report and are indicated by one of the following:

-  The red triangle shows recommendations where the RAIB has concerns that no actions have been taken in response to a recommendation.
-  The blue triangle shows recommendations where the RAIB has concerns that the actions taken, or proposed, are inappropriate or insufficient to address the risk identified during the investigation.
-  The white triangle shows recommendations where the RAIB notes substantive actions have been reported, but the RAIB still has concerns.

Note: The tables which follow, report the status of recommendations on 31 December 2015. In some other cases the end implementer has already sent information to the relevant safety authority about the actions it has taken, or proposes to take and the safety authority is considering whether it is satisfied that those actions and the associated timescales are accepted.

Number/ Date/ Report No/ Inv Title / Current Status	Safety Recommendation	Summary of current status (based on latest report from the relevant safety authority or public body)
<p>1            27/01/2009    02/2010</p> <p>Derailment of a freight train near Stewarton, Ayrshire</p> <p>Status: Implemented</p>	<p>The purpose of this recommendation is to establish whether there are other bridges with construction features similar to Bridge 88 that are in an unsafe condition, and to take appropriate action (paragraph 255a).</p> <p>Network Rail should identify metal bridges having features that could conceal corrosion occurring on critical structural parts. It should take intervention action as necessary to secure the safety of trains and the public.</p> <p>Paragraphs 261 to 263 outline work that Network Rail has reported it is currently doing regarding this.</p>	<p>Network Rail has reported that it has carried out extensive examinations of metal bridges having features that could conceal corrosion occurring on critical structural parts. This has included a check that critical dimensional assumptions are correct.</p> <p>ORR proposes to take no further action unless they become aware that the information provided becomes inaccurate.</p>
<p>2            27/01/2009    02/2010</p> <p>Derailment of a freight train near Stewarton, Ayrshire</p> <p>Status: Implemented</p>	<p>The intention of this recommendation is to prevent hidden critical structural elements of bridges remaining unexamined where there is a risk of deterioration in structural integrity (paragraph 256a).</p> <p>Network Rail should develop criteria for when hidden critical structural parts of bridges should be examined, and apply them to its processes for the management of bridges.</p>	<p>Network Rail has reported that it has issued a technical specification specifying engineering requirements for exposure of hidden critical elements and the methods to be used when exposing them and reporting their condition.</p> <p>ORR proposes to take no further action unless they become aware that the information provided becomes inaccurate.</p>
<p>3            27/01/2009    02/2010</p> <p>Derailment of a freight train near Stewarton, Ayrshire</p> <p>Status: Implemented</p>	<p>The intention of this recommendation is to develop effective and practical methods for examining the hidden parts of bridges (paragraphs 255a and 256a).</p> <p>Network Rail should produce and implement guidance on what methods should be routinely used to examine parts of metal bridges that are permanently hidden by ballast, waterproofing arrangements, or other similar construction features (such as work to remove concealing features or use of remote inspection probes). It should require those undertaking bridge examinations to use such methods, as appropriate, when examinations are demanded by the criteria developed in response to Recommendation 2.</p>	<p>Network Rail has reported that it has taken actions in response to this recommendation.</p> <p>ORR proposes to take no further action unless they become aware that the information provided becomes inaccurate.</p>
<p>4            27/01/2009    02/2010</p> <p>Derailment of a freight train near Stewarton, Ayrshire</p> <p>Status: Implemented</p>	<p>The intention of this recommendation is that new structures should not be constructed, nor existing structures modified, in a way that prevents access to parts that need routine inspection or examination (not all hidden parts may need to be inspected; in certain situations it may be possible to put alternative arrangements in place to verify structural integrity) (paragraph 255a).</p> <p>Network Rail should review its standards and procedures for the design and approval of new and modified bridges, and their</p>	<p>Network Rail has reported that is reviewing its standards and procedures for the design and approval of modified bridges.</p> <p>ORR proposes to take no further action unless they become aware that the information provided becomes inaccurate.</p>

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implementation, and make necessary changes to confirm that:

the designer identifies the parts that need to be periodically inspected in order to verify structural integrity;

the designer designs the works with access to permit examination of such parts;

the checker of the design confirms that the design includes suitable provision for the routine examination of such parts;

designs that do not meet the criteria listed above are not approved for construction; and

procedures for the examination of such works take into account the inspection needs identified by the designer, and the access means provided.

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5            27/01/2009    02/2010  
Derailment of a freight train near Stewarton,  
Ayrshire  
Status: Implemented

The intention of this recommendation is to make improvements to ensure that those responsible for making decisions regarding the structural safety of Network Rail's bridges are suitably informed and have access to a single collection of valid information for each bridge (paragraphs 256a, 256b, 256c, 256d, 256e, 257a, 257b and 257c)

Network Rail should review its processes for the management of bridges, and their implementation, and make changes to confirm that:

a single list referencing the most up-to-date information regarding the history, condition and assessed capacity of each bridge is made available, in an appropriate format, to those making decisions regarding its structural safety;

there is a formal means of alerting Network Rail to urgent findings arising from assessment work;

all decisions regarding exposing hidden critical structural parts during examinations, and the justification supporting these decisions, are included in the bridge records;

the evaluation process includes consideration of the corroded condition of load bearing members, and guidance so that the effects of corrosion are understood and taken into account;

all decisions regarding intervention actions critical to the structural integrity of the bridge, made as a result of an

Network Rail has reported that it has taken actions in response to this recommendation.  
ORR proposes to take no further action unless they become aware that the information provided becomes inaccurate.

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evaluation, or otherwise, are recorded with the bridge records, including a record of the justification for the decision;

the implementation status of any intervention actions that are critical to structural integrity, and any outstanding risk issues, are included in the bridge records; and

any urgent defect reports and the action taken as result, together with the supporting justification, are included in the bridge records.

Paragraphs 266a, 266b, 266c and 266f outline improvements that Network Rail has reported it has already made regarding this.

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6            27/01/2009    02/2010  
Derailment of a freight train near Stewarton,  
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Status: Implemented

The intention of this recommendation is for Network Rail to ensure that the condition of previously recorded outstanding defects in critical structural elements continues to be monitored by the appropriate subsequent examination or inspection (paragraphs 256d and 256e)

Network Rail should review its processes and make necessary changes so that previously reported defects affecting structural integrity that are not reported in subsequent examinations and inspections are identified; the revised processes should be such that all such discrepancies are resolved.

Network Rail has reported that it has taken actions in response to this recommendation.  
ORR proposes to take no further action unless they become aware that the information provided becomes inaccurate.

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7            27/01/2009    02/2010  
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The intention of this recommendation is to establish if the assessment results of other bridges are incorrect because of critical dimensional assumptions, or inadequate allowance for material loss on load bearing members due to corrosion (paragraphs 255b, 257a, 257c and 258).

Network Rail should identify all underbridge assessments where, for load bearing members, there have been reports of severe corrosion that has not been accounted for, or critical dimensions have been assumed, and take suitable steps to secure the safety of trains and the public.

Paragraph 264 outlines work that Network Rail has reported that it is currently doing with regards to this.

Network Rail has reported that it has taken actions in response to this recommendation.  
ORR proposes to take no further action unless they become aware that the information provided becomes inaccurate.

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<p>8            27/01/2009    02/2010</p> <p>Derailment of a freight train near Stewarton, Ayrshire</p> <p>Status: Implemented</p>	<p>The intention of this recommendation is to prevent there being errors in the assessment results of bridges in the future because of critical dimension assumptions or inadequate allowance for material loss on load bearing members due to corrosion (paragraphs 255b, 257a, 257c and 258)</p> <p>Network Rail should review its procedures for the assessment of structures, and make necessary changes, to:</p> <p>forbid the use of key dimensional information for load bearing members that has not been verified, either on site, or from as-built drawings; and</p> <p>specify the criteria for when the corroded condition of load bearing members must be assessed.</p> <p>Paragraph 266e outlines enhancements that Network Rail has reported it has already made regarding this.</p>	<p>Network Rail has reported that it has taken actions in response to this recommendation.</p> <p>ORR proposes to take no further action unless they become aware that the information provided becomes inaccurate.</p>
<p>9            27/01/2009    02/2010</p> <p>Derailment of a freight train near Stewarton, Ayrshire</p> <p>Status: Implemented</p>	<p>The intention of this recommendation is that appropriate action is taken in the event of future reports of urgent defects on bridges (paragraph 256d and 257c)</p> <p>Network Rail should review its procedures for the management of structures, and their implementation, and make changes to confirm that reports of urgent defects are:</p> <p>reliably delivered to the correct personnel; and</p> <p>used to develop and implement appropriate actions.</p> <p>Paragraph 266c outlines improvements that Network Rail has reported it has already made regarding this.</p>	<p>Network Rail has reported that it has reviewed its processes for managing urgent defects on bridges.</p> <p>ORR proposes to take no further action unless they become aware that the information provided becomes inaccurate.</p>
<p>10           27/01/2009    02/2010</p> <p>Derailment of a freight train near Stewarton, Ayrshire</p> <p>Status: Implemented</p>	<p>The intention of this recommendation is to take advantage of information that is already recorded for track maintenance purposes so that Network Rail can use the information to alert its staff to potential structural issues with railway underbridges; this recommendation is an extension of recommendation 4 that RAIB made following its investigation of a freight train derailment on 25 January 2008 at Santon, near Foreign Ore Branch Junction, Scunthorpe42 (paragraph 260).</p> <p>Network Rail should evaluate the feasibility of using the track geometry data recorded by its track measurement trains so that trends can be seen that could be used to identify underbridges that may have degraded to an unsafe condition. If reasonably</p>	<p>Network Rail have carried out the evaluation in response to this recommendation and concluded that it is not reasonably practicable to use track geometry data recorded by measurement trains in the way envisaged by the recommendation. Network Rail propose no further action.</p> <p>ORR proposes to take no further action unless they become aware that the information provided becomes inaccurate.</p> <p>The RAIB is concerned that measurement trains provide useful data that could give an early indication of a structural failure. While noting the conclusion of Network Rail's evaluation the RAIB is urging the industry to find ways of making maximum use of data collected by measurement trains.\$</p>

practicable, it should develop and implement appropriate analysis tools and processes and make these available to engineers responsible for the management of structures and track.

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11            27/01/2009    02/2010  
Derailment of a freight train near Stewarton,  
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The intention of this recommendation is to improve the construction of existing tank wagons registered in Great Britain in order to mitigate the risk of leakage resulting from damage to external fittings in accident scenarios (paragraph 259a).

Network Rail's Private Wagons Registration Agreement Management Group, and the owners of other dangerous goods tank wagons registered in Great Britain (DB Schenker) should review the design of tank wagons, for which they are responsible, to evaluate measures (including shrouding) that could be taken to protect external equipment, such as pressure and vacuum valves, against damage in the event of overturning and derailment. Where reasonably practicable, Network Rail's Private Wagons Registration Agreement Management Group and DB Schenker should take action to ensure that the external equipment is adequately protected in the event of overturning and derailment.

All owners of tank wagons have reviewed the design to evaluate measures that could be taken to protect external equipment, in general they have concluded that their existing designs protect the necessary equipment or that the cost of modification is disproportionate to the safety benefit. ORR has also informed the RAIB that following assessments by owners, one fleet of tank wagons is now undergoing modifications in order to provide additional protection to valves in the event of derailment or overturning.

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12            27/01/2009    02/2010  
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The intention of this recommendation is to improve the construction of new tank wagons in order to mitigate the risk of leakage resulting from tank damage in accidents (paragraph 259b).

The UK competent authority for dangerous goods, the Department for Transport, should evaluate the case for extending the requirement for end protection measures on rail tank wagons to cover a wider range of liquid products. The combined benefit to both safety and the environment shall be taken into consideration when assessing the cost implications of this extension. If the case is valid, the Department for Transport should make a proposal for a requirement change to the committee responsible for the RID regulations.

The requirements in the current version of the RID regulations regarding end protection are outlined in paragraph 246.

DfT submitted a paper to an international committee of experts. This committee considered that there is no case for extending the requirement to end protection measures to a wider range of liquid products. ORR proposes to take no further action unless they become aware that the information provided becomes inaccurate.